EFFECTS OF LAND USE ON BUTTERFLY (LEPIDOPTERA: NYMPHALIDAE) ABUNDANCE AND DIVERSITY IN THE TROPICAL COASTAL REGIONS OF GUYANA AND AUSTRALIA

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DEDICATION

I dedicate this thesis to my wife, Alliea, and to our little girl who is yet to make her first appearance in this world.

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Effects of Land Use on Butterfly (Lepidoptera: Nymphalidae) Abundance and Diversity in the Tropical Coastal Regions of Guyana and Australia

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General Abstract

Tropical forests are home to more than 50% of documented terrestrial species and provide vital ecosystem services that improve the quality of life for humankind. However, forested landscapes are being converted at an alarming rate due to expanding human populations and their associated needs and demands. The creation of urban settlements and agricultural plots to house and feed this population generally contributes to the destruction of species and habitats that are essential for the provision of these ecosystem services. There are numerous organisms that provide these ecosystem services and it is unclear how these conversions (agriculture and urban) are affecting one of the most abundant and diverse groups of organisms, insects. Given that insects make up more than half of all documented terrestrial animals, it is impossible to investigate all insects, so I chose a representative group, butterflies, to investigate the conservation impacts of these land management practices. In addition to their sensitivity to changes in habitat quality and importance for the functioning of many ecosystems, butterflies have relatively quick generational turnover, are well distributed, and are easy to sample and identify.

In this doctoral thesis, I investigated butterfly communities within agricultural (sugarcane) fields, urban settlements and forested areas in coastal sections of Guyana, South America, and the Wet Tropics Bioregion of Queensland, Australia. Specifically, I compared the abundance, richness, evenness, and diversity of butterflies within the above land management practices to evaluate the conservation potential of the modified landscapes. To conduct the respective ecological surveys in both countries, I established three 1 km transects in each of the land management practices. The transects were randomly placed and

separated by at least 1–1.5 km from each other. Fruit-baited traps were placed along the transects, starting at the 0 km marker, separated by 100 m, and ending at the 1 km marker, for a total of 11 traps per transect. The traps were monitored monthly for one year to capture any seasonal trends that may exist. During the surveys in Guyana, butterflies were collected, identified and deposited in the national specimen repository (at the Centre for the Study of Biological Diversity) so as to add to the documentation of species present. In Australia, species were caught, identified and released at the trap sites (this catch-and-release method was used since Australia's butterfly diversity is well documented). I used the data from my Guyana trapping, along with comprehensive evaluation of published records over the last 153 years to develop a country checklist of butterfly species present in Guyana. This greatly improved local knowledge, which was based on the most recent checklist published in 1939. To enhance the ecological surveys and to assess people's willingness to contribute to butterfly conservation, I also conducted social surveys via semi-structured interviews with urban residents who lived on or adjacent to the property containing one of my butterfly traps.

As hypothesised, distinct groups of butterflies occupied the respective land management practices, with forests in both Guyana and Australia supporting the highest butterfly abundances. Species richness and Simpson's biodiversity index were also highest in forests in Guyana. In contrast, sugarcane and urban areas had the highest evenness in Guyana and Australia, respectively, which demonstrates the potential for conservation at local scales in human-modified landscapes. Furthermore, non-metric multidimensional scaling analysis demonstrated that each landscape in Guyana supported a distinct butterfly community, suggesting that butterfly conservation in human-modified landscapes may target species rarely found in forest habitats.

Unexpectedly, in Australia sugarcane farms supported the highest species richness of the three land uses, while species richness was lowest in the forests. This high species richness compared to Guyana farms may be due to the specific management practices used in Australian sugarcane production systems, including green harvesting and fallow schedules, mowing regime, high nutrient input and maintenance of riparian vegetation. There is growing appreciation for beta diversity, which describes the variation in community composition across space or time, and recent evidence suggests it may be highly influenced by human activity. Therefore, I compared this type of diversity (as measured by Whittaker's and Jost's metrics) among the three land uses in Australia. Whittaker's diversity was highest in forests whereas Jost's was highest in urban areas. I attribute this to greater variation in plant composition across these two habitat types relative to sugarcane farms and emphasise the importance of conserving natural areas within forests as well as urban green spaces.

The social surveys suggested that residents that were interested in learning more about butterflies, lived in areas with relatively scarce butterfly populations, and identified the benefits of butterflies were more willing to contribute to butterfly conservation. These trends were constant across both countries. Several conservation options were identified, with the majority of residents expressing a willingness to contribute in at least one way to butterfly conservation. These results suggest that to improve biological conservation, it is crucial to design activities or programs that target local enthusiasm, describe the benefits of focal species, and identify areas of local scarcity. Doing this can allow for the active involvement of residents and ensure the continuity of such initiatives which could, in turn, allow for the conservation of butterflies in human-modified spaces.

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CHAPTER 1: GENERAL INTRODUCTION

1.1 Background

Globally, the rate of net forest loss has decreased in recent years (FAO 2016) but remaining tropical forests are likely to continue declining due to an expanding human population and the associated needs and demands. Tropical countries human populations is the fastest growing and is projected to increase by an additional 2 billion by 2030 (UN 2004). Conversion of forests for agriculture and urbanisation will continue to be major driving forces of tropical forest loss (DeFries et al. 2010, FAO 2016). This is concerning since tropical forest ecosystems house approximately two-thirds of global terrestrial biodiversity and provide goods and services that are crucial to human wellbeing (Gardner et al. 2009, Laurance et al. 2014). Traditional conservation of these critical areas has generally focused on the protection of biodiversity in remote areas (McCance et al. 2017), but this is especially difficult to practice in the tropics where landscapes are considerably modified by expanding human populations (Gardner et al. 2009) and has had the fastest rate of conversion (FAO, 2016). Given that human-modified landscapes are continuing to expand, there is a need to incorporate human population expansion in conservation planning.

It is difficult for conservation efforts to focus on all species, especially with limited resources for monitoring (Bonebrake et al. 2010). Therefore, charismatic species are often used to assist in the marketing of conservation. Butterflies are a socially popular group of organisms, with many people finding them aesthetically pleasing (Fleishman and Murphy 2009), therapeutically valuable (Schlegel et al. 2015, Meyer-Rochow 2017) and/or educationally useful (Matthews et al. 1997, Boppré and Vane-Wright 2012). They can be used in economic ventures such as butterfly farming (Sambhu and van der Heyden 2010, van der Heyden 2011) and tourism (Monterrubio et al. 2013, Eshun et al. 2014), as well as to inspire the creations of artists, architects, scientists, engineers, etc. (Ripley and Bhushan 2016). Butterflies are also suitable subjects for conservation studies as they are sensitive to environmental changes, have relatively quick generational turnover, are well distributed, and are easy to sample and identify (Thomas 2005, Bonebrake et al. 2010). Ecologically, they provide a range of services that are critical to the functioning of many ecosystems, including pollination (Obute 2010, Ghazanfar et al. 2016, Rader et al. 2016), herbivory (Hernández et al. 2014, Hashimoto and Ohgushi 2017) and serve as food sources for other organisms (Ghazanfar et al. 2016). Approximately 90% of all documented butterflies are found in the tropics, but little is known about their ecology compared to temperate species (Bonebrake et al. 2010, Basset et al. 2012). Such data gaps are often present in many tropical countries and can result in the ineffective management of biodiversity (Wilson et al. 2016). In addition to the lack of ecological data, society's perception of biodiversity and conservation can also prove to be a rate limiting step. So, here, I consider the effects of human landscape modification on butterfly conservation, and evaluate patterns in public support for butterfly conservation in tropical Guyana and Australia.

1.2 Thesis Scope and Structure

This doctoral thesis investigates patterns of butterfly abundance, richness, evenness and diversity in three different land management types (urban, agriculture and forest) in two tropical locations: sections of the 1) coastal belt of Guyana, South America, and 2) coastal Wet Tropics bioregion of Queensland, Australia. Apart from sharing similar climate, both locations have strong agricultural industries, with sugarcane serving as one of the main crops produced in each location. However, these countries differ greatly in their economic development (GDP per capita for 2016 = US$4,529 and US$49,928 for Guyana and Australia, respectively, The World Bank Group 2017), and geographic location (Neotropical versus Indo-Pacific).

The following criteria were used to identify suitable sample sites within each land management practice: 1) human population greater than 1000 persons per 10 km^2 in urban areas, 2) sugarcane monoculture plantations greater than 10 km^2 in agricultural areas, and 3) forested areas greater than 10 km^2. Butterflies were sampled for twelve months in each location so as to account for seasonality. Fruit-baited traps were used to obtain butterfly abundance and richness data, from which the other biodiversity measures were extrapolated. In addition to the ecological surveys, social surveys were conducted in each location over the respective 12-month sampling periods. Semi-structured interviews were used to investigate people's knowledge and perceptions of butterflies. Urban residents within the selected sample sites were the subjects of these surveys.

Knowledge of Australian butterflies is extensive and considerably more so than in Guyana's case. Details of their distribution, biology, life history, status and food plants are well documented by Braby (2004, 2016). So I wanted to compare the influence of such knowledge base, Australia - where there is extensive documentation, and Guyana - where there is little or scattered documentation. This research provides a deeper understanding of how anthropogenic activities impact on butterflies in both countries and creates opportunities for sharing of lessons learnt between them. To improve the general butterfly knowledge in Guyana, I first developed a checklist for butterflies by compiling butterfly records over the last 153 years to serve as a baseline. Once this checklist was compiled, I could better consider patterns of butterfly abundance in Guyana.

This thesis is organised into six chapters: the introduction; a chapter comprising a checklist of butterflies in Guyana, which has been published by a taxonomic peer-reviewed journal; three chapters based on empirical data (of which one has been published by an international entomological peer-reviewed journal, one is under review by another international ecological peer-reviewed journal, and the third has been prepared for submission to an international sociological peer-reviewed journal); and a general concluding chapter. Since each of the following four chapters has been prepared as an independent publication, there are some necessary repetitions in the introduction and methods sections of some chapters, particularly for the ecological chapters. Below are the summaries of the findings of these chapters as well as their publication status.

1.3 Summary of Chapter 2

In contrast to the wealth of knowledge available for Australian butterflies, there has historically been no comprehensive source for the occurrence or distribution of Guyana butterflies, despite butterfly records for Guyana dating back to the 19th century. Unfortunately, these records are scattered across various organisations/institutions within and external to Guyana, such as British records during the colonisation process. Accessing some of these records is sometimes a protracted process and the lack of information can hinder the progress and/or quality of an ongoing research investigation or the development of natural resource management plans. Therefore, for this chapter, I developed a comprehensive list of butterfly species that have been observed or collected over 153 years from different locations within Guyana. Compiling this information included searching through records dating back to 1864, searching published records, corresponding with authors of checklists for neighbouring countries, and compiling records from my own research. I also document butterflies that have been collected in neighbouring countries right along the border and that may also exist in Guyana.

Based on: Sambhu, H., and A. Nankishore. 2018. Butterflies (Lepidoptera) of Guyana: a compilation of records. *Zootaxa*, 4371(1): 1–187. http://dx.doi.org/10.11646/zootaxa.4371.1.1

1.4 Summary of Chapter 3

This chapter focuses on the findings of a twelve-month ecological survey conducted along a section of Guyana's coastal belt. I compared butterfly populations across the three land management practices (secondary forest, sugarcane and urban) and evaluated the potential for particular butterfly communities to inhabit human-modified landscapes. I used non-metric multidimensional scaling to assess differences in species assemblages, and a generalised linear mixed model was used to evaluate abundance, species richness, evenness, and diversity. The forest sites supported higher butterfly abundance and Simpson's diversity when compared to the human-modified landscapes. However, human-modified landscapes (urban and sugarcane) were still supportive of butterfly communities comprising species rarely found in forests, indicating that conservation efforts should also encourage activities in modified landscapes that can assist with biodiversity enhancement.

Based on: Sambhu, H., T. Northfield, A. Nankishore, A. Ansari, and S. Turton. 2017. Tropical rainforest and human-modified landscapes support unique butterfly communities that differ in abundance and diversity. *Environmental Entomology*, 46(6): 1225–1234. http://dx.doi.org/10.1093/ee/nvx129

1.5 Summary of Chapter 4

This chapter focuses on the findings of a twelve-month ecological survey conducted along a section of the Wet Tropics bioregion of Queensland, Australia. Similar to the survey in Guyana, butterfly populations were compared across the three land management practices. I used a generalised linear mixed model to evaluate abundance, species richness and evenness. Additionally, Whittaker's and Jost's measures of beta diversity were used to determine the extent of change in community composition. Sugarcane and urban areas supported higher species richness and evenness, respectively, demonstrating the potential for conservation at local scales in human-modified landscapes. In contrast, beta diversity was highest in forest or urban areas, depending on the metric used, likely driven by variation in plant composition across these two habitat types. These results suggest that it is possible to conserve high numbers of butterflies in human-modified landscapes like sugarcane farms. However, my findings also suggest that it is important to conserve multiple natural areas such as forests and remnant green spaces in urban environments, due to the variation in plant and animal species supported by these habitats.

<u>Based on</u>: Sambhu, H., A. Nankishore, S. Turton, and T. Northfield. (In review). Trade-offs for butterfly alpha and beta diversity in human-modified landscapes and tropical rainforests. *Ecology and Evolution*.

1.6 Summary of Chapter 5

This chapter focuses on the findings of the sociological surveys of urban residents in both Guyana and Australia. I used a combination of social and ecological independent variables to construct a classification tree model to explain residents' willingness to contribute to butterfly conservation. The model showed that the majority of residents would be willing to contribute in at least one way to butterfly conservation, and that three of the independent variables influenced their inclination to contribute: (1) their willingness to learn more about butterflies, (2) local butterfly abundance, and (3) their knowledge of butterfly benefits to the community. The influence of these three variables highlights the role of people's perceptions in their decision-making as it relates to conservation. Thus, I emphasise the need for effective education activities or programs that can strategically enhance people's perceptions.

Based on: Sambhu, H., A. Nankishore, T. Northfield, and A. Diedrich. (In preparation for submission as a research note). Perceptions of butterflies in an urban setting: implications for biodiversity conservation. *Society and Natural Resources*.

CHAPTER 2: BUTTERFLIES (LEPIDOPTERA) OF GUYANA: A COMPILATION OF RECORDS

2.1 Abstract

An examination of the available literature shows that a total of 1,205 butterfly species from 457 genera, 22 subfamilies and six families have been recorded in Guyana. Specimens that are unidentified above genus level and those that require further verification are excluded from this checklist. Although investigations have been conducted in all of the natural regions and administrative regions of Guyana, additional research is required on a number of aspects including species biology and behavioral ecology. It is hoped that this list will facilitate research on such data gaps.

Key words: butterfly diversity, checklist, , insects, neotropical, south america.

2.2 Introduction

Butterflies are terrestrial, diurnal/crepuscular insects belonging to the order Lepidoptera. They are primarily herbivores during the caterpillar stage of their life cycle, consuming foliage and extracting nutrients for development to the pupal stage. During this period, their excrements add to nutrient cycles within ecosystems and other organisms (e.g., plants) benefit. Adults are predominantly pollinators and, like caterpillars, are also a source of nutrients for other organisms (e.g., ants, spiders, birds, lizards, etc.) that prey on them. At the adult stage, butterflies are aesthetically pleasing to people. Additionally, the various forms and colours have been influential in the fashion and marketing industries, and have helped to shape the way people think (e.g., "the butterfly effect"). Because of these features and many more, butterflies are widely studied.

Records of investigation of butterflies within Guyana date back as far as the 19th century and continue to present day. Additionally, these records indicate that investigations were conducted within the four natural regions and ten administrative regions of Guyana, from as low as 8 m below sea level to as high as 1,676 m above sea level. However, they are dispersed within various organisations in Guyana as well as abroad within host organisations of visiting researchers. Most of these documentations are in the form of field reports, organisation reports and unpublished lists. This paper aims to present a checklist of butterfly species documented in Guyana.

2.3 Methods

This checklist was developed by collecting names of documented butterfly species emanating from journal articles, personal observations, Environmental Impact Assessments (EIAs), research work conducted by the Darwin Initiative Butterfly Project, researchers'/naturalists' reports/observations, the catalogue and collection of specimens at the Centre for the Study of Biological Diversity (CSBD, University of Guyana/UG), and the online database of Butterflies of America, the Smithsonian National Museum of Natural History of the United States of America (USA), and the Natural History Museum of London. The authors would like to emphasise to readers that this is a list of names coming from the above mentioned sources, and all identifications could not be confirmed (e.g., observations from visual encounter surveys, old records of specimens that have deteriorated, and specimens housed in various locations outside of Guyana that were costly to access). However, various regional expertise were consulted to verify the accuracy of these records as well as the species identities of those that had photographic evidence. Additionally, this list is not a true representation of all butterfly species found in Guyana as there are many unexplored areas in the country, limited research efforts and unidentified collected specimens.

The information presented in this paper is grouped according to a specific format. Localities, where known, are broadly grouped within the ten administrative regions of Guyana (Table 2.1). Families, subfamilies, genera and species are listed alphabetically within the checklist, with the following details included for each species listed: 1. valid name; 2. authority; 3. locality/localities documented, where available; 4. date/year/period of collection/observation, where available; 5. collector/observer name/names, where available; and 6. reference/references. Records were listed alphabetically instead of phylogenetically to allow for easier reading as this is primarily a listing of species. In the interest of maintaining a consistent format, subspecies were not included in this checklist since some collectors/observers did not mention what subspecies they collected/observed. Localities and collector/observer names are coded for conciseness (refer to Tables 2.1 and 2.2 for keys to the codes used in this chapter). Where species were documented in more than one locality, the respective details are listed chronologically. Where the date of collection/observation is unknown, details are listed alphabetically according to locality, if this is known, or are superseded by other records that include locality and/or date. The general note "no data available" is used for conciseness where 1) locality, date of collection/observation and collector/observer name/names are not available, or where 2) date of collection/observation and collector/observer name/names are not available. For specimens whose identities required and received further confirmation, the initials of the individual/individuals who confirmed the identities (via photographs) are placed in square brackets after collector/observer initials.

Table 2.1. Localities in which butterflies were collected/observed within Guyana. The administrative region in which each locality occurs is identified below, and the locality codes that are used in the main text are linked to the full names of places of collection/observation.

Code	Place of collection/observation within administrative region	Administrative region
1ST FL	First Falls, Essequibo River	Upper Takutu-Upper Essequibo
2HAT M	Two Hat Mt., eastern Kanukus, south Rupununi, southern slope (305–800 meters elevation; 3º2.3'N 59º7.3'W)	Upper Takutu-Upper Essequibo
2HTMB	Two Hat Mt., eastern Kanukus, south Rupununi, southern slope (244–366 meters elevation; 3º2.3'N 59º7.3'W & 3º6.8'N 59º5.9'W)	Upper Takutu-Upper Essequibo
2HTMC	Two Hat Mt., Rupununi Savannah, near Shea Rock (152–305 meters elevation; 2º49.9'N 59º9.1'W & 2º57'N 59º8.9'W)	Upper Takutu-Upper Essequibo
2HTMD	Two Hat Mt., eastern Kanukus, south Rupununi, southern slope (701–792 meters elevation; 3º8.8'N 59º6.9'W)	Upper Takutu-Upper Essequibo
2HTME	Two Hat Mt., eastern Kanukus, south Rupununi (850–1,200 meters elevation)	Upper Takutu-Upper Essequibo
3 FR MN	3 Friends Mine, Demerara River	Upper Demerara-Berbice
ACA MT	Acarai Mts. (610–762 meters elevation; 1º21.3'N 58º57.4'W), Sipu River	Upper Takutu-Upper Essequibo
ACB MT	Acarai Mts./Ridge (762–1,128 meters elevation; 1º20'N 58º57'W), Sipu River	Upper Takutu-Upper Essequibo
ACC MT	Acarai Mts./Ridge (762–914 meters elevation; 1º22.2'N 58º57.91'W), Sipu River	Upper Takutu-Upper Essequibo
ADEL R	Adel's Rainforest Resort, Akawini River (7º25.2342'N 58º40.398'W)	Pomeroon-Supenaam
AKYMA	Akyma	Upper Demerara-Berbice
ALBIO	Albion	East Berbice-Corentyne
AMSTE	Amsterdam, Demerara River	
ANNAI	Annai (3º56'N 59ºW)	Upper Takutu-Upper Essequibo
ANUND	Anundabaru, Potaro River (610 meters elevation)	Potaro-Siparuni

ARA MT	Aranaputa Mt.	Upper Takutu-Upper Essequibo
ARIM R	Arimu River	Cuyuni-Mazaruni
ARROW	Arrowpoint Nature Resort	Demerara-Mahaica
ARUKA	Aruka River, North-west District	Barima-Waini
ATT JL	Atta Jungle Lodge, Iwokrama Reserve, North Rupununi (4º31.1562'N 58º46.2975'W)	Potaro-Siparuni
AU CON	Aurora concession, Guyana Goldfields Inc.	Cuyuni-Mazaruni
BAR RI	Barima River	Barima-Waini
BARAC	Baracara, near Kartabo	Cuyuni-Mazaruni
BARAM	Baramita, North-west District	Barima-Waini
BAR TR	Bartica Trail, near Kartabo	Cuyuni-Mazaruni
BARTI	Bartica (6º24'N 58º37'W)	Cuyuni-Mazaruni
BERBI	Berbice	East Berbice-Corentyne
BER RI	Berbice River	East Berbice-Corentyne
BET HP	Better Hope, Essequibo Coast	Pomeroon-Supenaam
BIR CK	Biribill Creek, Lower Cuyuni River (46 meters elevation; 6º36'N 58º58'W)	Cuyuni-Mazaruni
BRA GY	Brazil-Guyana boundary	
BROTH	Brotherson	East Berbice-Corentyne
BURRO	Burro Burro	Upper Takutu-Upper Essequibo
CAB RD	Caburi Road, Bartica	Cuyuni-Mazaruni
CAN IW	Canopy walkway, Iwokrama forest	Potaro-Siparuni
CAN N1	Canal Number 1, West Bank Demerara	Essequibo Islands-West Demerara
CANEG	Cane Grove (43 meters elevation; 6º37.27'N 57º55.8'W)	Demerara-Mahaica
CANJE	Canje	East Berbice-Corentyne
CEIBA	CEIBA Biological Centre, Madewini (6º29.93'N 58º13.11'W)	Demerara-Mahaica
CHARI	Charity, Essequibo Coast	Pomeroon-Supenaam
CHE SA	Chenapowu to Saveritik	Potaro-Siparuni
CHK HL	Chalk Hill, Essequibo	Pomeroon-Supenaam
CHRIS	Christianburg, Demerara River	Upper Demerara-Berbice
COVER	Coverden, Demerara River	Demerara-Mahaica
CP JAG	Camp Jaguar, New River Triangle	East Berbice-Corentyne
CRAIG	Craig, East Bank Demerara	Demerara-Mahaica
CUM VI	Cummings Lodge, East Coast Demerara	Demerara-Mahaica
CUY RI	Cuyuni River	Cuyuni-Mazaruni
DAWA P	Dawa, Lake Tapakuma (100 meters elevation)	Pomeroon-Supenaam
DEMER	Demerara (6º48'N 58º10'W)	Demerara-Mahaica
DEM RB	Demerara River	Demerara-Mahaica & Mahaica-Berbice
DEM RC	Demerara River	Upper Demerara-Berbice
DEM RI	Demerara River	Demerara-Mahaica
ENA CK	Enachu Creek	Cuyuni-Mazaruni
ENA MM	Enachu, Middle Mazaruni (76 meters	Cuyuni-Mazaruni

	elevation; 6º10'N 60º02'W)	
ESSE R	Essequibo River	
ESSEQ	Essequibo	
FAI VI	Fairview	Potaro-Siparuni
FO SIP	Lowland forest along Sipu River, Acarai Mts. (274–762 meters elevation; 1º23.2'N 58º56.8'W)	Upper Takutu-Upper Essequibo
FORT A	Fort Akayma	Unknown
FRIEN	Friendship, East Bank Demerara	Demerara-Mahaica
FREN B	Friendship	East Berbice-Corentyne
GAR BG	Garraway Bridge	Potaro-Siparuni
GEORG	Georgetown (24 meters elevation; 6º48.60'N 58º8.51'W)	Demerara-Mahaica
GOL FL	Golden Fleece, Essequibo Coast	Pomeroon-Supenaam
GRO CK	Groete Creek, Essequibo River	Essequibo Islands-West Demerara
GRT FL	Great Falls	
HALCO	Halcrow and Guyana Sugar Corporation conservancies, Skeldon	East Berbice-Corentyne
HOSSO	Hossororo, North-west District	Barima-Waini
HRE VI	High Reef	East Berbice-Corentyne
IDA SA	Ida Sabina	Upper Demerara-Berbice
INL ER	225,308 meters inland Essequibo River (5º15'N 58º40'W)	Upper Demerara-Berbice
IRENG	Ireng	Upper Takutu-Upper Essequibo
IRG GF	Rich grass zone bordering Ireng gallery forest	Upper Takutu-Upper Essequibo
IW CCK	Iwokrama forest near Corkwood Creek	Potaro-Siparuni
IWOKR	Iwokrama Rainforest Reserve	Potaro-Siparuni
IWO MT	Iwokrama Mt. (747–960 meters elevation; 4º19.82'N 58º47.91'W)	Potaro-Siparuni
IW MT A	Iwokrama Mt. (76–260 meters elevation; 4º19.82'N 58º47.91'W)	Potaro-Siparuni
IW MT B	Iwokrama Mt. (259–747 meters elevation; 4º19.82'N 58º47.91'W)	
JAG RK	Jaguar Rock, Surama Mt.	Upper Takutu-Upper Essequibo
JAWAL	Jawala	Cuyuni-Mazaruni
KA GO B	Kaieteur Gorge (100 meters elevation; 4º47'N 59º17'W)	Potaro-Siparuni
KA GO C	Kaieteur Gorge (400 meters elevation)	Potaro-Siparuni
KA GO D	Kaieteur Gorge (250 meters elevation)	Potaro-Siparuni
KA MT A	Kanuku Mts., Nappi Mt. (457–823 meters elevation; 3º18.8'N 59º33.9'W)	Upper Takutu-Upper Essequibo
KA MT B	Kanuku Mts., Nappi Mt. (305–457 meters elevation; 3º19.5'N 59º33.5'W)	Upper Takutu-Upper Essequibo
KAIET	Kaieteur (61–137 meters elevation; 5º14'N 59º33'W & 5º10'N 59º29'W)	Potaro-Siparuni

KAI GO	Kaieteur Gorge (152 meters elevation; 4º47'N 59º17'W)	Potaro-Siparuni
KAI SA	Kaieteur Savannah and environs	Potaro-Siparuni
KALAC	Kalacoon, near Kartabo	Cuyuni-Mazaruni
KAM FA	Kamaria Falls (610 meters elevation), Cuyuni River	Cuyuni-Mazaruni
KAM FB	Kamaria Falls (30 meters elevation; 6º24'N 58º54.6'W), Cuyuni River	Cuyuni-Mazaruni
KAM RG	Kamaria Range	Cuyuni-Mazaruni
KAM RI	Kamarang River	Cuyuni-Mazaruni
KAMAK	Kamakusa	Cuyuni-Mazaruni
KAMAR	Kamarang	Cuyuni-Mazaruni
KAN MT	Kanuku Mts.	Upper Takutu-Upper Essequibo
KANGA	Kangaruma	Potaro-Siparuni
KARAN	Karanambu	Upper Takutu-Upper Essequibo
KARIS	Karisparu (4º52'N 59º29'W)	Potaro-Siparuni
KARTA	Kartabo Point, Bartica	Cuyuni-Mazaruni
KASSI	Kassikaityu	Upper Takutu-Upper Essequibo
KATO	Kato	Upper Takutu-Upper Essequibo
KING F	King Frederick William IV Falls, Upper Corentyne	East Berbice-Corentyne
KIT BC	Kitty Beach	Demerara-Mahaica
KITTY	Kitty	Demerara-Mahaica
KOAT R	Koatse River, Mt. Ayanganna (762–1,006 meters elevation; 5º26.0'N 60º00.4'W)	Cuyuni-Mazaruni
KONAW	Konawaru, Potaro River	Potaro-Siparuni
KUIEW	Kuiewa River, Mt. Ayanganna (762–1,006 meters elevation; 5º26.0'N 60º00.4'W)	Cuyuni-Mazaruni
KURUP	Kurupukari	Potaro-Siparuni
KUTAR	Kutari River	East Berbice-Corentyne
KUYU R	Kuyuwini River	Upper Takutu-Upper Essequibo
KWATA	Kwatamang	Upper Takutu-Upper Essequibo
LARIM	Larimakabra	Essequibo Islands-West Demerara
LBI CA	La Bone Intention sugarcane fields	Demerara-Mahaica
LBI VI	La Bonne Intention, East Coast Demerara	Demerara-Mahaica
LICHF	Lichfield, West Coast Berbice	Mahaica-Berbice
LINDN	Linden (52 meters elevation; 5º59.38'N 58º17.6'W)	Upper Demerara-Berbice
LO CUY	Lower Cuyuni (30 meters elevation; 6º34'N 58º58'W & 6º35'N 58º58'W)	Cuyuni-Mazaruni
LO ESS	Lower Essequibo River	
LO MAZ	Lower Mazaruni (6º25'N 58º43'W)	Cuyuni-Mazaruni
MABAR	Mabaruma (8º12'N 59º47'W)	Barima-Waini
MABUR	Mabura	Upper Demerara-Berbice
MACKE	Mackenzie	Upper Demerara-Berbice

MAH CK	Mahdia Creek, Potaro River (122 meters elevation)	Potaro-Siparuni
MARLI	Marlissa	Upper Demerara-Berbice
MARSH	Marshall Falls, Mazaruni (91 meters elevation)	Cuyuni-Mazaruni
MARUD	Marudi Mt., Rupununi District	Upper Takutu-Upper Essequibo
MATOP	Matope	Cuyuni-Mazaruni
MAZ PS	Mazaruni Penal Settlement	Cuyuni-Mazaruni
MAZ RI	Mazaruni River	Cuyuni-Mazaruni
MAZ TR	Mazaruni Trail, near Kartabo	Cuyuni-Mazaruni
MID MZ	Middle Mazaruni	Cuyuni-Mazaruni
MOKO M	Moko-Moko River	Upper Takutu-Upper Essquibo
MON VI	Mon Repos, East Coast Demerara	Demerara-Mahaica
MOR CK	Moraballi Creek, Essequibo River	Cuyuni-Mazaruni
MR 1ST	Mt. Roraima, northern slope (800 meters elevation; 1st camp, 5º17'N 60º45'W)	Cuyuni-Mazaruni
MR 2ND	Mt. Roraima, northern slope (1,300 meters elevation; 2nd camp, 5º16'N 60º44'W)	Cuyuni-Mazaruni
MR 3RD	Mt. Roraima (2,700 meters elevation)	Cuyuni-Mazaruni
MT AYA	Mt. Ayanganna	Cuyuni-Mazaruni
MT AY B	Mt. Ayanganna (1,006–1,372 meters elevation; 5º24.1'N 59º57.4'W)	Cuyuni-Mazaruni
MT AY C	Mt. Ayanganna (1,372–1,676 meters elevation)	Cuyuni-Mazaruni
MT AY D	Mt. Ayanganna, lower montane forest	Cuyuni-Mazaruni
MT AY E	Mt. Ayanganna (914–1,219 meters elevation) lower montane forest	Cuyuni-Mazaruni
MT AY F	Mt. Ayanganna (1,120 meters elevation; 5º22.22'N 59º57.34'W & 5º24.1'N 59º57.4'W)	Cuyuni-Mazaruni
MT AY G	Mt. Ayanganna (488–792 meters elevation)	Cuyuni-Mazaruni
MT ROR	Mt. Roraima	Cuyuni-Mazaruni
MT WK A	Tree fall gap, Mt. Wokomung's montane forest (approximately 1,448 meters elevation)	Potaro-Siparuni
MT WK B	Wokomung range	Potaro-Siparuni
MT WK C	Mt. Wokomung (below 1,067 meters elevation)	Potaro-Siparuni
MT WK D	Mt. Wokomung tepui (1,524 meters elevation)	Potaro-Siparuni
MT WK E	Mt. Wokomung (1,067–1,433 meters elevation)	Potaro-Siparuni
N63 VI	Number 63	East Berbice-Corentyne
N72 VI	Number 72	East Berbice-Corentyne
NEW AM	New Amsterdam (9 meters elevation; 6º14.5'N 57º31.22'W)	East Berbice-Corentyne
NEW RI	New River	East Berbice-Corentyne
NEW RT	New River Triangle	East Berbice-Corentyne
NIG VI	Nigg	East Berbice-Corentyne
NONPA	Non Pareil, East Coast Demerara	Demerara-Mahaica

NAP CK	Nappi Creek, Kanuku Mts. (152–305 meters elevation; 3º20.7'N 59º34.2'W)	Upper Takutu-Upper Essequibo
NAP MT	Open area/on secondary vegetation on Nappi Mt. (610 meters elevation)	Upper Takutu-Upper Essequibo
NP MT B	Nappi Mt., Kanuku Mts. (823–1,006 meters elevation; 3º18.8'N 59º33.9'W)	Upper Takutu-Upper Essequibo
NR HAI	Upland Savannah near Haieka River (838 meters elevation; 5º27.0'N 60º9.7'W)	Cuyuni-Mazaruni
NR KAM	Near Kamoa River, Upper Essequibo River (259 meters elevation)	
NR KAN	Near Kangu River, Mt. Ayanganna (762–1,006 meters elevation, 5º26.0'N 60º00.4'W)	Cuyuni-Mazaruni
NR TUM	Near Tumatumari (113 meters elevation; 5º16.58'N 59º9.3'W)	Potaro-Siparuni
OGLE	Ogle	Demerara-Mahaica
OKO MT	Oko Mts., Arawak Matope Creek (30–152 meters elevation)	Cuyuni-Mazaruni
OMAI	Omai (5º25'N 58º45'W)	Upper Demerara-Berbice
OR NRI	Confluence Oronoque and New River	East Berbice-Corentyne
OREAL	Orealla	East Berbice-Corentyne
ORO RI	Oronoque River, near the Brazilian frontier	Upper Takutu-Upper Essequibo
PAKAR	Pakaraima	Cuyuni-Mazaruni
PAR PK	Parish's Peak, East Berbice	Upper Demerara-Berbice
PARAD	Paradise, Berbice River	Upper Demerara-Berbice
PARIK	Parika	Essequibo Islands-West Demerara
PARIM	Parima	Cuyuni-Mazaruni
PL BLM	Plantation Blairmont	Mahaica-Berbice
PL LUN	Plantation L'Union, Essequibo Coast	Pomeroon-Supenaam
PLN IS	Plantain Island, Essequibo River	Upper Demerara-Berbice
PONG R	Pong River, Mt. Ayanganna (762–1,006 meters elevation; 5º26'N 60º00.4'W)	Cuyuni-Mazaruni
POT RI	Potaro River	Potaro-Siparuni
POT RD	Potaro road	Potaro-Siparuni
POTAR	Potaro	Potaro-Siparuni
PR TUK	Potaro River near Tukeit (76–305 meters elevation)	Potaro-Siparuni
PUR TR	Puruni Trail, near Kartabo	Cuyuni-Mazaruni
QUONG	Quonga (6º30'N 59ºW)	Cuyuni-Mazaruni
REWA	Rewa Eco-Lodge	Upper Takutu-Upper Essequibo
RO CON	Marudi Mt. Goldfields, Romanex Guyana International Inc.	Upper Takutu-Upper Essequibo
ROCKS	Rockstone, Essequibo	Upper Demerara-Berbice
RORAI	Roraima	Cuyuni-Mazaruni
RP SAV	Rupununi Savannah near Lethem (76 meters elevation, 3º22.4'N 59º47.7'W)	Upper Takutu-Upper Essequibo

RUPUN	Rupununi Trail, Rupununi	Upper Takutu-Upper Essequibo
SABIN	Sabina, Berbice River	East Berbice-Corentyne
SANDA	Sandaka	East Berbice-Corentyne
SAV IR	Rupununi Savannah near Ireng River	Upper Takutu-Upper Essequibo
SHANK	Shanklands Resort (6º29'40"N 58º34'9"W)	Demerara-Mahaica
SHUDI	Shudibar	
SIPU R	River Sipu (upper tributary of the Essequibo, north of the Acarai Mts.)	Upper Takutu-Upper Essequibo
SIP RV	Sipu River, Acarai Mts. (274 meters elevation; 1º25.1'N 58º57.2'W)	Upper Takutu-Upper Essequibo
SKE CA	Skeldon sugarcane fields	East Berbice-Corentyne
SS CON	Simon and Shock International Logging Inc. concession	Upper Takutu-Upper Essequibo
ST CUT	St. Cuthbert Mission	Demerara-Mahaica
STAMP	Stampa Island, Essequibo River	Essequibo Islands-West Demerara
SUPEN	Supenaam	Pomeroon-Supenaam
SUR CK	Suruwabaru Creek, Wokomung Mts. (610–686 meters elevation; 5º3.30'N, 59º54.15'W)	Potaro-Siparuni
SUR MT	Surama Mt.	Upper Takutu-Upper Essequibo
SURAM	Surama Eco-Lodge	Upper Takutu-Upper Essequibo
TAI CA	Tain sugarcane fields	East Berbice-Corentyne
TAI VI	Tain	East Berbice-Corentyne
TAK MT	Takutu Mts.	Upper Takutu-Upper Essequibo
TAK RI	Takutu River	Upper Takutu-Upper Essequibo
TAKUT	Takutu	Upper Takutu-Upper Essequibo
TAY MR	Taymouth Manor, Essequibo Coast	Pomeroon-Supenaam
THEWA	Thewarikuru Landing, Rupununi	Upper Takutu-Upper Essequibo
TIG CK	Tiger Creek, Tumatumari	Potaro-Siparuni
TIMEH	Timehri	Demerara-Mahaica
TROP A	TropenBos forest reserve, middle Demerara River	Potaro-Siparuni
TROP B	TropenBos forest reserve (61–122 meters elevation; 5º9.32'N, 58º41.98'W), middle Demerara River	Potaro-Siparuni
TUKEI	Tukeit (610 meters elevation)	Potaro-Siparuni
TUMAT	Tumatumari	Potaro-Siparuni
TUR MT	Turtle Mt., Middle Essequibo River, Iwokrama Rainforest Reserve (61–290 meters elevation; 4º43.9'N, 58º43.08'W)	Potaro-Siparuni
TURKE	Turkeyen, Greater Georgetown	Demerara-Mahaica
UG TKN	University of Guyana, Turkeyen	Demerara-Mahaica
UP COR	Upper Corentyne	East Berbice-Corentyne
UP ESR	Upper Essequibo River	Upper Takutu-Upper Essequibo
UPP ER	Upper Essequibo River, near Kassikaityu	Upper Takutu-Upper Essequibo
UP IRE	Upper Ireng	Upper Takutu-Upper Essequibo

WAKEN	Wakenaam Island	Essequibo Islands-West Demerara
WAS MT	Wassarai Mts., Kanashen (305 meters elevation)	Upper Takutu-Upper Essequibo
WINEP	Wineperu, Bartica Forest Reserve	Cuyuni-Mazaruni
WISMA	Wismar	Upper Demerara-Berbice
YAW SV	Yawakuri Savannahs	

Table 2.2. Names of persons who collected/observed/confirmed identities of butterflies from Guyana.

Code	**Collector/observer name**
AA	A Abraham
AH	A Hall
AM	A Milne
AN	Andrew Neild
ANk	Alliea Nankishore
As	Aspey
AS	A Sharman
AW	A Warren
AZ	Andrey Zheludev
B	Brinsley
BC	B Coles
BH	Bernard Hermier
Bo	Bowers
BP	Govindra Punu
BPi	B Piffard
BR	B Ridout
Ca	Castell
CB	C Buckle
CBr	Christian Brévignon
CC	Christopher Chin
CE	C Ellacombe
CF	Christophe Faynel
CG	Captain Gibson
CH	C Hudson
CHa	C Hausch
CP	Unknown collector/observer
CR	C Roberts
CW	C Williams
D	Davis
DBPT	Darwin Butterfly Project Team (Arnold Jacobus, Delano Davis,

	Doreen Winstanley, Gyanpriya Maharaj, Hemchandranauth Sambhu, Neil Naish, Ryan Roberts, Teri Singh, and Verly Jacobus)
DG	David Geale
DJ	Dale Jenkins
DS	Unknown collector/observer
EP	E Pearce
EW	Earthwatch
FS	F Squire
GB	Godfrey Bourne
GBo	G Bodkin
GBr	G Bryant
GC	G Cole
GH	G Hudson
GM	Gyanpriya Maharaj
GMo	George Morgan
GP	Gerard Pereira
GR	G Rodway
GT	G Tate
HA	Herbert Adams
HB	Henry Bates
HBo	H Box
HM	H Moore
HP	H Parish
HR	H Roberts
HS	Hemchandranauth Sambhu
HW	H Whitley
JJ	J Joicey
JMa	J Mallet
JM	J Myers
JO	John Ogilvie
JP	Jay Pearson
JS	Jean Smart
JW	J Wright
JU	J Uehara
K	Kent
KD	Keith David
KG	Kim Garwood
KH	Unknown collector/observer
KM	Unknown collector/observer
Kw	Unknown collector/observer
KW	Keith Willmott
LA	L Ashburner
LC	L Cleare Jr.

M	Martin
MB	Major Beddington
Mc	McDonough
MC	Mauro Costa
MG	Michael Gillman
MK	Michelle Kalamandeen
ML	M Levine
MT	Mike Tamassar
P	Pollard
PB	P Babiy
PC	P Crowley
PD	P Davis
Pe	Percival
Pg	Pogue
Po	Powers
QH	Quimby Hess
RH	Rob Hanner
RL	Robert Langstroth
RS	R Steinhauser
RT	Rowland Turner
RW	Romeo Williams
S	Seerkissoon
S & R	Smart & Richards
SF	Steve Fratello
SH	Samuel Hendricks
SN	Shinichi Nakahara
So	Solis
SP	Unknown collector/observer
SPa	S Patel
SS	Stephen Steinhauser
SW	S Williams
TI	T Inoue
TP	Thomas Pliske
W	Weaver
WA	W Augustus
Wa	Ward
WB	William Beebe
WCH	W C Hewitson
WF	W Forbes
WH	Wiltshire Hinds
WK	W Kaye
WP	Waldyke Prince
WR	Walter Rothschild
WS	W Steiner
WSc	W Schaus

WW	W Wagner
WWh	Walter White
YB	Yves Basset

2.4 Results

A total of 1,205 species within 457 genera, 22 subfamilies and six families are documented in this checklist. Table 2.3 gives a summary of the number of species within each family and subfamily. There are numerous specimens that were collected over the years by various collectors but were not identified to species level within the perused literature, hence were not included in this list.

Table 2.3. Summary of the number of genera and species collected/observed within each family and subfamily collated from various records.

Family	Subfamily	Genus	Species/ Subspecies
Hesperiidae	Eudaminae	38	119
	Hesperiinae	101	219
	Pyrginae	54	117
Total		**193**	**455**
Lycaenidae	Polyommatinae	2	3
	Theclinae	46	107
Total		**48**	**110**
Nymphalidae	Apaturinae	1	1
	Biblidinae	16	54
	Charaxinae	8	29
	Cyrestinae	1	5
	Danainae	24	54
	Heliconiinae	10	33
	Libytheinae	1	1
	Limenitidinae	2	25
	Morphinae	11	36
	Nymphalinae	14	26
	Satyrinae	30	73
Total		**118**	**337**
Papilionidae	Papilioninae	8	29

Total		**8**	**29**
Pieridae	Coliadinae	8	17
	Dismorphiinae	3	7
	Pierinae	9	10
Total		**20**	**34**
Riodinidae	Euselasiinae	2	34
	Riodininae	68	206
Total		**70**	**240**
GRAND TOTAL		**457**	**1,205**

FAMILY: HESPERIIDAE

Subfamily: Eudaminae

Genus:

1. *Aguna* Williams, 1927

   Aguna asander (Hewitson, 1867)

   NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)

   Aguna aurunce (Hewitson, 1867)

   No data available (Evans, 1952)

   Aguna coelus (Stoll, 1781)

   a. BARTI; no data available (Hall, 1939d as *Goniurus coelus*)
   b. KAM RI; no data available (Hall, 1939d as *Goniurus coelus*)
   c. No data available (Evans, 1952)

2. *Astraptes* Hübner, [1819]

   Astraptes alardus (Stoll, 1790)

   a. BARTI; no data available (Hall, 1939d as *Telegonus alardus*)
   b. No data available (Evans, 1952)

   Astraptes alector (Felder & Felder, 1867)

   No data available (Evans, 1952)

   Astraptes anaphus (Cramer, 1777)

   No data available (Hall, 1939d as *Telegonus anaphus*; Evans, 1952)

   Astraptes apastus (Cramer, 1777)

   a. BARTI; no data available (Hall, 1939d as *Thymele apastus*)
   b. No data available (Evans, 1952)

   Astraptes chiriquensis (Staudinger, 1876)

   No data available (Evans, 1952)

Astraptes creteus (Cramer, 1780)

a. GEORG; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Telegonus creteus*)
b. LINDN; 30 December, 2008; JU & TI (Uehara & Inoue, 2014)
c. BERBI; no data available (Hall, 1939d as *Telegonus creteus*)
d. DEM RI; no data available (Hall, 1939d as *Telegonus parmenides*)
e. GEORG; no data available (Hall, 1939d as *Telegonus creteus*)
f. KAM RI; no data available (Hall, 1939d as *Telegonus creteus*)
g. MT ROR; no data available (Hall, 1939d as *Telegonus creteus*)
h. No data available (Evans, 1952)

Astraptes enotrus (Stoll, 1781)

a. ANNAI; no data available (Hall, 1939d as *Thymele enotrus*)
b. DEMER; no data available (Hall, 1939d as *Thymele enotrus*)
c. ESSE R; no data available (Hall, 1939d as *Thymele enotrus*)
d. No data available (Evans, 1952)

Astraptes fulgerator (Walch, 1775)

a. ENA CK; October, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
b. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (in CSBD collection, UG)
c. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
d. MT AY B; 10–20 April, 1999; SF, RH, WP and RW (in CSBD collection, UG)
e. ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
f. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
g. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Chrysoplectrum pervivax*)
h. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
i. OKO MT; date of collection/observation not available; SF (in CSBD collection, UG)
j. No data available (Hall, 1939d as *Thymele fulgerator*; Evans, 1952; Cock, 1988)

Astraptes janeira (Schaus, 1902)

MT ROR; no data available (Hall, 1939d as *Thymele aulestes*)

Astraptes talus (Cramer, 1777)

a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. DEMER; no data available (Hall, 1939d as *Goniurus talus*)
c. KAM RI; no data available (Hall, 1939d as *Goniurus talus*)
d. TAKUT; no data available (Hall, 1939d as *Goniurus talus*)
e. No data available (Evans, 1952)

3. *Augiades* Hübner, [1819]
   Augiades crinisus (Cramer, 1780)
      a. STAMP; 19 July, 1927; CG & B (Cleare Jr., 1929 as *Lignyostola crinisus*)
      b. MABAR; 23, 26 & 27 July, 1927; LC (Cleare Jr., 1929 as *Lignyostola crinisus*)
      c. AMSTE; July, 1927; collector/observer name/names not available (Cleare Jr., 1929 as *Lignyostola crinisus*)
      d. OMAI; 1 June, 1929; JO (Cleare Jr., 1929 as *Lignyostola crinisus*)
      e. PLN IS; 1 June, 1929; JO (Cleare Jr., 1929 as *Lignyostola crinisus*)
      f. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
      g. AKYMA; no data available (Hall, 1939d as *Lignyostola crinisus*)
      h. BERBI; no data available (Hall, 1939d as *Lignyostola crinisus*)
      i. DEM RI; no data available (Hall, 1939d as *Lignyostola crinisus*)
      j. OMAI; no data available (Hall, 1939d as *Lignyostola crinisus*)
      k. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
      l. No data available (Bell, 1946; Evans, 1952)

4. *Aurina* Evans, 1937
   Aurina dida Evans, 1937
      a. IWOKR; 7 February, 2017; DG (Geale, 2017)
      b. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

5. *Autochton* Hübner, 1823
   Autochton itylus Hübner, 1823
      a. KALAC; 7 July, 1925; GMo (Lindsey, 1928 as *Cecrops itylus*)
      b. MAZ TR; 25 July, 1925; GMo (Lindsey, 1928 as *Cecrops itylus*)
      c. BARTI; no data available (Hall, 1939d)
      d. DEMER; no data available (Hall, 1939d)
      e. PARIK; no data available (Hall, 1939d)
      f. No data available (Bell, 1932; Evans, 1952)

   Autochton longipennis (Plötz, 1882)
      No data available (Evans, 1952)

   Autochton neis (Geyer, 1832)
      a. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
      b. BARTI; no data available (Hall, 1939d as *Cecropterus neis*)
      c. BERBI; no data available (Hall, 1939d as *Cecropterus neis*)
      d. KAM RI; no data available (Hall, 1939d as *Cecropterus neis*)
      e. No data available (Evans, 1952)

   Autochton zarex (Hübner, 1818)
      a. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Autochton longipennis*)

b. No data available (Hall, 1939d as *Cecropterus aunus*; Evans, 1952)

6. *Bungalotis* Watson, 1893

    Bungalotis astylos (Cramer, 1780)

    a. PL BLM; 8 March, 1924; HBo (Box, 1928)
    b. No data available (Evans, 1952; Cock, 1990; Beccaloni *et al.*, 2008)

    Bungalotis borax Evans, 1952

    No data available (Evans, 1952; Austin, 2008)

    Bungalotis clusia Evans, 1952

    No data available (Evans, 1952)

    Bungalotis erythus (Cramer, 1775)

    No data available (Evans, 1952)

    Bungalotis midas (Cramer, 1775)

    a. TUMAT; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
    b. DEMER; no data available (Hall, 1939d)
    c. MACKE; no data available (Hall, 1939d)
    d. No data available (Evans, 1952; Cock, 1990)

    Bungaltois quadratum (Sepp, [1845])

    No data available (Evans, 1952)

7. *Cabirus* Hübner, [1819]

    Cabirus procas (Cramer, 1777)

    a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    b. No data available (Evans, 1952)

8. *Calliades* Mabille & Boullet, 1912

    Calliades oryx (Felder & Felder, 1862)

    No data available (Evans, 1952)

    Calliades zeutus (Möschler, 1879)

    No data available (Evans, 1952; Cock, 1988)

9. *Chioides* Lindsey, 1921

    Chioides catillus (Cramer, 1779)

    a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
    b. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    c. REWA; April, 2012; AZ [BH] (Zheludev, 2013)
    d. BARTI; no data available (Hall, 1939d as *Eudamus catillus*)
    e. OMAI; no data available (Hall, 1939d as *Eudamus catillus*)

f. No data available (Evans, 1952)

10. *Chrysoplectrum* Watson, 1893

Chrysoplectrum bahiana (Herrich-Schäffer, 1869)

No data available (Evans, 1952)

Chrysoplectrum perniciosus (Herrich-Schäffer, 1869)

a. COVER; date of collection/observation not available; AH (Hall, 1939d as *Chrysoplectrum perriciosum*)
b. No data available (Evans, 1952)

Chrysoplectrum pervivax (Hübner, [1819])

No data available (Evans, 1952)

11. *Codatractus* Lindsey, 1921

Codatractus imalena (Butler, 1872)

DEM RI; no data available (Hall, 1939d as *Heteropia imalena*)

12. *Cogia* Butler, 1870

Cogia calchas (Herrich-Schäffer, 1869)

a. 2HTMC; 14 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939d)
c. QUONG; no data available (Hall, 1939d)
d. No data available (Evans, 1953)

13. *Drephalys* Watson, 1893

Drephalys alcmon (Cramer, 1780)

a. MARLI; no data available (Hall, 1939d as *Paradros alcmon*)
b. No data available (Evans, 1952)

Drephalys dumeril (Latreille, [1824])

a. OR NRI; date of collection/observation not available; MB (Hall, 1939d as *Paradros dumerili*)
b. No data available (Bell, 1946 as *Paradros dumeril*; Evans, 1952)

Drephalys eous (Hewitson, 1867)

KAM RI; no data available (Hall, 1939d as *Paradros eous*)

Drephaly olvina Evans, 1952

a. KAM RI; no data available (Evans, 1952; Mielke, 2005)
b. No data available (Warren *et al*., 2016)

Drephalys oriander (Hewitson, 1867)

No data available (Evans, 1952)

Drephalys phoenice (Hewitson, 1867)

a. DEMER; no data available (Hall, 1939d as *Paradros phoenice*)
b. KAM RI; no data available (Hall, 1939d as *Paradros phoenice*)
c. No data available (Evans, 1952)

Drephalys phoenicoides (Mabille & Boullet, 1919)
No data available (Evans, 1952)

14. *Dyscophellus* Godman & Salvin, 1893
Dyscophellus ramusis (Stoll, 1781)
a. PUR TR; 7 July, 1925; GMo (Lindsey, 1928 as *Bungalotis ramusis*)
b. HOSSO; date of collection/observation not available; LC (Hall, 1939d as *Bungalotis ramusis*)
c. NEW RI; date of collection/observation not available; GH (Hall, 1939d as *Bungalotis ramusis*)
d. No data available (Evans, 1952)

15. *Ectomis* Mabille, 1878
Ectomis cythna (Hewitson, 1878)
a. BARTI; no data available (Hall, 1939d as *Ectomis adoxa*)
b. No data available (Evans, 1953)

16. *Entheus* Hübner, [1819]
Entheus aureolus Austin, Mielke & Steinhauser, 1997
SURAM; February, 2017; DG (Mariposa Butterfly Tours, 2017)

Entheus eumelus (Cramer, 1777)
a. KAM RI; no data available (Hall, 1939d)
b. No data available (Evans, 1952)

Entheus gentius (Cramer, 1777)
a. ANNAI; no data available (Hall, 1939d)
b. GEORG; no data available (Hall, 1939d)
c. KAM RI; no data available (Hall, 1939d)
d. OMAI; no data available (Hall, 1939d)
e. No data available (Evans, 1952)

Entheus matho Godman & Salvin, 1879
a. ATT JL; 11 February, 2017; DG (Geale, 2017)
b. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
c. No data available (Evans, 1952)

Entheus priassus (Linnaeus, 1758)
a. PUR TR; 10 July, 1925; GMo (Lindsey, 1928 as *Entheus peleus*)
b. MAZ TR; 18 July, 1925; GMo (Lindsey, 1928 as *Entheus peleus*)
c. KAM FB; 24 July, 1925; GMo (Lindsey, 1928 as *Entheus peleus*)

d. TUMAT; 29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
e. ANUND; January, 1928; collector/observer name/names not available (Bell, 1932)
f. KUIEW; 2–25 April, 1999; SF, RH, WP & RW [BH] (in CSBD collection, UG)
g. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
h. SIP RV; 24 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
i. KAM FB; 30 November–12 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
j. SURAM; 12 February, 2017; DG (Geale, 2017)
k. KAM RI; no data available (Hall, 1939d)
l. QUONG; no data available (Hall, 1939d)
m. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
n. No data available (Bell, 1946; Evans, 1952)

17. *Epargyreus* Hübner, [1819]

Epargyreus exadeus (Cramer, 1779)

No data available (Mielke, 2005 as *Tamyris exadeus*)

Epargyreus socus (Hübner, [1825])

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. BARTI; no data available (NHMUK, 2014)
c. No data available (Evans, 1952)

18. *Euriphellus* Austin, 2008

Euriphellus euribates (Stoll, 1782)

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. FO SIP; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. OR NRI; date of collection/observation not available; MB (Hall, 1939d as *Nascus euribates*)
d. No data available (Hall, 1939d as *Bungalotis euribates*; Evans, 1952 as *Dyscophellus euribates*)

19. *Hyalothyrus* Mabille, 1878

Hyalothyrus infernalis (Möschler, 1877)

a. PUR TR; 7 and 30 July, 1925; GMo (Lindsey, 1928 as *Mionectes infernalis*)
b. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
c. KUIEW; 2–25 April, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
d. 2HTMB; 21–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
e. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
f. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)

g. ARROW; April, 2012; AZ [BH] (Zheludev, 2013)
h. ATT JL; 11 February, 2017; DG (Geale, 2017)
i. DEMER: no data available (Hall, 1939d as *Mionectes infernalis*)
j. KAIET; no data available (Hall, 1939d as *Mionectes infernalis*)
k. OMAI; no data available (Hall, 1939d as *Mionectes infernalis*)
l. No data available (Evans, 1952)

Hyalothyrus leucomelas (Geyer, 1832)
a. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)

Hyalothyrus neleus (Linnaeus, 1758)
a. OMAI; no data available (Hall, 1939d)
b. No data available (Evans, 1952)

Hyalothyrus nitocris (Stoll, 1782)
a. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
c. DEMER; no data available (Hall, 1939d)
d. OMAI; no data available (Hall, 1939d)
e. No data available (Bell, 1932; Bell, 1946; Evans, 1952)

20. *Marela* Mabille, 1903

Marela tamyris Mabille, 1903

No data available (Evans, 1953)

Marela tamyroides (Felder & Felder, 1867)
a. DEMER; no data available (Hall, 1939d)
b. KAM RI; no data available (Hall, 1939d)
c. No data available (Evans, 1953)

21. *Narcosius* Steinhauser, 1986

Narcosius colossus (Herrich-Schäffer, 1869)

No data available (Evans, 1952 as *Astraptes colossus*; Steinhauser, 1986)

Narcosius nazaraeus Steinhauser, 1986

DEMER; no data available (Steinhauser, 1986)

Narcosius samson (Evans, 1952)

No data available (Evans, 1952 as *Astraptes samson*)

22. *Nascus* Watson, 1893

Nascus phocus (Cramer, 1777)

No data available (Evans, 1952)

23. *Oileides* Hübner, [1825]

Oileides azines (Hewitson, 1867)

a. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
b. IWOKR; 7 February, 2017; DG (Geale, 2017)
c. DEM RI; no data available (Hall, 1939d as *Telemiades azines*)
d. KAM RI; no data available (Hall, 1939d as *Telemiades azines*)
e. No data available (Evans, 1952 as *Ablepsis azines*)

24. *Phanus* Hübner, [1819]

Phanus marshalli (Kirby, 1880)

a. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
c. 2HTMB; 21–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
d. FO SIP; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
e. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
f. IW MT A; 29 March–2 April, 2001; SF [BH] (in CSBD collection, UG)
g. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
h. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Phanus ?marchalli*)
i. ATT JL; 11 February, 2017; DG (Geale, 2017)
j. BARTI; no data available (Hall, 1939d)
k. No data available (Evans, 1952)

Phanus obscurior Kaye, 1925

No data available (Evans, 1952)

Phanus vitreus (Stoll, 1781)

a. 2HTMB; 21–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
b. FO SIP; 29 October–12 November; 2000; SF *et al*. [HS] (in CSBD collection, UG)
c. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
d. No data available (Austin, 1993)
e. BARTI; no data available (Hall, 1939d; Austin, 1993)
f. KAIET; no data available (Hall, 1939d)
g. KAM RI; no data available (Hall, 1939d)
h. OMAI; no data available (Hall, 1939d)
i. No data available (Evans, 1952)

25. *Phareas* Westwood, 1852

Phareas coeleste Westwood, 1852

a. KAIET; 18 December, 1989–1 January, 1990; SF (Grishin *et al*., 2013)
b. ACA MT; 4–10 November, 2000; SF *et al*. (Grishin *et al*., 2013)

c. CEIBA; 10 February, 2002; D, Pg & So [BH] (in CSBD collection, UG)
d. KAM RI; no data available (Hall, 1939d as *Grynopsis coeleste*)
e. MT ROR; no data available (Hall, 1939d as *Grynopsis coeleste*)
f. OMAI; no data available (Grishin *et al*., 2013)
g. No data available (Evans, 1952)

26. *Phocides* Hübner, [1819]

Phocides distans (Herrich-Schäffer, 1869)

a. GRT FL; no data available (Hall, 1939d)
b. No data available (Evans, 1952)

Phocides lincea (Herrich-Schäffer, 1869)

No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

Phocides padrona Evans, 1952

No data available (Evans, 1952)

Phocides pigmalion (Cramer, 1779)

No data available (Evans, 1952)

Phocides polybius (Fabricius, 1793)

a. ROCKS; 30 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Phocides palemon*)
b. No data available (Evans, 1952)

Phocides yokhara (Butler, 1870)

No data available (Evans, 1952)

27. *Polygonus* Hübner, [1825]

Polygonus leo (Gmelin, [1790])

a. BARTI; no data available (Hall, 1939d as *Acolastus amyntas*)
b. OMAI; no data available (Hall, 1939d as *Acolastus amyntas*)

Polygonus savigny (Latreille, [1824])

No data available (Evans, 1952 as *Polygonus manueli*)

28. *Polythrix* Watson, 1893

Polythrix asine (Hewitson, 1867)

QUONG; no data available (Hall, 1939d as *Eudamus asine*)

Polythrix auginus (Hewitson, 1867)

No data available (Bell, 1946 as *Urbanus auginus*; Evans, 1952)

Polythrix caunus (Herrich-Schäffer, 1869)

No data available (Hall, 1939d as *Eudamus lindora*; Evans, 1952)

Polythrix ceculus (Herrich-Schäffer, 1869)
No data available (Evans, 1952)

Polythrix metallescens (Mabille, 1888)
No data available (Evans, 1952)

Polythrix octomaculata (Sepp, [1844])
a. MAZ TR; 14 August, 1925; GMo (Lindsey, 1928 as *Goniurus decurtatus*)
b. No data available (Evans, 1952)

Polythrix roma Evans, 1952
No data available (Evans, 1952)

29. *Porphyrogenes* Watson, 1893
Porphyrogenes despecta (Butler, 1870)
No data available (Evans, 1952)

Porphyrogenes passalus (Herrich-Schäffer, 1869)
No data available (Evans, 1952)

Porphyrogenes pausias (Hewitson, 1867)
a. BERBI; no data available (Hall, 1939d as *Physalea pausias*)
b. KAM RI; no data available (Hall, 1939d as *Physalea pausias*)
c. No data available (Evans, 1952)

Porphyrogenes spanda Evans, 1952
No data available (Evans, 1952)

Porphyrogenes zohra (Möschler, 1879)
No data available (Evans, 1952)

30. *Proteides* Hübner, [1819]
Proteides mercurius (Fabricius, 1787)
a. BARTI; no data available (Hall, 1939d as *Proteides idas*)
b. BERBI; no data available (Hall, 1939d as *Proteides idas*)
c. FREN B; no data available (Hall, 1939d as *Proteides idas*)
d. No data available (Evans, 1952)

31. *Pseudonascus* Austin, 2008
Pseudonascus paulliniae (Sepp, [1842])
a. ANNAI; no data available (Hall, 1939d as *Nascus caepio*)
b. KAM RI; no data available (Hall, 1939d as *Nascus caepio*)
c. QUONG; no data available (Hall, 1939d as *Nascus caepio*)
d. No data available (Bell, 1946 as *Nascus caepio*; Evans, 1952 as *Nascus paulliniae*)

32. *Salatis* Evans, 1952

Salatis salatis (Stoll, 1782)

a. QUONG; no data available (Hall, 1939d as *Bungalotis salatis*)
b. No data available (Evans, 1952)

33. *Spathilepia* Butler, 1870

Spathilepia clonius (Cramer, 1775)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. No data available (Evans, 1953)

34. *Tarsoctenus* Watson, 1893

Tarsoctenus corytus (Cramer, 1777)

No data available (Evans, 1952)

Tarsoctenus papias (Hewitson, 1857)

a. KAM RI; no data available (Hall, 1939d)
b. No data available (Evans, 1952)

Tarsoctenus praecia (Hewitson, 1857)

a. DEM RI; no data available (Hall, 1939d as *Tarsoctenus rufibasis*)
b. OMAI; no data available (Hall, 1939d as *Tarsoctenus rufibasis*)
c. No data available (Evans, 1952; Cock, 1984)

35. *Telemiades* Hübner, [1819]

Telemiades amphion (Geyer, 1832)

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. KAIET; no data available (Hall, 1939d)
c. KAM RI; no data available (Hall, 1939d)
d. No data available (Evans, 1953)

Telemiades corbulo (Stoll, 1781)

a. KAM RI; no data available (Hall, 1939d as *Pyrdalus corbulo*)
b. No data available (Evans, 1953 as *Pyrdalus corbulo*)

Telemiades epicalus Hübner, [1819]

a. MAZ TR; 18 July, 1925; GMo (Lindsey, 1928 as *Telemiades phasias*)
b. No data available (Evans, 1953)

Telemiades penidas (Hewitson, 1867)

a. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Telemiades ceramina*)
b. No data available (Hall, 1939d as *Telemiades ceramina*; Evans, 1953)

Telemiades squanda Evans, 1953

No data available (Evans, 1953)

Telemiades vansa Evans, 1953
DEM RI; no data available (Evans, 1953; Warren *et al*., 2013)

36. *Typhedanus* Butler, 1870
Typhedanus crameri McHenry, 1960
a. DEMER; no data available (Hall, 1939d as *Eudamus orion*)
b. KAIET; no data available (Hall, 1939d as *Eudamus orion*)
c. OMAI; no data available (Hall, 1939d as *Eudamus orion*)

Typhedanus optica Evans, 1952
a. BARTI; no data available (Warren *et al*., 2013)
b. No data available (Evans, 1952)

Typhedanus stylites (Herrich-Schäffer, 1869)
a. PUR TR; 30 July and 2 August, 1925; GMo (Lindsey, 1928 as *Goniurus stylites*)
b. QUONG; no data available (Hall, 1939d as *Eudamus stylites*)

Typhedanus undulatus (Hewitson, 1867)
No data available (Evans, 1952)

37. *Udranomia* Butler, 1870
Udranomia kikkawai (Weeks, 1906)
No data available (Evans, 1952)

Udranomia orcinus (Felder & Felder, 1867)
No data available (Hall, 1939d & Bell, 1946 as *Hydraenomia orcinus*)

38. *Urbanus* Hübner, [1807]
Urbanus albimargo (Mabille, 1876)
a. BARTI; no data available (Hall, 1939d as *Eudamus albimargo*)
b. KAIET; no data available (Hall, 1939d as *Eudamus albimargo*)
c. KAM RI; no data available (Hall, 1939d as *Eudamus albimargo*)
d. MABAR; no data available (Hall, 1939d as *Eudamus albimargo*)
e. OMAI; no data available (Hall, 1939d as *Eudamus albimargo*)
f. QUONG; no data available (Hall, 1939d as *Eudamus albimargo*)
g. TAK RI; no data available (Warren *et al*., 2013)
h. TAKUT; no data available (Hall, 1939d as *Eudamus albimargo*)
i. No data available (Evans, 1952)

Urbanus cindra Evans, 1952
a. ANNAI; April, 2012; AZ [BH] (Zheludev, 2013 as *Urbanus simplicus*)
b. No data available (Evans, 1952)

Urbanus dorantes (Stoll, 1790)

a. RP SAV; 6 October, 2000; RW [BH] (in CSBD collection, UG)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. BROTH; 2015; HS (Sambhu, unpubl. data)
d. N72 VI; 2015; HS (Sambhu, unpubl. data)
e. SKE CA; 2015; HS (Sambhu, unpubl. data)
f. TAI CA; 2015; HS (Sambhu, unpubl. data)
g. No data available (Hall, 1939d as *Eudamus dorantes*; Evans, 1952; Beccaloni *et al*., 2008)

Urbanus doryssus (Swainson, 1831)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (Prince *et al*., 2006; in CSBD collection, UG)
b. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
d. REWA; April, 2012; AZ [BH] (Zheludev, 2013)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. BERBI; no data available (Hall, 1939d as *Eudamus doryssus*)
g. DEMER; no data available (Hall, 1939d as *Eudamus doryssus*)
h. KAM RI; no data available (Hall, 1939d as *Eudamus doryssus*)
i. OMAI; no data available (Hall, 1939d as *Eudamus doryssus*)
j. QUONG; no data available (Hall, 1939d as *Eudamus doryssus*)
k. No data available (Evans, 1952)

Urbanus esma Evans, 1952

No data available (Evans, 1952; Cock, 1986)

Urbanus esmeraldus (Butler, 1877)

No data available (Evans, 1952)

Urbanus procne (Plötz, 1881)

a. BROTH; 2015; HS [BH] (Sambhu, unpubl. data)
b. CUM VI; 2015; HS [BH] (Sambhu, unpubl. data)
c. FRIEN; 2015; HS [BH] (Sambhu, unpubl. data)
d. LBI CA; 2015; HS [BH] (Sambhu, unpubl. data)
e. MON VI; 2015; HS [BH] (Sambhu, unpubl. data)
f. N63 VI; 2015; HS [BH] (Sambhu, unpubl. data)
g. N72 VI; 2015; HS [BH] (Sambhu, unpubl. data)
h. SKE CA; 2015; HS [BH] (Sambhu, unpubl. data)
i. TAI CA; 2015; HS [BH] (Sambhu, unpubl. data)
j. TAI VI; 2015; HS [BH] (Sambhu, unpubl. data)
k. No data available (Evans, 1952)

Urbanus proteus (Linnaeus, 1758)

a. TIMEH; 17 March, 1971; MT (Prince *et al*., 2006)

b. TIMEH; 14 September, 1978; MT (Prince *et al*., 2006)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. SKE CA; 2015; HS (Sambhu, unpubl. data)
e. No data available (Hall, 1939d as *Eudamas proteus*; Evans, 1952)

Urbanus reductus (Riley, 1919)
FO SIP; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)

Urbanus simplicius (Stoll, 1790)
a. SURAM; April, 2012; AZ [BH] (Zheludev, 2013 as *Urbanus procne*)
b. DEM RI; no data available (Hall, 1939d as *Eudamus pilatus*)
c. GEORG; no data available (Hall, 1939d as *Eudamus pilatus*)
d. No data available (Hall, 1939d as *Eudamus simplicius*; Evans, 1952)

Urbanus tanna Evans, 1952
No data available (Evans, 1952)

Urbanus teleus ((Hübner, 1821)
a. ANUND; January, 1928; collector/observer name/names not available (as *Goniurus eurycles* in Bell, 1932)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. No data available (Hall, 1939d as *Eudamus eurycles*; Evans, 1952)

Urbanus velinus (Plötz, 1880)
a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
c. POTAR; no data available (Steinhauser, 1981 as *Urbanus acawoios*)
d. No data available (Evans, 1952 as *Urbanus acawoios*)

Urbanus virescens (Mabille, 1877)
No data available (Hall, 1939d as *Eudamus virescens*; Evans, 1952)

Urbanus viterboana (Ehrmann, 1907)
No data available (Evans, 1952)

Subfamily: Hesperiinae

Genus:
1. *Aides* Billberg, 1820
Aides aegita (Hewitson, 1866)
No data available (Evans, 1955)

Aides brino (Stoll, 1781)

No data available (Hall, 1939d as *Paraides brino*; Evans, 1955; Cock, 2003)

Aides duma Evans, 1955
No data available (Evans, 1955 as *Aides epitus*)

2. *Anatrytone* Dyar, 1905
Anatrytone barbara (Williams & Bell, 1931)
No data available (Evans, 1955 as *Mellana villa*)

Anatrytone mella (Godman, 1900)
No data available (Bell, 1946 as *Atrytone mella*)

Anatrytone perfida (Möschler, 1879)
a. GEORG; date of collection/observation not available; HM (NMNH, 2016 as *Atrytone gladolis*)
b. NONPA; date of collection/observation not available; HM (Dyar, 1914 and Hall, 1939d as *Atrytone gladolis*)
c. No data available (Moore, 1915 as *Atrytone gladolis*; Beccaloni *et al*., 2008)

3. *Anthoptus* Bell, 1942
Anthoptus epictetus (Fabricius, 1793)
a. KARTA; 2 July and 2 August, 1925; GMo (Lindsey, 1928 as *Padraona epictetus*)
b. MACKE; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Padraona epictetus*)
c. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Padraona epictetus*)
d. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
e. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
f. BARTI; no data available (Hall, 1939d as *Padraona epictetus*)
g. DEMER; no data available (Hall, 1939d as *Padraona epictetus*)
h. KAM RI; no data available (Hall, 1939d as *Padraona epictetus*)
i. PARIK; no data available (Hall, 1939d as *Padraona epictetus*)
j. No data available (Evans, 1955)

Anthoptus insignis (Plötz, 1882)
No data available (Evans, 1955 as *Nastra insignis*)

4. *Apaustus* Hübner, [1819]
Apaustus gracilis (Felder & Felder, 1867)
a. KAI SA; 7 September, 1937; JS (Evans, 1955; Mielke, 2005; Warren *et al.*, 2013)
b. NR KAN; 2–25 April, 1999; SF, RH, WP & RW [BH] (in CSBD collection, UG)
c. BARTI; no data available (Hall, 1939d)
d. No data available (Bell, 1946 as *Callimormus gracilis*)

5. *Argon* Evans, 1955

    Argon lota (Hewitson, 1877)

    a. BARTI; no data available (Hall, 1939d as *Cobalus argus*)
    b. No data available (Evans, 1955 as *Argon argus*)

6. *Arita* Evans, 1955

    Arita arita (Schaus, 1902)

    a. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
    b. No data available (Evans, 1955)

7. *Aroma* Evans, 1955

    Aroma aroma (Hewitson, 1867)

    No data available (Hall, 1939d as *Thracides aroma*; Evans, 1955)

8. *Arotis* Mabille, 1904

    Arotis bryna (Evans, 1955)

    MT ROR; no data available (Evans, 1955; Warren *et al*., 2013)

    Arotis kayei (Bell, 1932)

    No data available (Evans, 1955 as *Euphyes sirene*)

9. *Artines* Godman, 1901

    Artines aepitus (Geyer, 1832)

    a. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    b. MT ROR; no data available (Hall, 1939d as *Artines atizies*)
    c. QUONG; no data available (Hall, 1939d as *Artines atizies*)
    d. TAK RI; no data available (Mielke, 2005 as *Artines atizies*)
    e. No data available (Bell, 1946; Evans, 1955; Cock, 2011)

    Artines focus Evans, 1955

    a. ACB MT; 6–9 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    b. ACA MT; 4–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    c. FO SIP; 29 October–12 November; 2000; SF *et al*. [BH] (in CSBD collection, UG)
    d. IWO MT; 28 March–1 April, 2001; SF [BH] (in CSBD collection, UG)
    e. MT ROR; date of collection/observation not available; HW (Warren *et al*., 2013)
    f. QUONG; no data available (Warren *et al*., 2013)
    g. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
    h. No data available (Evans, 1955)

    Artines trogon Evans, 1955

    No data available (Evans, 1955)

10. *Atalopedes* Scudder, 1872

Atalopedes campestris (Boisduval, 1852)

a. BROTH; 2015; HS (Sambhu, unpubl. data)
b. CUM VI; 2015; HS (Sambhu, unpubl. data)
c. LBI CA; 2015; HS (Sambhu, unpubl. data)
d. MON VI; 2015; HS (Sambhu, unpubl. data)
e. N63 VI; 2015; HS (Sambhu, unpubl. data)
f. SKE CA; 2015; HS (Sambhu, unpubl. data)
g. TAI CA; 2015; HS (Sambhu, unpubl. data)

11. *Callimormus* Scudder, 1872

Callimormus alsimo (Möschler, 1883)

a. SIP RV; 24 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. GEORG; no data available (Hall, 1939d as *Callimormus filata*)
c. No data available (Evans, 1955; Warren *et al*., 2013)

Callimormus corades (Felder, 1862)

a. BARTI; no data available (Hall, 1939d; Bell, 1941 as *Callimormus igarapus*)
b. GEORG; no data available (Bell, 1941 as *Callimormus igarapus*)

Callimormus interpunctata (Plötz, 1884)

a. COVER; no data available (Hall, 1939d as *Callimormus diaeses*)
b. PARIK; no data available (Hall, 1939d as *Callimormus diaeses*)
c. QUONG; no data available (Hall, 1939d as *Callimormus diaeses*)

Callimormus juventus Scudder, 1872

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. QUONG; no data available (Hall, 1939d)

Callimormus radiola (Mabille, 1878)

a. GEORG; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. MACKE; 22–24 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
c. No data available (Bell, 1946; Evans, 1955)

Callimormus saturnus (Herrich-Schäffer, 1869)

No data available (Evans, 1955)

12. *Calpodes* Hübner, [1819]

Calpodes ethlius (Stoll, 1782)

a. No specified locality; 20 July, 1913; GBo (Crawford, 1914)
b. BROTH; 2015; HS [BH] (Sambhu, unpubl. data)
c. SANDA; 2015; HS [BH] (Sambhu, unpubl. data)
d. SKE CA; 2015; HS [BH] (Sambhu, unpubl. data)

e. TAI CA; 2015; HS [BH] (Sambhu, unpubl. data)
f. No data available (Myers, 1931; Evans, 1955; Cock, 2003; NHMUK, 2014)

13. *Cantha* Evans, 1955
Cantha roraimae (Bell, 1932)
No data available (Evans, 1955)

14. *Carystoides* Godman, 1901
Carystoides basoches (Latreille, [1824])
No data available (Evans, 1955)

Carystoides cathaea (Hewitson, 1866)
a. BERBI; no data available (Hall, 1939d)
b. DEM RI; no data available (Hall, 1939d)
c. KAM RI; no data available (Hall, 1939d)
d. No data available (Evans, 1955)

Carystoides maroma (Möschler, 1877)
MACKE; no data available (Hall, 1939d as *Themesion maroma*)

Carystoides sicania (Hewitson, 1876)
a. QUONG; no data available (Hall, 1939d)
b. No data available (Evans, 1955)

15. *Carystus* Hübner, [1819]
Carystus hocus Evans, 1955
DEMER; date of collection/observation not available; Ca (Evans, 1955; Warren *et al*., 2013)

Carystus jolus (Stoll, 1782)
a. PARIK; date of collection/observation not available; AH (Hall, 1939d)
b. No data available (Evans, 1955)

Carystus phorcus (Cramer, 1777)
No data available (Hall, 1939d as *Carystus phoreus*; Evans, 1955)

16. *Cobalopsis* Godman, 1900
Cobalopsis autumna (Plötz, 1882)
a. TAKUT; no data available (Hall, 1939d as *Cobalopsis edda*)
b. No data available (Evans, 1955)

Cobalopsis miaba (Schaus, 1902)
a. GEORG; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Euroto potaro*)
b. MACKE; 22 and 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Euroto potaro*)
c. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Euroto potaro*)

d. BARTI; no data available (Warren *et al*., 2013)
e. PARIK; no data available (Warren *et al*., 2013)
f. No data available (Bell, 1946 as *Papias potaro*; Evans, 1955 as *Cobalopsis potaro*; Cock, 2013a)

Cobalopsis nero (Herrich-Schäffer, 1869)
a. KAM RI; no data available (Hall, 1939d as *Cobalopsis dyscritus*)
b. TAKUT; no data available (Hall, 1939d as *Cobalopsis dyscritus*)
c. No data available (Evans, 1955)

17. *Cobalus* Hübner, [1819]
Cobalus calvina (Hewitson, 1866)
a. PUR TR; 7 July, 1925; GMo (Lindsey, 1928 as *Carystus calvina*)
b. KAIET; no data available (Hall, 1939d as *Zenis calvina*)
c. PARIK; no data available (Hall, 1939d as *Zenis dissoluta*)
d. QUONG; no data available (Hall, 1939d as *Zenis calvina*)
e. No data available (Evans, 1955)

Cobalus virbius (Cramer, 1777)
a. DEMER; no data available (Hall, 1939d)
b. KAM RI; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

18. *Conga* Evans, 1955
Conga chydaea (Butler, 1877)
No data available (Moore, 1915 as *Prenes vala*; Box, 1953 as *Panoquina chydaea*; Evans, 1955)

19. *Copaeodes* Speyer, 1877
Copaeodes jean Evans, 1955
KAI SA; September, 1939; JS (Evans, 1955; Mielke, 2005; Warren *et al*., 2013)

Copaeodes minima (Edwards, 1870)
KAI SA; date of collection/observation not available; S & R (Hall, 1939d)

20. *Corticea* Evans, 1955
Corticea corticea
a. KARTA; 24 and 30 June, 1925; GMo (Lindsey, 1928 as *Megistias corticea*)
b. No data available (Box, 1953 as *Megistias corticea*; Evans, 1955; Cock, 2010)

Corticea lysias (Plötz, 1883)
No data available (Evans, 1955)

21. *Crinifemur* Steinhauser, 2008
Crinifemur viridans Steinhauser, 2008
a. CP JAG; 8 November, 1980; SS (Steinhauser, 2008)

b. No data available (Warren *et al*., 2013)

22. *Cymaenes* Scudder, 1872

Cymaenes alumna (Butler, 1877)

a. NONPA; date of collection/observation not available; HM (Dyar, 1917 as *Vehilius sacchariphila*; Warren *et al*., 2013)
b. No data available (Beccaloni *et al*., 2008)

Cymaenes chela Evans, 1955

No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

Cymaenes gisca Evans, 1955

a. ARROW; April, 2012; AZ [BH] (Zheludev, 2013)
b. No data available (Evans, 1955)

Cymaenes odilia (Burmeister, 1878)

a. QUONG; no data available (Hall, 1939d as *Megistias isus*)
b. No data available (Bell, 1946 as *Lerodea edata*; Evans, 1955)

Cymaenes tripunctata (Latreille, [1824])

a. KARTA; 22 June, 1925; GMo (Lindsey, 1928 as *Megistias tripunctata*)
b. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Megistias tripunctata*)
c. MACKE; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Megistias tripunctata*)
d. BARTI; no data available (Hall, 1939d as *Megistias tripunctatus*)
e. DEMER; no data available (Hall, 1939d as *Megistias tripunctatus*)
f. No data available (Evans, 1955)

Cymaenes tripunctus (Herrich-Schäffer, 1865)

a. COVER; no data available (Hall, 1939d as *Megistias tripunctus*)
b. MT ROR; no data available (Hall, 1939d as *Megistias tripunctus*)
c. No data available (Box, 1953 as *Megistias tripunctus*; Evans, 1955)

23. *Cynea* Evans, 1955

Cynea anthracinus (Mabille, 1877)

a. QUONG; date of collection/observation not available; HW (Hall, 1939d as *Rhinthon anthracinus*)
b. No data available (Evans, 1955)

Cynea bistrigula (Herrich-Schäffer, 1869)

a. QUONG; no data available (Hall, 1939d as *Rhinthon bistrigula*)
b. No data available (Evans, 1955)

Cynea cynea (Hewitson, 1876)

BARTI; no data available (Hall, 1939d as *Rhinthon cynea*)

Cynea diluta (Herrich-Schäffer, 1869)
a. KAIET; no data available (Hall, 1939d as *Rhinthon erebina*)
b. PARIK; date of collection/observation not available; AH (Hall, 1939d as *Rhinthon alus*)
c. No data available (Evans, 1955)

Cynea irma (Möschler, 1879)
No data available (Evans, 1955)

Cynea megalops (Godman, 1900)
PARIK; no data available (Hall, 1939d as *Rhinthon megalops*)

Cynea melius (Geyer, 1832)
QUONG; no data available (Hall, 1939d as *Rhinthon melius*)

Cynea popla Evans, 1955
a. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
c. No data available (Evans, 1955)

Cynea robba Evans, 1955
KAIET; 2 March, 1936; AH(Evans, 1955; Mielke, 2005; Warren *et al*., 2013)

24. *Damas* Godman, 1901
Damas clavus (Herrich-Schäffer, 1869)
a. SIP RV; 24 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. BERBI; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

25. *Decinea* Evans, 1955
Decinea decinea (Hewitson, 1876)
a. KAIET; no data available (Hall, 1939d as *Thracides decinea*)
b. No data available (Evans, 1955)

Decinea lucifer (Hübner, [1831])
No data available (Evans, 1955)

Decinea percosius (Godman, 1900)
a. TUMAT; 25 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Cobalus percosius*)
b. No data available (Bell, 1946 as *Cobalus percosius*; Evans, 1955)

26. *Dubiella* Evans, 1936

Dubiella dubius (Stoll, 1781)

a. BERBI; no data available (Hall, 1939d as *Coeliades dubius*)
b. DEMER; no data available (Hall, 1939d as *Coeliades dubius*)
c. No data available (Evans, 1955)

27. *Ebusus* Evans, 1955

Ebusus ebusus (Cramer, 1780)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955)

28. *Enosis* Mabille, 1889

Enosis angularis (Möschler, 1877)

No data available (Evans, 1955)

Enosis blenda Evans, 1955

TUR MT; 20–26 March, 2001; SF *et al*. [BH] (in CSBD collection, UG)

Enosis iccius Evans, 1955

TAK RI; date of collection/observation not available; HW (Evans, 1955; Warren *et al*., 2013)

Enosis uza (Hewitson, 1877)

a. TAKUT; no data available (Hall, 1939d as *Dion prinosa*)
b. No data available (Evans, 1955 as *Enosis pruinosa*)

29. *Eprius* Godman, 1901

Eprius veleda (Godman, 1901)

KAIET; no data available (Hall, 1939d as *Epeus veleda*)

30. *Euphyes* Scudder, 1872

Euphyes cornelius (Latreille, [1824])

a. COVER; no data available (Hall, 1939d as *Prenes cornelius*)
b. PARIK; no data available (Hall, 1939d as *Prenes cornelius*)

Euphyes peneia (Godman, 1900)

a. ROCKS; 26 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Atrytone tristis*)
b. PARIK; no data available (Hall, 1939d as *Lerema peneia*)
c. No data available (Box, 1953; Evans, 1955)

31. *Eutocus* Godman, 1901

Eutocus fabulinus (Plötz, 1884)

a. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)

b. No data available (Evans, 1955)

Eutocus facilis (Plötz, 1884)
No data available (Evans, 1955; Cock, 2013b)

Eutocus matildae (Hayward, 1941)
a. KAM RI; no data available [BH] (Warren *et al*., 2013)
b. No data available (Evans, 1955)

32. *Eutychide* Godman, 1900
Eutchide asema (Mabille, 1891)
TAKUT; no data available (Hall, 1939d)

Eutchide complana (Herrich-Schäffer, 1869)
No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

Eutychide subcordata (Herrich-Schäffer, 1869)
a. KAM RI; no data available (Hall, 1939d)
b. MT ROR; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

Eutychide subpunctata Hayward, 1940
a. TAK RI; no data available (Warren *et al*., 2013)
b. No data available (Evans, 1955 as *Eutychide sempa*)

33. *Flaccilla* Godman, 1901
Flaccilla aecas (Stoll, 1781)
a. MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. BARTI; no data available (Hall, 1939d)
c. KAM RI; no data available (Hall, 1939d)
d. MT ROR; no data available (Hall, 1939d)
e. TAKUT; no data available (Hall, 1939d)
f. No data available (Evans, 1955 and Freeman, 1968 as *Aecas aecas*)

34. *Hansa* Evans, 1955
Hansa devergens (Draudt, 1923)
a. PUR TR; 2 August, 1925; GMo (Lindsey, 1928 and Mielke, 2005 as *Problema morgani*)
b. No data available (Evans, 1955)

35. *Hylephila* Billberg, 1820
Hylephila phyleus (Drury, 1773)
No data available (Hall, 1939d as *Hylephila phylaeus*; Evans, 1955)

36. *Joanna* Evans, 1955

Joanna boxi Evans, 1955

a. BERBI; 1924; HBo (Evans, 1955; Mielke, 2005; Warren *et al*., 2013)
b. DEMER; no data available (Warren *et al*., 2013)

37. *Justinia* Evans, 1955

Justinia gava Evans, 1955

a. KAM RI; date of collection/observation not available; HW (Evans, 1955; Warren *et al*., 2013)
b. MT ROR; no data available (Warren *et al*., 2013)
c. QUONG; no data available (Warren *et al*., 2013)

Justinia justinianus (Latreille, [1824])

a. BARTI; date of collection/observation not available; AH (Hall, 1939d as *Eutychide cingulicornis*)
b. KAM RI; no data available (Hall, 1939d as *Eutychide cingulicornis*)
c. MT ROR; no data available (Hall, 1939d as *Eutychide cingulicornis*)
d. QUONG; date of collection/observation not available; AH (Hall, 1939d as *Phanis justinianus*)
e. QUONG; no data available (Hall, 1939d as *Eutychide cingulicornis*)
f. No data available (Evans, 1955)

Justinia phaetusa (Hewitson, 1866)

No data available (Evans, 1955)

38. *Lento* Evans, 1955

Lento ferrago (Plötz, 1884)

a. TAKUT; no data available (Hall, 1939d as *Zariaspes ferrago*)
b. No data available (Evans, 1955)

Lento krexoides (Hayward, 1940)

TAK RI; date of collection/observation not available; HW (Evans, 1955)

Lento lento (Mabille, 1878)

a. PUR TR; 29 July, 1925; GMo (Lindsey, 1928 as *Padraona eudesmia*)
b. No data available (Evans, 1955)

Lento lora Evans, 1955

TAK RI; no data available (Warren *et al*., 2013)

39. *Lerema* Scudder, 1872

Lerema accius (Smith, 1797)

a. BERBI; no data available (Hall, 1939d as *Lerema parumpunctata*; Box, 1953)
b. No data available (Moore, 1915)

Lerema ancillaris (Butler, 1877)

a. GEORG; date of collection/observation not available; HM (Dyar, 1914 and Hall, 1939d as *Lerema mooreana*; Warren *et al*., 2013)
b. No data available (Moore, 1915 as *Lerema mooreana*; Box, 1953; Evans, 1955; Beccaloni *et al.*, 2008; Cock, 2013a)

Lerema lineosa (Herrich-Schäffer, 1865)
No data available (Evans, 1955; Cock, 2013a)

40. *Ludens* Evans, 1955
Ludens ludens (Mabille, 1891)
a. PUR TR; 21 June, 1925; GMo (Lindsey, 1928 as *Mnestheus ludens*)
b. NP MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
c. ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
d. KAIET; no data available (Hall, 1939d as *Mnestheus ludens*)
e. No data available (Evans, 1955)

41. *Lycas* Godman, 1901
Lycas godart (Latreille, [1824])
No data available (Evans, 1955 as *Lycas godarti*)

42. *Methionopsis* Godman, 1901
Methionopsis dolor Evans, 1955
No data available (Evans, 1955)

Methionopsis ina (Plötz, 1882)
a. PUR TR; 10 July, 1925; GMo (Lindsey, 1928 as *Methionopsis modestus*)
b. 2HTMB; 21–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
d. BARTI; no data available (Hall, 1939d)
e. KAIET; no data available (Hall, 1939d)
f. KAM RI; no data available (Hall, 1939d)
g. No data available (Evans, 1955)

43. *Metron* Godman, 1900
Metron chrysogastra (Butler, 1870)
No data available (Bell, 1946)

44. *Misius* Evans, 1955
Misius misius (Mabille, 1891)
a. TUR MT; 20–26 March, 2001; SF *et al*. [BH] (in CSBD collection, UG)
b. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *?Levina levina*)

45. *Mnaseas* Godman, 1901

Mnaseas bicolor (Mabille, 1889)

a. MABAR; no data available (Hall, 1939d)
b. PARIK; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

46. *Mnasilus* Godman, 1900

Mnasilus allubita (Butler, 1877)

a. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Mnasilus penicillatus*)
b. BROTH; 2015; HS [BH] (Sambhu, unpubl. data)
c. CRAIG; 2015; HS [BH] (Sambhu, unpubl. data)
d. CUM VI; 2015; HS [BH] (Sambhu, unpubl. data)
e. FRIEN; 2015; HS [BH] (Sambhu, unpubl. data)
f. HRE VI; 2015; HS [BH] (Sambhu, unpubl. data)
g. LBI CA; 2015; HS [BH] (Sambhu, unpubl. data)
h. MON VI; 2015; HS [BH] (Sambhu, unpubl. data)
i. N63 VI; 2015; HS [BH] (Sambhu, unpubl. data)
j. N72 VI; 2015; HS [BH] (Sambhu, unpubl. data)
k. NIG VI; 2015; HS [BH] (Sambhu, unpubl. data)
l. SANDA; 2015; HS [BH] (Sambhu, unpubl. data)
m. SKE CA; 2015; HS [BH] (Sambhu, unpubl. data)
n. SKE VI; 2015; HS [BH] (Sambhu, unpubl. data)
o. TAI CA; 2015; HS [BH] (Sambhu, unpubl. data)
p. TAI VI; 2015; HS [BH] (Sambhu, unpubl. data)
q. BARTI; no data available (Hall, 1939d as *Mnasilus pencillatus*)
r. GEORG; no data available (Cock, 2013b)
s. KITTY; no data available (Dyar, 1917 as *Vehilius norma*)
t. No data available (Bell, 1946 as *Vehilius norma*; Evans, 1955; Beccaloni *et al*., 2008)

47. *Mnasitheus* Godman, 1900

Mnasitheus chrysophrys (Mabille, 1891)

No data available (Bell, 1946 as *Mnasitheus cephis*; Evans, 1955)

Mnasitheus simplicissima (Herrich-Schäffer, 1870)

a. KARTA; 6 July and 2 August, 1925; GMo (Lindsey, 1928 as *Mnasitheus simplicissimus*)
b. MAZ TR; 6 August, 1925; GMo (Lindsey, 1928 as *Mnasitheus simplicissimus*)
c. ROCKS; 26 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
d. TUMAT; 28–29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
e. BARTI; no data available (Hall, 1939d as *Mnasitheus simplicissimus*)
f. GEORG; no data available (Hall, 1939d as *Mnasatcas uniformis*)

48. *Moeris* Godman, 1900

Moeris striga (Geyer, 1832)

2HAT M; 30 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)

49. *Moeros* Evans, 1955

Moeros moeros (Möschler, 1877)

No data available (Evans, 1955)

50. *Molo* Godman, 1900

Molo calcarea (Schaus, 1902)

No data available (Evans, 1955 as *Molo menta*)

Molo mango (Guenée, 1865)

a. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
c. DEMER; no data available (Hall, 1939d)
d. No data available (Evans, 1955)

51. *Monca* Evans, 1955

Monca telata (Herrich-Schäffer, 1869)

a. QUONG; no data available (Hall, 1939d as *Cymaenes telata*)
b. No data available (Evans, 1955)

52. *Morys* Godman, 1900

Morys compta (Butler, 1877)

a. PUR TR; 22 June, 1925; GMo (Lindsey, 1928 as *Euroto micythus*)
b. KALAC; 4 July, 1925; GMo (Lindsey, 1928 as *Euroto micythus*)
c. CHARI; April, 2017; ANk [BH] (Nankishore, pers. obs.)
d. COVER; no data available (Hall, 1939d as *Euroto compta*)
e. MABAR; date of collection/observation not available; AH (Hall, 1939d as *Papias leucopogon*)
f. PARIK; no data available (Hall, 1939d as *Euroto compta*)
g. No data available (Evans, 1955)

Morys geisa (Möschler, 1879)

a. COVER; no data available (Hall, 1939d as *Euroto geisa*)
b. PARIK; no data available (Hall, 1939d as *Euroto geisa*)
c. No data available (Evans, 1955)

53. *Mucia* Godman, 1900

Mucia zygia (Plötz, 1886)

No data available (Evans, 1955)

54. *Naevolus* Hemming, 1939

Naevolus orius (Mabille, 1883)

a. PARIK; date of collection/observation not available; AH (Hall, 1939d as *Cydrus naevolus*)
b. No data available (Evans, 1955)

55. *Nastra* Evans, 1955

Nastra guianae (Lindsey, 1925)

a. GEORG; 10–15 November, 1920; collector/observer name/names not available (Mielke, 2005)
b. No data available (Evans, 1955; Cock, 2013b)

Nastra leucone (Godman, 1900)

a. OMAI; no data available (Hall, 1939d as *Megistias leucone*)
b. TAKUT; no data available (Hall, 1939d as *Megistias leucone*)

56. *Neoxeniades* Hayward, 1938

Neoxeniades myra Evans, 1955

MOR CK; 15 September, 1929; collector/observer name/names not available (Evans, 1955)

57. *Niconiades* Hübner, [1821]

Niconiades caeso (Mabille, 1891)

a. KAIET; no data available (Hall, 1939d)
b. MACKE; no data available (Hall, 1939d)

Niconiades nikko Hayward, 1948

No data available (Evans, 1955)

Niconiades xanthaphes Hübner, [1821]

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. BERBI; no data available (Hall, 1939d)
c. GEORG; no data available (Hall, 1939d)
d. KAIET; no data available (Hall, 1939d)
e. No data available (Evans, 1955)

Niconiades yoka Evans, 1955

No data available (Evans, 1955)

58. *Nyctelius* Hayward, 1948

Nyctelius nyctelius (Latreille, [1824])

a. CHARI; April, 2017; ANk [BH] (Nankishore, pers. obs.)
b. BERBI; no data available (Hall, 1939d as *Prenes nyctelius*)
c. DEMER; no data available (Hall, 1939d as *Prenes nyctelius*)
d. No data available (Moore, 1915 as *Prenes ares*; Box, 1953; Evans, 1955; Cock, 2002)

59. *Onophas* Godman, 1900

Onophas columbaria (Herrich-Schäffer, 1870)

a. KAM RI; no data available (Hall, 1939d)

b. No data available (Bell, 1946; Evans, 1955)

60. *Orphe* Godman, 1901

Orphe gerasa (Hewitson, 1867)

No data available (Evans, 1955)

Orphe vatinius Godman, 1901

No data available (Evans, 1955)

61. *Orses* Godman, 1901

Orses cynisca (Swainson, 1821)

a. ANNAI; no data available (Hall, 1939d)
b. BARTI; no data available (Hall, 1939d)
c. KAM RI; no data available (Hall, 1939d)
d. No data available (Evans, 1955)

62. *Orthos* Evans, 1955

Orthos trinka Evans, 1955

KING F; 14–22 March, 1936; GH (Evans, 1955; Warren *et al*., 2013)

63. *Panoquina* Hemming, 1934

Panoquina bola Bell, 1942

No data available (Evans, 1955)

Panoquina evadnes (Stoll, 1781)

a. KARTA; 30 July, 1925; GMo (Lindsey, 1928 as *Prenes evadnes*)
b. DEMER; no data available (Hall, 1939d as *Prenes evadnes*)
c. KAIET; no data available (Hall, 1939d as *Prenes evadnes*)
d. QUONG; no data available (Hall, 1939d as *Prenes evadnes*)
e. TAKUT; no data available (Hall, 1939d as *Prenes evadnes*)
f. No data available (Evans, 1955)

Panoquina fusina (Hewitson, 1868)

No data available (Evans, 1955; Cock, 2003)

Panoquina hecebolus (Scudder, 1872)

No data available (Evans, 1955)

Panoquina lucas (Fabricius, 1793)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Panoquina sylvicola*)
d. CHARI; April, 2017; ANk [BH] (Nankishore, pers. obs.)

e. No data available (Hall, 1939d as *Prenes sylvicola*; Evans, 1955 as *Panoquina sylvicola*)

Panoquina nero (Fabricius, 1798)

a. MT ROR; no data available (Hall, 1939d as *Prenes nero*)
b. QUONG; no data available (Hall, 1939d as *Prenes nero*)

Panoquina ocola (Edwards, 1863)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. ARROW; April, 2012; AZ [BH] (Zheludev, 2013)
c. BERBI; no data available (Hall, 1939d as *Prenes ocola*)
d. MT ROR; no data available (Hall, 1939d as *Prenes ocola*)
e. QUONG; no data available (Hall, 1939d as *Prenes ocola*)
f. No data available (Moore, 1915 as *Prenes ocola*; Box, 1953; Evans, 1955)

Panoquina peraea (Hewitson, 1866)

No data available (Evans, 1955 as *Carystus senex*)

64. *Papias* Godman, 1900

Papias dictys Godman, 1900

MABAR; no data available (Hall, 1939d)

Papias phaeomelas (Hübner, [1831])

a. MAZ PS; 30 June, 1925; GMo (Lindsey, 1928 as *Papias microsema*)
b. TUMAT; 28–29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
c. No data available (Evans, 1955; Cock, 2013b)

Papias phainis Godman, 1900

a. REWA; April, 2012; AZ [BH] (Zheludev, 2013)
b. BARTI; no data available (Mielke, 2005 as *Papias monus*)
c. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
d. No data available (Evans, 1955 as *Papias sobrinus* and *P. phainis*; Cock, 2013b)

Papias subcostulata (Herrich-Schäffer, 1870)

a. NP MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. KAM RI; no data available (Hall, 1939d as *Papias integra*)
c. No data available (Evans, 1955)

65. *Paracarystus* Godman, 1900

Paracarystus hypargyra (Herrich-Schäffer, 1869)

a. DEM RI; no data available (Hall, 1939d)
b. GEORG; no data available (Hall, 1939d)
c. No data available (Bell, 1946 as *Paracarystus hipargyra*; Evans, 1955)

Paracarystus menestries (Latreille, [1824])

a. FO SIP; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. SURAM; 13 February, 2017; DG (Geale, 2017)
d. DEMER; no data available (Hall, 1939d as *Paracarystus menetriesii*)
e. KAM RI; no data available (Hall, 1939d as *Paracarystus menetriesii*)
f. No data available (Evans, 1955 as *Paracarystus menestriesi*)

66. *Parphorus* Godman, 1900

Parphorus decora (Herrich-Schäffer, 1869)

a. KARTA; 6 and 30 July, 1925; GMo (Lindsey, 1928 as *Vorates decorus*)
b. PUR TR; 21 June and 2 August, 1925; GMo (Lindsey, 1928 as *Vorates decorus*)
c. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
d. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
e. MABAR; no data available (Hall, 1939d as *Vorates decora*)
f. TAKUT; no data available (Hall, 1939d as *Vorates decora*)
g. No data available (Evans, 1955)

Parphorus jaguar Steinhauser, 2008

CP JAG; 7, November, 1980; SS (Steinhauser, 2008; Warren *et al*., 2013)

Parphorus storax (Mabille, 1891)

a. SIP RV; 24 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. MT ROR; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

67. *Penicula* Evans, 1955

Penicula bryanti (Weeks, 1906)

No data available (Evans, 1955)

68. *Perichares* Scudder, 1872

Perichares philetes (Gmelin, [1790])

a. KARTA; 21 June and 9 July, 1925; GMo (Lindsey, 1928 as *Perichares corydon*)
b. TAI CA; 16 April, 2015; HS (Sambhu, unpubl. data)
c. SKE CA; 6 October, 2015; HS (Sambhu, unpubl. data)
d. BROTH; 22 November and 12 December, 2015; HS (Sambhu, unpubl. data)
e. CANEG; 18 August, 2016; BP [BH] (Punu, pers. obs.)
f. BARTI; no data available (Hall, 1939d as *Perichares coridon*)
g. DEMER; no data available (Hall, 1939d as *Perichares coridon*)
h. MT ROR; no data available (Hall, 1939d as *Perichares coridon*)
i. QUONG; no data available (Hall, 1939d as *Perichares coridon*)

j. TAKUT; no data available (Hall, 1939d as *Perichares coridon*)
k. No data available (Moore, 1915 as *Perichares corydon*; Bell, 1946 as *P. phocion*; Box, 1953; Evans, 1955)

69. *Phanes* Godman, 1901

Phanes aletes (Geyer, 1832)

No data available (Evans, 1955)

Phanes almoda (Hewitson, 1866)

a. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. IW MT B; 27 March–1 April, 2001; SF [BH] (in CSBD collection, UG)
c. QUONG; no data available (Hall, 1939d as *Phanis almoda*)
d. No data available (Evans, 1955)

Phanes rezia (Plötz, 1882)

a. MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. BARTI; no data available (Hall, 1939d as *Phanis rezia*)
c. No data available (Bell, 1946)

70. *Phemiades* Hübner, [1819]

Phemiades milvius (Mabille, 1904)

a. TAKUT; no data available (Hall, 1939d as *Trioedusa milvius*)
b. No data available (Evans, 1955; Warren *et al*., 2013)

71. *Phlebodes* Hübner, [1819]

Phlebodes campo (Bell, 1947)

No data available (Evans, 1955)

Phlebodes pertinax (Stoll, 1781)

No data available (Evans, 1955)

Phlebodes vira (Butler, 1870)

No data available (Evans, 1955)

72. *Polites* Scudder, 1872

Polites rhesus (Edwards, 1878)

No data available (Evans, 1955 as *Yvretta rhesus*)

Polites vibex (Geyer, 1832)

a. SAV IR; November, 1993; SF (Fratello, 1996b)
b. 2HTMC; 14 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. GEORG; April, 2012; AZ [BH] (Zheludev, 2013)
d. KAIET; no data available (Evans, 1955)
e. No data available (Hall, 1939d as *Thymelicus vibex*)

73. *Pompeius* Evans, 1955

Pompeius amblyspila (Mabille, 1898)

a. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
b. No data available (Evans, 1955)

Pompeius pompeius (Latreille, [1824])

a. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Polites athenion*)
b. No data available (Hall, 1939d as *Thymelicus athenion*; Evans, 1955)

74. *Propapias* Mielke, 1992

Propapias sipariana (Kaye, 1925)

No data available (Evans, 1955 as *Papias proximus*; Cock, 2010)

75. *Propertius* Evans, 1955

Propertius phineus (Cramer, 1777)

No data available (Evans, 1955 as *Propertius albistriga*)

Propertius propertius (Fabricius, 1793)

a. BARTI; no data available (Hall, 1939d as *Phemiades propertius*)
b. DEMER; no data available (Hall, 1939d as *Phemiades propertius*)
c. KAM RI; no data available (Hall, 1939d as *Phemiades propertius*)

76. *Pyrrhopygopsis* Godman, 1901

Pyrrhopygopsis socrates (Ménétriés, 1855)

No data available (Evans, 1955)

77. *Quasimellana* Burns, 1994

Quasimellana eulogius (Plötz, 1882)

a. GEORG; no data available (Hall, 1939d as *Atrytone eulogius*; NMNH, 2016 as *Atrytone heberia*)
b. KAIET; no data available (Hall, 1939d as *Atrytone eulogius*)
c. NONPA; date of collection/observation not available; HM (Dyar, 1914 and Hall, 1939d as *Atrytone heberia*)
d. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
e. No data available (Moore, 1915 as *Atrytone heberia*; Bell, 1946 and Box, 1953 as *Atrytone eulogius*; Evans, 1955 as *Mellana eulogius*; Beccaloni *et al*., 2008)

Quasimellana meridiani (Hayward, 1934)

No data available (Evans, 1955 as *Mellana meridiani*)

Quasimellana myron (Godman, 1900)

No data available (Bell, 1946 as *Atrytone myron*; Evans, 1955 as *Mellana myron*)

78. *Quinta* Evans, 1955

Quinta cannae (Herrich-Schäffer, 1869)

a. GEORG; 22 July, 1927; WF & PB (Williams Jr. & Bell, 1931 as
b. No data available (Hall, 1939d as *Cobalus cannae*; Evans, 1955)

79. *Remella* Hemming, 1939

Remella remus (Fabricius, 1798)

a. MT ROR; no data available (Hall, 1939d as *Perimeles remus*)
b. No data available (Evans, 1955 as *Moeris remus*)

80. *Saliana* Evans, 1955

Saliana antoninus (Latreille, [1824])

a. COVER; no data available (Hall, 1939d as *Thracides antoninus*)
b. PARIK; no data available (Hall, 1939d as *Thracides antoninus*)
c. No data available (Evans, 1955)

Saliana chiomara (Hewitson, 1867)

a. BARTI; no data available (Hall, 1939d as *Thracides chiomara*)
b. DEM RI; no data available (Hall, 1939d as *Thracides chiomara*)
c. KAM RI; no data available (Hall, 1939d as *Thracides chiomara*)
d. No data available (Evans, 1955)

Saliana esperi Evans, 1955

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955; Cock, 2003)

Saliana fischer (Latreille, [1824])

a. FO SIP; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. KAIET; no data available (Hall, 1939d as *Thracides fischeri*)
c. KAM RI; no data available (Hall, 1939d as *Thracides fischeri*)
d. No data available (Evans, 1955 as *Saliana fischeri*)

Saliana longirostris (Sepp, [1840])

a. CEIBA; 8 February, 2002; D, Pg & So [BH] (in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939d as *Thracides longirostris*)
c. BERBI; no data available (Hall, 1939d as *Thracides longirostris*)
d. DEMER; no data available (Hall, 1939d as *Thracides longirostris*)
e. GEORG; no data available (Hall, 1939d as *Thracides longirostris*)
f. IDA SA; no data available (Hall, 1939d as *Thracides longirostris*)
g. OMAI; no data available (Hall, 1939d as *Thracides longirostris*)
h. QUONG; no data available (Hall, 1939d as *Thracides longirostris*)
i. TAKUT; no data available (Hall, 1939d as *Thracides longirostris*)
j. No data available (Evans, 1955)

Saliana morsa Evans, 1955

No data available (Evans, 1955)

Saliana saladin Evans, 1955

a. SIP RV; 24 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955)

Saliana salius (Cramer, 1775)

a. 3 FR MN; 23 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Thracides salius*)
b. PARIK; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

Saliana triangularis (Kaye, 1914)

No data available (Evans, 1955)

81. *Saturnus* Evans, 1955

Saturnus reticulata (Plötz, 1883)

a. ACA MT; 4–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. BARTI; no data available (Hall, 1939d as *Phlebodes tiberius*)
d. KAM RI; no data available (Hall, 1939d as *Philebodes reticulata*)
e. MT ROR; no data available (Hall, 1939d as *Philebodes reticulata*)
f. QUONG; no data available (Hall, 1939d as *Philebodes reticulata*)
g. No data available (Evans, 1955 as *Saturnus tiberius*)

Saturnus saturnus (Fabricius, 1787)

a. TUR MT; 20–26 March, 2001; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955)

82. *Sodalia* Evans, 1955

Sodalia sodalis (Butler, 1877)

No data available (Bell, 1932 as *Euroto saramacca*; Evans, 1955)

83. *Styriodes* Schaus, 1913

Styriodes quota (Evans, 1955)

KAM RI; date of collection/observation not available; HW (Evans, 1955 as *Styrioides quota*; Warren *et al*., 2013)

84. *Synapte* Mabille, 1904

Synapte malitiosa (Herrich-Schäffer, 1865)

a. QUONG; no data available (Hall, 1939d as *Cymaenes pericles*)
b. No data available (Evans, 1955)

Synapte silius (Latreille, [1824])

a. PARIK; no data available (Hall, 1939d as *Cymaenes silius*)

b. QUONG; no data available (Hall, 1939d as *Cymaenes silius*)
c. No data available (Bell, 1946; Evans, 1955)

85. *Talides* Hübner, [1819]

Talides sergestus (Cramer, 1775)

a. DEMER; no data available (Hall, 1939d)
b. KAM RI; no data available (Hall, 1939d)
c. QUONG; no data available (Hall, 1939d)
d. No data available (Wilkinson, 1931; Evans, 1955)

Talides sinois Hübner, [1819]

No data available (Evans, 1955)

86. *Tellona* Evans, 1955

Tellona variegata (Hewitson, 1870)

No data available (Evans, 1955)

87. *Thargella* Godman, 1900

Thargella caura (Plötz, 1882)

a. 2HAT M; 30 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. CP JAG; no data available (Warren *et al*., 2013)
c. KAIET; no data available (Hall, 1939d as *Thargella fuliginosa*)
d. PARIK; no data available (Hall, 1939d as *Thargella fuliginosa*)
e. No data available (Hall, 1939d as *Thargella fuliginosa*; Bell, 1946; Evans, 1955; Cock, 2013b)

88. *Thespieus* Godman, 1900

Thespieus dalman (Latrielle, [1824])

a. OMAI; no data available (Hall, 1939d as *Thespieus dalmani*)
b. No data available (Evans, 1955; Henao & Vargos-Chica, 2009)

89. *Thoon* Godman, 1900

Thoon dubia (Bell, 1932)

a. ACA MT; 4–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955)

Thoon opus Steinhauser, 2008

CP JAG; 14 October, 1980; SS (Steinhauser, 2008; Warren *et al*., 2013)

Thoon slopa Evans, 1955

a. GEORG; no data available (Warren *et al*., 2013)
b. No data available (Evans, 1955)

Thoon taxes Godman, 1900

a. MAZ TR; 2 August, 1925; GMo (Lindsey, 1928)
b. No data available (Evans, 1955)

90. *Thracides* Hübner, [1819]

Thracides arcalaus (Stoll, 1782)

No data available (Hall, 1939d; Evans, 1955 as *Telles arcalaus*)

Thracides cleanthes (Latreille, [1824])

a. DEMER; no data available (Hall, 1939d as *Pyrrhopygopsis cleanthes*)
b. No data available (Evans, 1955; Cock, 2003)

Thracides phidon (Cramer, 1779)

a. BERBI; no data available (Hall, 1939d)
b. DEMER; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

Thracides thrasea (Hewitson, 1866)

No data available (Hall, 1939d as *Pyrrhopygopsis thrasea*; Evans, 1955)

91. *Tirynthoides* Bell, 1940

Tirynthoides lotana (Butler, 1870)

No data available (Evans, 1955)

92. *Vacerra* Godman, 1900

Vacerra bonfilius (Latreille, [1824])

No data available (Evans, 1955)

Vacerra litana (Hewitson, 1866)

QUONG; no data available (Hall, 1939d)

93. *Vehilius* Godman, 1900

Vehilius celeus (Mabille, 1891)

a. SURAM; April, 2012; AZ [BH] (Zheludev, 2013)
b. BROTH; 2015; HS [BH] (Sambhu, unpubl. data)
c. CRAIG; 2015; HS [BH] (Sambhu, unpubl. data)
d. CUM VI; 2015; HS [BH] (Sambhu, unpubl. data)
e. FRIEN; 2015; HS [BH] (Sambhu, unpubl. data)
f. HRE; 2015; HS [BH] (Sambhu, unpubl. data)
g. LBI CA; 2015; HS [BH] (Sambhu, unpubl. data)
h. MON VI; 2015; HS [BH] (Sambhu, unpubl. data)
i. N72 VI; 2015; HS [BH] (Sambhu, unpubl. data)
j. NIG VI; 2015; HS [BH] (Sambhu, unpubl. data)
k. SANDA; 2015; HS [BH] (Sambhu, unpubl. data)
l. SKE CA; 2015; HS [BH] (Sambhu, unpubl. data)
m. SKE VI; 2015; HS [BH] (Sambhu, unpubl. data)
n. TAI CA; 2015; HS [BH] (Sambhu, unpubl. data)
o. TAI VI; 2015; HS [BH] (Sambhu, unpubl. data)
p. No data available (Evans, 1955 as *Vehilius almoneus*)

Vehilius inca (Scudder, 1872)

No data available (Evans, 1955)

Vehilius stictomenes (Butler, 1877)

a. KAM FB; 2 July, 1925; GMo (Lindsey, 1928 as *Vehilius venosus*)
b. PUR TR; 30 July, 1925; GMo (Lindsey, 1928 as *Vehilius venosus*)
c. MAZ TR; 2 August, 1925; GMo (Lindsey, 1928 as *Vehilius venosus*)
d. GEORG; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius venosus*)
e. MACKE; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius venosus*)
f. ROCKS; 26 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius venosus*)
g. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius venosus*)
h. DEMER; no data available (Hall, 1939d)
i. KITTY; no data available (Warren *et al*., 2013)
j. MABAR; no data available (Hall, 1939d)
k. NEW AM; no data available (Hall, 1939d)
l. TAKUT; no data available (Hall, 1939d)
m. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
n. No data available (Hall, 1939d as *Vehilius illudens*; Evans, 1955)

Vehilius vetula (Mabille, 1878)

a. GEORG; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius forbesi*)
b. MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius forbesi*)
c. BARTI; no data available (Williams Jr. & Bell, 1931 as *Vehilius forbesi*; Hall, 1939d as *Callimormus vetula*)
d. COVER; no data available (Hall, 1939d as *Callimormus vetula*)
e. KAIET; no data available (Hall, 1939d as *Callimormus vetula*)
f. POT RI; no data available (Williams Jr. & Bell, 1931 as *Vehilius forbesi*)
g. WARAN; no data available (Williams Jr. & Bell, 1931 as *Vehilius forbesi*)
h. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
i. No data available (Bell, 1946 as *Vehilius forbesi*; Evans, 1955)

94. *Venas* Evans, 1955

Venas caerulans (Mabille, 1878)

a. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Vehilius scheria*)
b. COVER; no data available (Hall, 1939d as *Vehilius scheria*)
c. No data available (Evans, 1955)

95. *Vertica* Evans,1955

Vertica subrufescens (Schaus, 1913)

MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931 as *Carystus subrufescens*)

Vertica verticalis (Plötz, 1882)

a. COVER; date of collection/observation not available; AH (Hall, 1939d as *Miltomiges verticalis*)
b. No data available (Evans, 1955)

96. *Vettius* Godman, 1901

Vettius artona (Hewitson, 1868)

a. 2HAT M; 30 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Hall, 1939d as *Carystus artona*; Evans, 1955)

Vettius fantasos (Cramer, 1780)

No data available (Evans, 1955)

Vettius klugi (Bell, 1941)

No data available (Evans, 1955)

Vettius lafrenaye (Latreille, [1824])

a. ACB MT; 6–9 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. IWO MT; 28 March–1 April, 2001; SF [BH] (in CSBD collection, UG)
c. BARTI; no data available (Hall, 1939d as *Vettius lafresnayi*)
d. KAIET; no data available (Hall, 1939d as *Vettius lafresnayi*)
e. KAM RI; no data available (Hall, 1939d as *Vettius lafresnayi*)
f. No data available (Evans, 1955 as *Vettius lafresnayei*)

Vettius marcus (Fabricius, 1787)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. No data available (Evans, 1955)

Vettius monacha (Plötz, 1882)

No data available (Henao & Vargos-Chica, 2009)

Vettius phyllus (Cramer, 1777)

a. BAR TR; 1 July, 1925; GMo (Lindsey, 1928 as *Carystus laurea*)
b. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
d. DEMER; no data available (Hall, 1939d)
e. MABAR; no data available (Hall, 1939d)
f. POT RI; no data available (Hall, 1939d)
g. No data available (Evans, 1955)

Vettius richardi (Weeks, 1906)

a. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Vetius ?crispa*)
b. No data available (Evans, 1955)

Vettius triangularis (Hübner, [1831])

a. KAM FB; 30 November−5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Evans, 1955)

97. *Vinius* Godman, 1900

Vinius tryhana (Kaye, 1914)

a. BARTI; no data available (Hall, 1939d as *Padraona tryhana*)
b. DEMER; no data available (Hall, 1939d as *Padraona tryhana*)
c. ESSE R; no data available (Hall, 1939d as *Padraona tryhana*)
d. No data available (Evans, 1955; Cock, 2010)

98. *Wallengrenia* Berg, 1897

Wallengrenia otho (Smith, 1797)

a. SAV IR; November, 1993; SF (Fratello, 1996b)
b. GEORG; no data available (NMNH, 2016)
c. No data available (Bell, 1946; Box, 1953 as *Atrytone clavus*; Evans, 1955 as *Wallengrenia druryi* and *Mellana clavus*)

Wallengrenia premnas (Wallengren, 1860)

No data available (Bell, 1946; Evans, 1955)

99. *Xeniades* Godman, 1900

Xeniades chalestra (Hewitson, 1866)

a. TAI CA; 28 January, 2015; HS [BH] (Sambhu, unpubl. data)
b. BERBI; no data available (Hall, 1939d)
c. DEM RI; no data available (Hall, 1939d)
d. No data available (Moore, 1915; Box, 1953; Evans, 1955)

Xeniades orchamus (Cramer, 1777)

a. ANNAI; no data available (Hall, 1939d)
b. MT ROR; no data available (Hall, 1939d)
c. No data available (Evans, 1955)

100. *Zenis* Godman, 1900

Zenis jebus (Plötz, 1882)

No data available (Evans, 1955)

Zenis minos (Latreille, [1824])

TAKUT; no data available (Hall, 1939d)

101. *Zariaspes* Godman, 1900

Zariaspes mys (Hübner, [1808])

a. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. DEMER; no data available (Hall, 1939d)
c. MABAR; no data available (Hall, 1939d)
d. MT ROR; no data available (Hall, 1939d)
e. PARIK; no data available (Hall, 1939d)
f. No data available (Evans, 1955)

Subfamily: Pyrginae

Genus:

1. *Achlyodes* Hübner, [1819]

Achylodes busirus (Cramer, 1779)

a. MARUD; date of collection/observation not available; LA (Hall, 1939d as *Sebaldia busirus*)
b. No data available (Evans, 1953)

2. *Anastrus* Hübner, [1824]

Anastrus obliqua (Plötz, 1884)

No data available (Evans, 1953)

Anastrus obscurus Hübner, [1824]

a. DEM RI; no data available (Hall, 1939d)
b. KAM RI; no data available (Hall, 1939d)
c. No data available (Evans, 1953)

Anastrus petius (Möschler, 1877)

a. TUMAT; 28 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. No data available (Evans, 1953)

Anastrus sempiternus (Butler & Druce, 1872)

a. BARTI; no data available (Hall, 1939d as *Echelatus sempiternus*)
b. No data available (Evans, 1953)

Anastrus tolimus (Plötz, 1884)

a. QUONG; no data available (Hall, 1939d as *Echelatus robigus*)
b. No data available (Evans, 1953)

3. *Anisochoria* Mabille, 1877

Anisochoria pedaliodina (Butler, 1870)

a. 2HAT M; 30 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Bell, 1946 as *Anisochoria polysticta*)

4. *Antigonus* Hübner, [1819]

Antigonus erosus (Hübner, [1812])

NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (Prince *et al*., 2006; in CSBD collection, UG)

Antigonus nearchus (Latreille, [1817])

a. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939d)
c. No data available (Evans, 1953)

5. *Azonax* Godman & Salvin, [1893]

Azonax typhaon (Hewitson, 1877)

No data available (Evans, 1951)

6. *Camptopleura* Mabille, 1877

Camtopleura auxo (Möschler, 1879)

a. ACA MT; 4–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. No data available (Evans, 1953)

Camptopleura janthinus (Capronnier, 1874)

a. KAM RI; no data available (Hall, 1939d as *Camtopleura ebenus*)
b. No data available (Evans, 1953)

7. *Celaenorrhinus* Hübner, [1819]

Celaenorrhinus astrigera (Butler, 1877)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. QUONG; no data available (Hall, 1939d)
d. No data available (Evans, 1952)

Celaenorrhinus eligius (Stoll, 1781)

QUONG; no data available (Hall, 1939d)

Celaenorrhinus shema (Hewitson, 1877)

a. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
b. No data available (Evans, 1952)

Celaenorrhinus similis Hayward, 1933

No data available (Evans, 1952)

Celaenorrhinus syllius (Felder & Felder, 1862)

a. KUIEW; 2–25 April, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)

b. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
c. No data available (Evans, 1952)

8. *Celotes* Godman & Salvin, 1899
    Celotes nessus (Edwards, 1877)
        No data available (Evans, 1953)

9. *Charidia* Mabille, 1903
    Charidia lucaria (Hewitson, 1868)
        No data available (Hall, 1939d; Evans, 1953)

10. *Chiomara* Godman & Salvin, 1899
    Chiomara asychis (Stoll, 1780)
    a. GEORG; no data available (Hall, 1939d)
    b. No data available (Evans, 1953)

    Chiomara basigutta (Plötz, 1884)
    a. 2HTMC; 14 September–4 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    b. SURAM; 12 February, 2017; DG (Geale, 2017)
    c. DEM RI; no data available (Hall, 1939d as *Chiomara punctum*)
    d. No data available (Evans, 1953 as *Chiomara punctum*)

    Chiomara mithrax (Möschler, 1879)
    a. BARTI; no data available (Hall, 1939d)
    b. DEM RI; no data available (Hall, 1939d)
    c. No data available (Evans, 1953)

11. *Clito* Evans, 1953
    Clito littera (Mabille, 1877)
        KAIET; date of collection/observation not available; AH (Hall, 1939d as *Telemiades littera*)

12. *Conognathus* Felder & Felder, 1862
    Conognathus platon (Felder & Felder, 1862)
    a. NEW RI; date of collection/observation not available; GH (Hall, 1939d as *Garga platon*)
    b. No data available (Evans, 1953)

13. *Cornuphallus* Austin, 1997
    Cornuphallus onoribo (Möschler, 1883)
        No data available (Evans, 1953 as *Eracon onorbo*)

14. *Cycloglypha* Mabille, 1903
    Cycloglypha enega (Möschler, 1877)

No data available (Evans, 1953)

Cycloglypha thrasibulus (Fabricius, 1793)

a. MT ROR; no data available (Hall, 1939d as *Cycloglypha thrasybulus*)
b. OMAI; no data available (Hall, 1939d as *Cycloglypha thrasybulus*)
c. No data available (Evans, 1953)

Cycloglypha tisias (Godman & Salvin, 1896)

a. PUR TR; 10 July, 1925; GMo (Lindsey, 1928 as *Camptopleura tisias*)
b. MT ROR; no data available (Hall, 1939d)
c. No data available (Bell, 1946 as *Camptopleura tisias*; Evans, 1953; Freeman, 1968)

15. *Cyclosemia* Mabille, 1878

Cyclosemia anastomosis Mabille, 1878

KAM RI; no data available (Hall, 1939d)

Cyclosemia earina (Hewitson, 1878)

a. KAM RI; no data available (Hall, 1939d as *Cyclosemia carima*)
b. No data available (Evans, 1953)

Cyclosemia herennius (Stoll, 1782)

a. DEM RI; no data available (Hall, 1939d)
b. MARLI; no data available (Hall, 1939d)
c. No data available (Evans, 1953)

Cyclosemia pedro Williams & Bell, 1940

No data available (Evans, 1953)

16. *Eantis* Boisduval, 1836

Eantis thraso (Hübner, [1807])

a. BARTI; no data available (Hall, 1939d)
b. OMAI; no data available (Hall, 1939d)
c. QUONG; no data available (Hall, 1939d)
d. No data available (Evans, 1953 as *Achylodes thraso*)

17. *Ebrietas* Godman & Salvin, 1896

Ebrietas anacreon (Staudinger, 1876)

a. DEM RI; no data available (Hall, 1939d as *Ebrietas undulatus*)
b. KAM RI; no data available (Hall, 1939d as *Elrietas ecliptica*)
c. PARIK; no data available (Hall, 1939d as *Ebrietas undulatus*)

Ebrietas evanidus Mabille, 1898

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. No data available (Evans, 1953)

Ebrietas infanda (Butler, 1877)
No data available (Evans, 1953)

18. *Elbella* Evans, 1951
Elbella azeta (Hewitson, 1866)
ANUND; January, 1928; collector/observer name/names not available (as *Jemadia azeta* in Bell, 1932)

Elbella patrobus (Hewitson, 1857)
No data available (Evans, 1951)

19. *Eracon* Godman & Salvin, 1894
Eracon clinias (Mabille, 1878)
a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
b. No data available (Evans, 1953)

Eracon paulinus (Stoll, 1782)
No data available (Evans, 1953)

20. *Gorgythion* Godman & Salvin, 1896
Gorgythion begga (Prittwitz, 1868)
a. GEORG; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
c. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Gorgythion* spec.)
d. No data available (Hall, 1939d as *Gorgythion pyralina*; Evans, 1953)

Gorgythion plautia (Möschler, 1877)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. 2HTMB; 21–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)

21. *Grais* Godman & Salvin, 1894
Grais stigmaticus (Mabille, 1883)
No data available (Evans, 1953)

22. *Helias* Fabricius, 1807
Helias phalaenoides Fabricius, 1807
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. No data available (Hall, 1939d as *Diphoridas phalaenoides*; Evans, 1953)

23. *Heliopetes* Billberg, 1820
Heliopetes alana (Reakirt, 1868)
No data available (Evans, 1953)

Heliopetes arsalte (Linnaeus, 1758)

a. GEORG; April, 2012; AZ [BH] (Zheludev, 2013 as *Heliopetes ?*spec.)
b. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *?Heliopetes* spec.)
c. NIG VI; 27–28 January, 2015; HS (Sambhu, unpubl. data)
d. TAI VI; 27–28 January and 11 July, 2015; HS (Sambhu, unpubl. data)
e. LBI CA; 11 and 13 August, 2015; HS (Sambhu, unpubl. data)
f. No data available (Hall, 1939d as *Helioptes arsalte*; Evans, 1953)

Heliopetes macaira (Reakirt, [1867])

a. RP SAV; 20–21 February, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. 2HTMC; 15 September–4 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. No data available (Evans, 1953)

Heliopetes petrus (Hübner, [1819])

a. BARTI; no data available (Hall, 1939d as *Helioptes petrus*)
b. GEORG; no data available (Hall, 1939d as *Helioptes petrus*)
c. PARIK; no data available (Hall, 1939d as *Helioptes petrus*)
d. TAKUT; no data available (Hall, 1939d as *Helioptes petrus*)

24. *Heliopyrgus* Herrera, 1957

Heliopyrgus domicella (Erichson, [1849])

No data available (Bell, 1946 as *Pirgus domicella*; Evans, 1953 and Cock, 2000 as *Heliopetes domicella*; Scott, 2008; Warren *et al*., 2013)

25. *Jemadia* Watson, 1893

Jemadia fallax (Mabille, 1878)

a. NR KAM; 14 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. NEW RI; date of collection/observation not available; GH (Hall, 1939d)
c. No data available (Evans, 1951)

Jemadia gnetus (Fabricius, 1781)

No data available (Evans, 1951; Orellana, 2008; Warren *et al*., 2016)

26. *Milanion* Godman & Salvin, 1895

Milanion clito (Fabricius, 1787)

No data available (Evans, 1953 as *Clito clito*)

Milanion hemes (Cramer, 1777)

a. ANNAI; no data available (Hall, 1939d)
b. BERBI; no data available (Hall, 1939d)
c. KAIET; no data available (Hall, 1939d)
d. KAM RI; no data available (Hall, 1939d)
e. No data available (Bell, 1946; Evans, 1953)

27. *Morvina* Evans, 1953

Morvina falisca (Hewitson, 1878)

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. No data available (Evans, 1953)

Morvina morvus (Plötz, 1884)

No data available (Evans, 1953)

28. *Mylon* Godman & Salvin, 1894

Mylon jason (Ehrmann, 1907)

No data available (Bell, 1946; Evans, 1953)

Mylon maimon (Fabricius, 1775)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006 as *Mylon menippus*; in CSBD collection, UG)
b. KAM RI; no data available (Hall, 1939d as *Eudamidas melander*)
c. No data available (Evans, 1953 as *Mylon menippus*)

Mylon pelopidas (Fabricius, 1793)

a. DEM RI; no data available (Hall, 1939d as *Eudamidas ozema*)
b. KURUP; no data available (Hall, 1939d as *Eudamidas ozema*)
c. No data available (Evans, 1953)

Mylon simplex Austin, 2000

KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)

29. *Myrinia* Evans, 1953

Myrinia laddeyi (Bell, 1942)

No data available (Evans, 1953)

Myrinia santa Evans, 1953

No data available (Evans, 1953)

30. *Mysoria* Watson, 1893

Mysoria amra (Hewitson, 1871)

No data available (Hall, 1939d as *Amenis amra*)

Mysoria barcastus (Sepp, [1851])

a. ANNAI; April, 2012; AZ [BH] (Zheludev, 2013)
b. ESSE R; no data available (Evans, 1951)
c. MT ROR; no data available (Hall, 1939d as *Mysoria venezuelae*)
d. OMAI; no data available (Hall, 1939d as *Mysoria venezuelae*)
e. PARIK; no data available (Hall, 1939d *Mysoria venezuelae*)
f. PL BLM; no data available (Evans, 1951)

g. No data available (Evans, 1951; Orellana, 2008)

31. *Nisoniades* Hübner, [1819]
Nisoniades bessus (Möschler, 1877)
a. MABAR; no data available (Hall, 1939d as *Pellicia bessus*)
b. PARIK; no data available (Hall, 1939d as *Pellicia bessus*)
c. No data available (Evans, 1953)

Nisoniades brunneata (Williams & Bell, 1939)
No data available (Evans, 1953)

Nisoniades ephora (Herrich-Schäffer, 1870)
No data available (Hall, 1939d as *Pellicia tiphys*; Evans, 1953)

Nisoniades evansi Steinhauser, 1989
CP JAG; 9 November, 1980; SS (Steinhauser, 1989)

Nisoniades laurentina (Williams & Bell, 1939)
a. CP JAG; 6 November, 1980; collector/observer name/names not available (Warren *et al*., 2013)
b. No data available (Evans, 1953; Cock, 1991)

Nisoniades macarius (Herrich-Schäffer, 1870)
a. TUKEI; January, 1928; collector/observer name/names not available (as *Pellicia macarius* in Bell, 1932)
b. KAM RI; no data available (Hall, 1939d as *Pellicia macareus*)
c. OMAI; no data available (Hall, 1939d as *Pellicia macareus*)
d. QUONG; no data available (Hall, 1939d as *Pellicia macareus*)
e. TUKEI; no data available (Warren *et al*., 2013)
f. No data available (Evans, 1953)

Nisoniades mimas (Cramer, 1775)
No specified locality; date of collection/observation not available; P (Evans, 1953; Mielke, 2005)

Nisoniades nyctineme (Butler, 1877)
No data available (Evans, 1953)

Nisoniades rimana (Bell, 1942)
No data available (Evans, 1953)

Nisoniades rubescens (Möschler, 1877)
No data available (Evans, 1953)

32. *Noctuana* Bell, 1937
Noctuana stator (Godman, 1899)

ACC MT; 31 October–10 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)

33. *Onenses* Godman & Salvin, 1895
    Onenses kelso Evans, 1953
        KAM RI; date of collection/observation not available; HW (Evans, 1953; Warren *et al*., 2013)

34. *Ouleus* Lindsey,1925
    Ouleus fridericus (Geyer, 1832)
    a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
    b. ARROW; April, 2012; AZ [BH] (Zheludev, 2013)
    c. No data available (Hall, 1939d as *Achylodes fridericus* and *A. thiena*; Evans, 1953)

35. *Pachyneuria* Mabille, 1888
    Pachyneuria duidae (Bell, 1932)
        No data available (Evans, 1953)

36. *Paramimus* Hübner, [1819]
    Paramimus scurra (Hübner, [1809])
    a. KARTA; 6 July, 1925; GMo (Lindsey, 1928)
    b. MACKE; 22 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
    c. TUMAT; 28–29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
    d. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
    e. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
    f. IWOKR; 7 February, 2017; DG (Geale, 2017)
    g. BARTI; no data available (Hall, 1939d as *Paramimas scurra*)
    h. DEM RI; no data available (Hall, 1939d as *Paramimas scurra*)
    i. KAIET; no data available (Hall, 1939d as *Paramimas scurra*)
    j. KAM RI; no data available (Hall, 1939d as *Paramimas scurra*)
    k. No data available (Evans, 1953; Warren *et al*., 2013)

37. *Passova* Evans, 1951
    Passova passova (Hewitson, 1866)
    a. BERBI; no data available (Hall, 1939d as *Pyrrhopyge styx*)
    b. FREN B; no data available (Hall, 1939d as *Pyrrhopyge styx*)
    c. MT ROR; no data available (Hall, 1939d as *Pyrrhopyge styx*)
    d. No data available (Evans, 1951; Warren *et al*., 2013)

38. *Pellicia* Herrich-Schäffer, 1870
    Pellicia costimacula Herrich-Schäffer, 1870
        No data available (Evans, 1953)

Pellicia dimidiata Herrich-Schäffer, 1870

a. MABAR; no data available (Hall, 1939d as *Pellicia didia*)
b. PARIK; no data available (Hall, 1939d as *Pellicia didia*)
c. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
d. No data available (Evans, 1953)

39. *Pholisora* Scudder, 1872

Pholisora catullus (Fabricius, 1793)

No data available (Box, 1953)

40. *Polyctor* Evans, 1953

Polyctor polyctor (Prittwitz, 1868)

2HTMB; 21–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)

41. *Potamanaxas* Lindsey, 1925

Potamanaxas effusa (Draudt, 1922)

a. MT AY B; 10–20 April, 1999; SF, RH, WP & RW [BH] (in CSBD collection, UG)
b. NR KAN; 2–25 April, 1999; SF, RH, WP & RW [BH] (in CSBD collection, UG)

42. *Pseudodrephalys* Burns, 1999

Pseudodrephalys hypargus (Mabille, 1891)

No data available (Evans, 1952 as *Drephalys hypargus*; Burns, 1999; NHMUK, 2014)

43. *Pyrgus* Hübner, [1819]

Pyrgus oileus (Linnaeus, 1767)

a. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Hesperia syrichthus*)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. No data available (Hall, 1939d as *Hesperia syricthus*; Evans, 1953)

Pyrgus orcus (Stoll, 1780)

a. RP SAV; 20–21 February, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. 2HTMB; 17 September–2 October, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Pyrgus ?*spec.)
d. No data available (Bell, 1946)

44. *Pyrrhopyge* Hübner, [1819]

Pyrrhopyge amyclas (Cramer, 1779)

a. GEORG; 13 November, 2016; BP [BH] (Punu, pers. obs.)
b. DEM RI; no data available (Hall, 1939d)
c. GEORG; no data available (Hall, 1939d)

d. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
e. No data available (Moore, 1912; Cleare Jr., 1918; Bell, 1946; Evans, 1951; Warren *et al*., 2016)

Pyrrhopyge amythaon Bell, 1931
a. MT WK A; November, 1993; SF (Fratello, 1996b)
b. No data available (Evans, 1951)

Pyrrhopyge aziza Hewitson, 1866
a. MABAR; no data available (Warren *et al*., 2016)
b. No data available (Evans, 1951; Orellana, 2008)

Pyrrhopyge phidias (Linnaeus, 1758)
a. DEM RI; no data available (Hall, 1939d as *Pyrrhopyge garata* and *Pyrrhopyge zeleucus*)
b. KAIET; no data available (Hall, 1939d as *Pyrrhopyge zeleucus*)
c. MABAR; no data available (Hall, 1939d)
d. OMAI; no data available (Hall, 1939d as *Pyrrhopyge garata*)
e. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
f. No data available (Evans, 1951; Warren *et al*., 2016)

Pyrrhopyge proculus Hopffer, 1874
a. COVER; date of collection/observation not available; AH (Hall, 1939d)
b. NEW RI; date of collection/observation not available; GH (Hall, 1939d)
c. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)
d. No data available (Hall, 1939d as *Pyrrhopyge draudti*; Bell, 1946 as *Pyrrhopyge proculus* and *P. draudti*; Evans, 1951; Orellana, 2008; Warren *et al*., 2016)

Pyrrhopyge sergius Hopffer, 1874
No data available (Evans, 1951; Orellana, 2008; Warren *et al*., 2016)

Pyrrhopyge thericles Mabille, 1891
a. PARIK; date of collection/observation not available; AH (Hall, 1939d as *Pyrrhopyge rileyi*)
b. No data available (Evans, 1951; Orellana, 2008; Warren *et al*., 2016)

45. *Pythonides* Hübner, [1819]
Pythonides braga Evans, 1953
MT ROR; no data available (Evans, 1953; Warren *et al*., 2013)

Pythonides grandis Mabille, 1878
a. TROB B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)

b. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
c. MABAR; date of collection/observation not available; AH (Hall, 1939d as *Pythonides assecla*)
d. MARLI; no data available (Hall, 1939d as *Pythonides assecla*)
e. No data available (Evans, 1953)

Pythonides herennius Geyer, [1838]

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. KAIET; date of collection/observation not available; AH (Hall, 1939d as *Ate lagia*)
c. No data available (Bell, 1946; Evans, 1953)

Pythonides jovianus (Stoll, 1782)

a. MAZ PS; 27 June, 1925; GMo (Lindsey, 1928 as *Ate jovianus*)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
c. PR TUK; 18–23 March, 1999; SF (in CSBD collection, UG)
d. REWA; April, 2012; AZ [BH] (Zheludev, 2013 as *Pythonides ?jovianus*)
e. BARTI; no data available (Hall, 1939d as *Ate jovianus*)
f. DEM RI; no data available (Hall, 1939d as *Ate jovianus*)
g. KAIET; no data available (Hall, 1939d as *Ate jovianus*)
h. KAM RI; no data available (Hall, 1939d as *Ate jovianus*)
i. MABAR; no data available (Hall, 1939d as *Ate jovianus*)
j. No data available (Evans, 1953)

Pythonides lerina (Hewitson, 1868)

a. MACKE; 24 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
b. TUMAT; 28–29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
c. NEW RI; date of collection/observation not available; GH (Hall, 1939d as *Pythonides lernia*)

Pythonides limaea (Hewitson, 1868)

No data available (Bell, 1946 as *Paches limaea*)

46. *Quadrus* Lindsey, 1925

Quadrus cerialis (Stoll, 1782)

a. KARTA; 22 June, 1925; GMo (Lindsey, 1928)
b. TROP B; 31 January–12 February, 2001; SF *et al*. [BH] (in CSBD collection, UG)
c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
d. No data available (Hall, 1939d as *Pythonides cerialis*; Evans, 1953 as *Quadrus cerealis*)

Quadrus contubernalis (Mabille, 1883)

KAIET; date of collection/observation not available; AH (Hall, 1939d as *Pythonides contubernalis*)

Quadrus deyrollei (Mabille, 1877)
No data available (Evans, 1953)

Quadrus lugubris (Felder, 1869)
a. KAIET; no data available (Hall, 1939d as *Pythonides lugubris*)
b. PARIK; no data available (Hall, 1939d as *Pythonides lugubris*)
c. No data available (Evans, 1953; Cock, 1996)

47. *Sostrata* Godman & Salvin, 1895
Sostrata bifasciata (Ménétriés, 1829)
No data available (Bell, 1946 as *Sostrata scintillans*)

Sostrata festiva (Erichson, [1849])
a. SIP RV; 29 October–12 November, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. DEMER; no data available (Hall, 1939d as *Pythonides lucullea*)
c. KAIET; no data available (Hall, 1939d as *Pythonides lucullea*)
d. KAM RI; no data available (Hall, 1939d as *Pythonides lucullea*)
e. No data available (Evans, 1953; Cock, 1996; Warren *et al*., 2013)

Sostrata pusilla Godman & Salvin, [1895]
BARAC; 12 July, 1925; GMo (Lindsey, 1928)

48. *Spioniades* Hübner, [1819]
Spioniades artemides (Stoll, 1782)
a. DEMER; no data available (Hall, 1939d)
b. MABAR; no data available (Hall, 1939d)
c. No data available (Evans, 1953)

Spioniades libethra (Hewitson, 1868)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [BH] (in CSBD collection, UG)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [BH] (in CSBD collection, UG)
c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
d. No data available (Evans, 1953)

49. *Staphylus* Godman & Salvin, [1896]
Staphylus caribbea (Williams & Bell, 1940)
No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

50. *Timochares* Godman & Salvin, 1896
Timochares trifasciata Evans, 1953
a. KAM RI; no data available (Hall, 1939d)

b. No data available (Evans, 1953)

51. *Viola* Evans, 1953

Viola dagamba Steinhauser, 1989

CP JAG; 10 November, 1980; SS (Steinhauser, 1989; Warren *et al*., 2013)

Viola violella (Mabille, 1898)

a. SURAM; 12 February, 2017; DG (Geale, 2017)
b. No specified locality; date of collection/observation not available; KG [BH] (Hermier, pers. comm.)

52. *Xenophanes* Godman & Salvin, 1895

Xenophanes tryxus (Stoll, 1780)

a. BARAC; 11 July, 1925; GMo (Lindsey, 1928)
b. TUMAT; 29 June, 1927; WF & PB (Williams Jr. & Bell, 1931)
c. No data available (Hall, 1939d; Evans, 1953)

53. *Yanguna* Watson, 1893

Yanguna tetricus Bell, 1931

a. MT ROR; no data available (Bell, 1931; Hall, 1939d)
b. No data available (Evans, 1951 as *Pyrrhopyge tetricus*; Warren *et al*., 2013)

54. *Zera* Evans, 1953

Zera tetrastigma (Sepp, [1847])

a. 2HTMD; 23–28 September, 2000; SF *et al*. [BH] (in CSBD collection, UG)
b. DEMER; no data available (Hall, 1939d as *Pythonides menedemus*)
c. KAM RI; no data available (Hall, 1939d as *Pythonides menedemus*)
d. No data available (Evans, 1953)

Zera zera (Butler, 1870)

No data available (Evans, 1953)

FAMILY: LYCAENIDAE

Subfamily: Polyommatinae

Genus:

1. *Hemiargus* Hübner, 1818

Hemiargus ceraunus (Fabricius, 1793)

a. BROTH; 2015; HS (Sambhu, unpubl. data)
b. CUM VI; 2015; HS (Sambhu, unpubl. data)
c. LBI CA; 2015; HS (Sambhu, unpubl. data)
d. N63 VI; 2015; HS (Sambhu, unpubl. data)
e. NIG VI; 2015; HS (Sambhu, unpubl. data)
f. SKE CA; 2015; HS (Sambhu, unpubl. data)
g. TAI CA; 2015; HS (Sambhu, unpubl. data)

Hemiargus hanno (Stoll, 1790)

a. SURAM; 13 February, 2017; DG (Geale, 2017)
b. DEM RI; no data available (Piffard, 1864 as *Lycaena hanno*)
c. No data available (Hall, 1939c; Shaw, 1951; Beccaloni *et al*., 2008)

2. *Leptotes* Scudder, 1876

Leptotes cassius (Cramer, 1775)

a. TUKEI; January, 1928; GT (Huntington, 1933)
b. KAM RI; no data available (Hall, 1939c)
c. MABAR; no data available (Hall, 1939c)
d. MT ROR; no data available (Hall, 1939c)

Subfamily: Theclinae

Genus:

1. *Allosmaitia* Clench, 1964

Allosmaitia strophius (Godart, [1824])

SURAM; 12 February, 2017; DG (Geale, 2017)

2. *Apuecla* Robbins, 2004

Apuecla picus (Druce, 1907)

a. MT ROR; no data available (Druce, 1907 and Comstock & Huntington, 1962 as *Thecla picus*; Warren *et al*., 2013)
b. No data available (Hall, 1939c as *Thecla picus*)

3. *Arawacus* Kaye, 1904

Arawacus aetolus (Sulzer, 1776)

a. ANUND; January, 1928; GT (Huntington, 1933 as *Thecla linus*)
b. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. MT AYA; 10–20 April, 1999; SF (Prince *et al*., 2006)
d. FO SIP; 29 October–12 November, 2000; SF [CF] (in CSBD collection, UG)
e. KAIET; 2001; SF (Kelloff, 2003)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SURAM; April, 2012; AZ [CF] (Zheludev, 2013 as *Arawacus lincoides*)
l. No data available (Cleare Jr., 1919 and Hall, 1939c as *Thecla linus*; Beccaloni *et al*., 2008)

Arawacus dolylas (Cramer, 1777)

a. BARTI; March–April, 1901; collector/observer name/names not available (UW-SP, 1993a)
b. BARTI; no data available (Johnson, 1993 as *Tigrinota pallida*)

c. GEORG; no data available (Johnson, 1993 as *Tigrinota dolylas*)
d. KAM RI; no data available (Hall, 1939c as *Thecla dolylas*)
e. MABAR; no data available (Hall, 1939c as *Thecla dolylas*; UW-SP, 1993a)
f. QUONG; no data available (Hall, 1939c as *Thecla dolylas*; UW-SP, 1993a)

Arawacus ellida (Hewitson, 1867)
a. BARTI; no data available (UW-SP, 1993a)
b. MABAR; no data available (UW-SP, 1993a)
c. QUONG; no data available (UW-SP, 1993a)

4. *Arcas* Swainson, 1832
Arcas imperialis (Cramer, 1775)
MABAR; no data available (Hall, 1939c as *Thecla imperialis*)

5. *Arumecla* Robbins & Duarte, 2004
Arumecla aruma (Hewitson, 1877)
a. KAIET; 2001; SF (Kelloff, 2003 as *Thecla aruma*)
b. KAM RI; no data available (Druce, 1907 and Hall, 1939d as *Thecla aruma*)
c. MT ROR; no data available (Druce, 1907 and Hall, 1939d as *Thecla aruma*)

Arumecla netesca (Draudt, 1920)
No data available (Warren *et al*., 2013)

6. *Atlides* Hübner, [1819]
Atlides rustan (Stoll, 1790)
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Oenomaus rustan*)

7. *Bistonina* Robbins, 2004
Bistonina bactriana (Hewitson, 1868)
KAN MT; 20 February–10 March , 1999; RW (Fratello, 1999b and 1999d as *Thecla bactriana*)

Bistonina erema (Hewitson, 1867)
ANNAI; no data available (Hall, 1939c as *Thecla erema*)

8. *Brangas* Hübner, [1819]
Brangas dydimaon (Cramer, 1777)
a. KAM RI; no data available (Hall, 1939c as *Thecla didymaon*)
b. MT ROR; no data available (Hall, 1939c as *Thecla didymaon*)
c. QUONG; no data available (Hall, 1939c as *Thecla didymaon*)

Brangas getus (Fabricius, 1787)
No data available (Bálint, 2005)

9. *Calycopis* Scudder, 1876

Calycopis anthora (Hewitson, 1877)

a. DEM RI; no data available (Hall, 1939d as *Thecla anthora*)
b. KAM RI; no data available (Druce, 1907 as *Thecla atrox*)
c. KURUP; no data available (Hall, 1939d as *Thecla anthora*)

Calycopis atnius (Herrich-Schäffer, [1853])

a. ANNAI; no data available (Hall, 1939c as *Thecla atrius*)
b. KAM RI; no data available (Hall, 1939c as *Thecla atrius*)
c. QUONG; no data available (Hall, 1939c as *Thecla atrius*)

Calycopis blora (Field, 1967)

No data available (Johnson, 1989 as *Calystryma blora*)

Calycopis buphonia (Hewitson, 1868)

KAM RI; no data available (Hall, 1939c as *Thecla buphonia*)

Calycopis caesaries (Druce, 1907)

BARTI; no data available (Druce, 1907; Hall, 1939c; Comstock & Huntington, 1959 – all as *Thecla caesaries*)

Calycopis calus (Godart, [1824])

a. FORT G; September, 1891; collector/observer name/names not available (UW-SP, 1993b as *Argentostriatus calus*)
b. PARIK; March, 1939; AH (Hall, 1939d as *Thecla calus*)
c. BARTI; date of collection/observation not available; HP (UW-SP, 1993b as *Argentostriatus calus*)
d. No specified locality; date of collection/observation not available; HP (UW-SP, 1993b as *Argentostriatus calus*)

Calycopis cerata (Hewitson, 1877)

a. BARTI; March–April, 1901; HP (Johnson & Sourakov, 1993 as *Serratofalca palumbes*)
b. KAIET; 2001; SF (Kelloff, 2003)
c. CHRIS; no data available (Johnson & Sourakov, 1993 as *Serratofalca palumbes*)
d. ESSE R; no data available (Johnson & Sourakov, 1993 as *Serratofalca palumbes*)
e. MABAR; no data available (Hall, 1939c as *Thecla cerata*)
f. No specified locality; date of collection/observation not available; HW (Johnson & Sourakov, 1993 as *Serratofalca palumbes*)

Calycopis cissusa (Hewitson, 1877)

No specified locality; 6 March, 1913; collector/observer name/names not available (Johnson, 1989 as *Femniterga cissusa*)

Calycopis cos (Druce, 1907)

BARTI; no data available (Druce, 1907 and Comstock & Huntington, 1959 as *Thecla cos*; Warren *et al*., 2013)

Calycopis isobeon (Butler & Druce, 1872)

a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Calycopis beon*)
b. SURAM; 13 February, 2017; DG (Geale, 2017)

Calycopis matho (Godman & Salvin, 1887)

a. BARTI; March–April, 1901; collector/observer name/names not available (UW-SP, 1993a)
b. CHRIS; no data available (UW-SP, 1993a)
c. KAM RI; no data available (Hall, 1939c and Comstock & Huntington, 1961 as *Thecla matho*; UW-SP, 1993a; Costa *et al*., 2013; Warren *et al*., 2013)

Calycopis petaurister (Druce, 1907)

QUONG; no data available (Druce, 1907 and Comstock & Huntington, 1962 as *Thecla petaurister*; Warren *et al*., 2013)

Calycopis puppius (Godman & Salvin, 1887)

a. ANNAI; no data available (Hall, 1939c as *Thecla puppius*)
b. KAM RI; date of collection/observation not available; HW (Hall, 1939c as *Thecla puppius*; Warren *et al*., 2013; NHMUK, 2014)
c. MT ROR; no data available (Hall, 1939c as *Thecla puppius*)
d. No data available (Comstock & Huntington, 1963 as *Thecla puppius*)

Calycopis torqueor (Druce, 1907)

KAM RI; no data available (Druce, 1907; Hall, 1939c; Comstock & Huntington, 1964 – all as *Thecla torqueor*; Warren *et al*., 2013)

Calycopis vesulus (Stoll, 1781)

WISMA; date of collection/observation not available; AH (Hall, 1939d as *Thecla vesulus*)

Calycopis xeneta (Hewitson, 1877)

a. ANNAI; no data available (Hall, 1939c as *Thecla xeneta*)
b. KAM RI; no data available (Hall, 1939c as *Thecla xeneta*)
c. MT ROR; no data available (Hall, 1939c as *Thecla xeneta*)

10. *Celmia* Johnson, 1991

Celmia anastomosis (Draudt, [1918])

No data available (Warren *et al*., 2013)

Celmia celmus (Cramer, 1775)

a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. KAIET; 2001; SF (Kelloff, 2003)
c. SURAM; April, 2012; AZ (Zheludev, 2013)
d. ANNAI; no data available (Hall, 1939c as *Thecla celmus*)
e. BARTI; no data available (Hall, 1939c as *Thecla celmus*)

f. KAM RI; no data available (Hall, 1939c as *Thecla celmus*)
g. MT ROR; no data available (Hall, 1939c as *Thecla celmus*)
h. PARIK; no data available (Hall, 1939c as *Thecla celmus*)

Celmia color (Druce, 1907)
a. ANNAI; no data available (Hall, 1939c as *Thecla color*)
b. No data available (Druce, 1907; Hall, 1939c; Comstock & Huntington, 1959 – all as *Thecla color*; Warren *et al*., 2013)

11. *Chalybs* Hübner, [1819]
Chalybs janias (Cramer, 1779)
a. GEORG; September, 1891; collector/observer name/names not available (UW-SP, 1993a)
b. MABUR; October, 1996–September, 1997; YB *et al*. (Basset & Charles, 2000)
c. ACC MT; 31 October–10 November, 2000; SF *et al*. (in CSBD collection, UG as *Thecla janias*)
d. KAIET; 2001; SF (Kelloff, 2003)
e. BARTI; no data available (UW-SP, 1993a; UW-SP, 1993b as *Chalybs janais*)
f. No data available (Basset *et al*., 2005; Beccaloni *et al*., 2008)

12. *Chlorostrymon* Clench, 1961
Chlorostrymon simaethis (Drury, 1773)
DEM RI; no data available (Hall, 1939c as *Thecla simaethis*)

13. *Cyanophrys* Clench, 1961
Cyanophrys herodotus (Fabricius, 1793)
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Chalybs herodotus*)

14. *Dabreras* Bálint, 2008
Dabreras teucria (Hewitson, 1868)
DEM RI; no data available (Bálint & Faynel, 2008)

15. *Enos* Johnson, Kruse & Kroenlein, 1997
Enos falerina (Hewitson, 1867)
ANNAI; no data available (Hall, 1939c as *Thecla falerina*)

16. *Evenus* Hübner, [1819]
Evenus batesii (Hewitson, 1865)
KAM RI; no data available (Hall, 1939c as *Thecla batesii*)

Evenus gabriela (Cramer, 1775)
a. BERBI; date of collection/observation not available; WA (Hall, 1939d as *Thecla gabriela*)
b. NAP MT; no data available (Warren *et al*., 2013)

Evenus regalis (Cramer, 1775)

a. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
b. KAIET; no data available (Hall, 1939c as *Thecla regalis*)

Evenus satyroides (Hewitson, 1865)

ANNAI; no data available (Hall, 1939c as *Thecla satyroides*)

Evenus sponsa (Möschler, 1877)

a. DEM RI; no data available (Druce, 1907 and Hall, 1939c as *Thecla ornatrix*)
b. POT RI; no data available (Warren *et al*., 2013)

17. *Gargina* Robbins, 2004

Gargina gargophia (Hewitson, 1877)

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Siderus gargophia*)

Gargina gnosia (Hewitson, 1868)

ANNAI; April, 2012; AZ [CF] (Zheludev, 2013 as *Calycopis ?caulonia*)

18. *Iaspis* Kaye, 1904

Iaspis beera (Hewitson, 1870)

a. SUR CK; November, 1993; SF (Fratello, 1996a)
b. SUR CK; February–April, 1999; SF (Fratello, 1999a)

Iaspis castitas (Druce, 1907)

No data available (Cock & Robbins, 2016)

Iaspis temesa (Hewitson, 1868)

a. SURAM; 11 February, 2017; DG (Geale, 2017)
b. ANNAI; no data available (Hall, 1939c as *Thecla temesa*)
c. KAIET; no data available (Hall, 1939c as *Thecla temesa*)

19. *Janthecla* Robbins & Venables, 1991

Janthecla rocena (Hewitson, 1867)

SURAM; 13 February, 2017; DG (Geale, 2017)

Janthecla sista (Hewitson, 1867)

a. KAIET; 2001; SF (Kellof, 2003)
b. KAM RI; no data available (Hall, 1939c as *Thecla sista*)
c. MT ROR; no data available (Hall, 1939c as *Thecla sista*)

20. *Kolana* Robbins, 2004

Kolana ergina (Hewitson, 1867)

KAIET; no data available (Hall, 1939c as *Thecla ergina*)

Kolana ligurina (Hewitson, 1874)

KAIET; 2001; SF (Kelloff, 2003 as *Thecla ligurina*)

21. *Lamasina* Robbins, 2002

Lamasina ganimedes (Cramer, 1775)

a. POT RI; May, 1901; WK (Hall, 1939c as *Thecla nobilis*)
b. POT RI; no data available (Hall, 1939c as *Thecla ganymedes*)

22. *Lamprospilus* Geyer, 1832

Lamprospilus collucia (Hewitson, 1877)

KAIET; 2001; SF (Kelloff, 2003)

Lamprospilus genius Geyer, 1832

TUR MT; 20–26 March, 2001; SF (Fratello, 2003)

23. *Laothus* Johnson, Kruse & Kroenlein, 1997

Laothus numen (Druce, 1907)

a. MT AY E; 30 March–27 April, 1999; RH (Fratello, 1999d as *Gibbonota numen*)
b. MT ROR; no data available (Druce, 1907 and Hall, 1939c as *Thecla numen*; Warren *et al*., 2013)

24. *Ministrymon* Clench, 1961

Ministrymon megacles (Stoll, 1780)

ROCKS; no data available (Hall, 1939d as *Thecla megacles*)

Ministrymon una (Hewitson, 1873)

a. SURAM; April, 2012; AZ (Zheludev, 2013)
b. IWOKR; 10 February, 2017; DG (Geale, 2017)

25. *Nesiostrymon* Clench, [1964]

Nesiostrymon calchinia (Hewitson, 1868)

MT ROR; no data available (Druce, 1907 and Hall, 1939c as *Thecla calchinia*)

26. *Nicolaea* Johnson, 1993

Nicolaea cauter (Druce, 1907)

a. MT ROR; no data available (Druce, 1907 as *Thecla cauter*)
b. No data available (Hall, 1939c as *Thecla cauter*)

Nicolaea munditia (Druce, 1907)

a. KAIET; 2001; SF (Kelloff, 2003 as *Thecla munditia*)
b. BARTI; no data available (Druce, 1907; Hall, 1939c; Comstock & Huntington, 1961 – all as *Thecla munditia*; Warren *et al*., 2013)

27. *Ocaria* Clench, 1970

Ocaria thales (Fabricius, 1793)

KAIET; 2001; SF (Kelloff, 2003)

28. *Olynthus* Hübner, [1819]
   Olynthus punctum (Herrich-Schäffer, [1853])
   a. ANNAI; no data available (Hall, 1939c as *Thecla punctum*)
   b. CHK HL; no data available (Hall, 1939c as *Thecla punctum*)

29. *Ostrinotes* Johnson, Austin, Le Crom & Salazar, 1997
   Ostrinotes gentiana (Druce, 1907)
   LO CUY; 2–3 October, 1991; SF (Prince *et al*., 2006 as *Thecla gentiana*)

   Ostrinotes tarena (Hewitson, 1874)
   a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [CF] (in CSBD collection, UG as *Thecla gentiana*)
   b. KAIET; March–April, 1999; SF & RH (Fratello, 1999d as *Thecla tarena*)
   c. KAIET; 2001; SF (Kelloff, 2003 as *Thecla tarena*)
   d. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003 as *Thecla tarena*)

30. *Paiwarria* Kaye, 1904
   Paiwarria telemus (Cramer, 1775)
   a. KAIET; October, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
   b. TROP A; 31 Janaury–12 February, 2001; SF *et al*. (Fratello, 2003)
   c. KAM RI; no data available (Hall, 1939c as *Thecla telemus*)
   d. MT ROR; no data available (Hall, 1939c as *Thecla telemus*)

   Paiwarria venulius (Cramer, 1779)
   ANNAI; no data available (Hall, 1939c as *Thecla venulius*)

31. *Panthiades* Hübner, [1819]
   Panthiades aeolus (Fabricius, 1775)
   a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
   b. SIP RV; 24 October–12 November, 2000; SF *et al*. (in CSBD collection, UG as *Thecla pelion*)
   c. KAIET; 2001; SF (Kelloff, 2003)
   d. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
   e. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   f. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
   g. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Panthiades pelion*)
   h. ANNAI; no data available (Hall, 1939c as *Thecla pelion*)
   i. BARTI; no data available (Hall, 1939c as *Thecla pelion*)
   j. GEORG; no data available (Nicolay, 1976 as *Panthiades pelion*)
   k. DEM RI; no data available (Hall, 1939c as *Thecla pelion*)
   l. ROCKS; no data available (Hall, 1939c as *Thecla pelion*)
   m. WISMA; no data available (Nicolay, 1976 as *Panthiades pelion*)

   Panthiades bitias (Cramer, 1777)

a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. KAIET; 2001; SF (Kelloff 2003)
c. REWA; April, 2012; AZ [CF] (Zheludev, 2013 as *?Thereus* spec.)
d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Siderus bitias*)
e. IWOKR; 9 February, 2017; DG (Geale, 2017)
f. BARTI; no data available (Nicolay, 1976)
g. KAM RI; no data available (Hall, 1939c as *Thecla syncellus*)
h. KARTA; no data available (Nicolay, 1976)
i. POT RI; no data available (Nicolay, 1976)
j. WISMA; no data available (Nicolay, 1976)

Panthiades phaleros (Linnaeus, 1767)
a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
b. REWA; April, 2012; AZ (Zheludev, 2013)
c. SURAM; April, 2012; AZ (Zheludev, 2013)
d. PARIK; no data available (Hall, 1939c as *Thecla phaleros*)
e. ROCKS; no data available (Hall, 1939c as *Thecla phaleros*)
f. No data available (Nicolay, 1976 as *Cycnus phaleros*)

32. *Parrhasius* Hübner, [1819]

Parrhasius orgia (Hewitson, 1867)
RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Parrhasius polibetes (Stoll, 1781)
a. PARIK; no data available (Hall, 1939d as *Thecla polibetes*)
b. No data available (Nicolay, 1979)

33. *Porthecla* Robbins, 2004

Porthecla minyia (Hewitson, 1867)
a. TROP B; 31 January–12 February, 2001; SF *et al*. (Faynel *et al*., 2011)
b. MOR CK; no data available (Faynel *et al*., 2011)
c. No data available (Faynel *et al*., 2011)

34. *Pseudolycaena* Wallengren, 1858

Pseudolycaena damo (Druce, 1875)
a. TAI CA; 21 November, 2015; HS (Sambhu, unpubl. data)
b. WISMA; no data available (Pollard, 1931 as *Thecla damo*)

Pseudolycaena marsyas (Linnaeus, 1758)
a. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
c. TAI CA; 14 April, 2015; HS (Sambhu, unpubl. data)
d. GEORG; date of collection/observation not available; AH (Hall, 1939c as *Thecla marsyas*)

35. *Rekoa* Kaye, 1904

Rekoa marius (Lucas, 1857)

BERBI; no data available (Hall, 1939c as *Thecla spurina*)

Rekoa palegon (Cramer, 1780)

a. GEORG; April, 2012; AZ (Zheludev, 2013)
b. N63 VI; 9 March, 2015; HS [BH] (Sambhu, unpubl. data)
c. DEM RI; no data available (Hall, 1939c as *Thecla palegon*)

Rekoa stagira (Hewitson, 1867)

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Siderus voltinia*)

36. *Siderus* Kaye, 1904

Siderus athymbra (Hewitson, 1867)

a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. KAIET; 2001; SF (Kelloff, 2003 as *Thecla athymbra*)
c. IWOKR; 9 February, 2017; DG (Geale, 2017)
d. QUONG; no data available (Hall, 1939c as *Thecla athymbra*)
e. TAKUT; no data available (Hall, 1939c as *Thecla athymbra*)

Siderus leucophaeus (Hübner, [1813])

MABAR; no data available (Hall, 1939c as *Thecla volupia*)

Siderus philinna (Hewitson, 1868)

PARIK; no data available (Hall, 1939d as *Thecla philinna*)

37. *Strephonota* Johnson, Austin, Le Crom & Salazar, 1997

Strephonota adela (Staudinger, 1888)

a. REWA; April, 2012; AZ [CF] (Zheludev, 2013 as *Strephonota ?cyllarissus*)
b. No data available (Faynel *et al*., 2003)

Strephonota carteia (Hewitson, 1870)

a. ENA CK; October, 1993; SF [CF] (in CSBD collection, UG)
b. CP JAG; no data available (Warren *et al*., 2013)

Strephonota cyllarissus (Herbst, 1800)

c. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006 & in CSBD collection, UG as *Thecla phoster*)
d. ANNAI; no data available (Hall, 1939c as *Thecla cyllarus*)
e. KAIET; no data available (Hall, 1939c as *Thecla cyllarus*)
f. KAM RI; no data available (Hall, 1939c as *Thecla cyllarus*)
g. MABAR; no data available (Hall, 1939c as *Thecla cyllarus*)
h. PARIK; no data available (Hall, 1939c as *Thecla cyllarus*)

Strephonota falsistrephon Faynel & Brévignon, 2003

a. LO CUY; 2 October, 1991; SF [CF] (in CSBD collection, UG)

b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

Strephonota foyi (Schaus, 1902)
OMAI; no data available (Hall, 1939c as *Thecla foyi*)

Strephonota strephon (Fabricius, 1775)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [CF] (in CSBD collection, UG as *Thecla strephon*)
b. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
c. ANNAI; no data available (Hall, 1939c as *Thecla strephon*)
d. MT ROR; no data available (Hall, 1939c as *Thecla strephon*)

Strephonota syedra (Hewitson, 1867)
a. LO CUY; 2 October, 1991; SF (in CSBD collection, UG as *Thecla syedra*)
b. ANNAI; no data available (Hall, 1939c as *Thecla syedra*)

38. *Strymon* Hübner, 1818
Strymon cestri (Reakirt, [1867])
PARAD; no data available (Hall, 1939d as *Thecla cydia*)

Strymon rufofusca (Hewitson, 1877)
SURAM; 11 February, 2017; DG (Geale, 2017)

Strymon tegaea (Hewitson, 1868)
IRG GF; November, 1993; SF (Fratello, 1993 and 1996a)

39. *Symbiopsis* Nicolay, 1971
Symbiopsis nivepunctata (Druce, 1907)
No data available (Druce, 1907 and Hall, 1939c as *Thecla nivepunctata*; Warren *et al*., 2013)

Symbiopsis pupilla (Draudt, 1920)
No data available (Warren *et al*., 2013)

40. *Theclopsis* Godman & Salvin, 1887
Theclopsis gargara (Hewitson, 1868)
DEMER; no data available (Hall, 1939c as *Thecla doryasa*)

Theclopsis lydus (Hübner, [1819])
a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. KUIEW; 2–25 April, 1999; SF, RH, WP & RW (Prince *et al*., 2006; in CSBD collection, UG)
c. SIP RV; 24 October–12 November, 2000; SF *et al*. [CF] (in CSBD collection, UG)
d. KAIET; 2001; SF (Kelloff, 2003)

e. MABAR; date of collection/observation not available; AH (Hall, 1939c as *Theclopsis eryx* and *T. ingae*)
f. QUONG; no data available (Hall, 1939c as *Thecla ingae*)
g. No data available (Druce, 1907 as *Theclopsis eryx*)

41. *Thereus* Hübner, [1819]

Thereus columbicola (Strand, 1916)

a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
b. MABAR; date of collection/observation not available; AH (Hall, 1939c as *Thecla columbicola*)

42. *Theritas* Hübner, 1818

Theritas hemon (Cramer, 1775)

a. ENA CK; October, 1993; SF (Prince *et al*., 2006 & in CSBD collection, UG as *Thecla hemon*)
b. SIP RV; 24 October–12 November, 2000; SF *et al*. (in CSBD collection, UG as *Thecla hemon*)
c. TROP B; 31 Janaury–12 February, 2001; SF *et al*. [CF] (in CSBD collection, UG)
d. KAIET; 2001; SF (Kelloff, 2003)
e. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
f. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Mithras hemon*)
g. BARTI; no data available (Hall, 1939c as *Thecla hemon*)
h. KAM RI; no data available (Hall, 1939c as *Thecla hemon*)
i. MABAR; no data available (Hall, 1939c as *Thecla hemon*)

Theritas lisus (Stoll, 1790)

a. KAIET; 2001; SF (Kelloff, 2003)
b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
c. KAM RI; no data available (Hall, 1939c as *Thecla lisus*)

Theritas mavors Hübner, 1818

a. KAIET; 2001; SF (Kelloff, 2003)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Mithras mavors*)
c. BARTI; no data available (Hall, 1939c as *Thecla mavors*)
d. KAM RI; no data available (Hall, 1939c as *Thecla mavors*)
e. MT ROR; no data available (Hall, 1939c as *Thecla mavors*)
f. No data available (Bourne, pers. obs. as *Mithras mavors*)

Theritas phegeus (Hewitson, 1865)

No data available (NHMUK, 2014)

Theritas theocritus (Fabricius, 1793)

RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Theritas viresco (Druce, 1907)

a. QUONG; no data available (Druce, 1907 as *Thecla photeinos*; NHMUK, 2014)

b. No data available (Hall, 1939c as *Thecla viresco*; Martins *et al*., 2016)

43. *Thestius* Hübner, [1819]

Thestius pholeus (Cramer, 1777)

a. LO CUY; 3 October, 1991; SF (Prince *et al*., 2006)
b. MABUR; October, 1996–September, 1997; YB *et al*. (Basset & Charles, 2000)
c. FO SIP; 29 October–12 November, 2000; SF (in CSBD collection, UG as *Thecla pholeus*)
d. KAIET; 2001; SF (Kelloff, 2003)
e. KAM RI; no data available (Hall, 1939c as *Thecla pholeus*)
f. OR NRI; no data available (Hall, 1939c as *Thecla pholeus*)
g. No data available (Basset *et al*., 2005; Beccaloni *et al*., 2008)

44. *Tmolus* Hübner, [1819]

Tmolus cydrara (Hewitson, 1868)

No data available (Johnson, 1986)

Tmolus echion (Linnaeus, 1767)

a. SURAM; 13 February, 2017; DG (Geale, 2017)
b. ANNAI; no data available (Hall, 1939c as *Thecla crolus*)
c. GEORG; no data available (Hall, 1939c as *Thecla echion*)
d. KAM RI; no data available (Hall, 1939c as *Thecla crolus*)

Tmolus mutina (Hewitson, 1867)

SIP RV; 24 October–12 November, 2000; SF *et al*. [CF] (in CSBD collection, UG)

45. *Trichonis* Hewitson, 1865

Trichonis hyacinthus (Cramer, 1775)

No data available (Robbins, 1986)

46. *Ziegleria* Johnson, 1993

Ziegleria hesperitis (Butler & Druce, 1872)

a. ANNAI; no data available (Hall, 1939c as *Thecla hesperitis*)
b. MABAR; no data available (Hall, 1939c as *Thecla hesperitis*)
c. No data available (Druce, 1907 as *Thecla hesperitis*; UW-SP, 1993a)

FAMILY: **NYMPHALIDAE**

Subfamily: Apaturinae

Genus:

1. *Doxocopa* Hübner, [1819]

Doxocopa agathina (Cramer, 1777)

a. IWOKR; July–August, 1995; Wa (WE, 2014)
b. KING F; no data available (Hall, 1939b as *Chlorippe agathina*)

c. OMAI; no data available (Hall, 1939b as *Chlorippe agathina*)
d. QUONG; no data available (Hall, 1939b as *Chlorippe agathina*)
e. No data available (Gillman, 2004)

Subfamily: Biblidinae

Genus:

1. *Asterope* Hübner, [1819]

   Asterope leprieuri (Feisthamel, 1835)
   a. BARTI; date of collection/observation not available; WK (Hall, 1939b as *Callithea leprieurii*)
   b. No data available (Jenkins, 1987; Gillman, 2004)

2. *Biblis* Fabricius, 1807

   Biblis hyperia (Cramer, 1779)
   a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   b. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   c. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
   d. OMAI; no data available (Hall, 1939b as *Didonis biblis*)
   e. No data available (Gillman, 2004)

3. *Callicore* Hübner, [1819]

   Callicore astarte (Cramer, 1782)
   a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   c. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   d. FREN B; no data available (Hall, 1939b as *Catagramma astarte*)
   e. No data available (Hall, 1939b as *Catagramma astarte*; Gillman, 2004)

   Callicore cynosura (Doubleday, [1847])
   a. KAIET; March, 1993; SF [CBr] (in CSBD collection, UG)
   b. KAIET; 2001; SF (Kelloff, 2003)
   c. KAIET; date of collection/observation not available; AH (Hall, 1939b as *Catagramma cynosura*)

   Callicore maronensis (Oberthür, 1916)
   No data available (Lathy, 1926 as *Catagramma idas*; Gillman, 2004; Attal & Costa, 2009)

4. *Catonephele* Hübner, [1819]

   Catonephele acontius (Linnaeus, 1771)
   a. WINEP; February, 1971; QH (Emmel, 1972)
   b. IWOKR; January, 1993; As (WE, 2014)
   c. IWOKR; July–August, 1995; Wa (WE, 2014)
   d. IWOKR; July–August, 1996; Mc (WE, 2014)

e. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
f. ACB MT; 6–9 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
g. TROP B; 31 January–12 February, 2001; SF *et al*. [HS] (in CSBD collection, UG)
h. IW CCK; September–October, 2002; MG (Gillman, 2002)
i. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
j. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
o. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
p. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
q. BROTH; 2015; HS (Sambhu, unpubl. data)
r. CRAIG; 2015; HS (Sambhu, unpubl. data)
s. FRIEN; 2015; HS (Sambhu, unpubl. data)
t. ANNAI; no data available (Jenkins, 1985a)
u. ANUND; no data available (Jenkins, 1985a)
v. BARTI; no data available (Hall, 1939b; Jenkins, 1985a)
w. DEM RC; no data available (Jenkins, 1985a)
x. KAIET; no data available (Hall, 1939b)
y. KAM RI; no data available (Jenkins, 1985a)
z. KAMAK; no data available (Jenkins, 1985a)
aa. KAMAR; no data available (Jenkins, 1985a)
bb. KARTA; no data available (Jenkins, 1985a)
cc. MABAR; no data available (Hall, 1939b)
dd. POT RI; no data available (Jenkins, 1985a)
ee. ROCKS; no data available (Jenkins, 1985a)
ff. TUMAT; no data available (Jenkins, 1985a)
gg. WISMA; no data available (Jenkins, 1985a)
hh. No data available (Gillman, 2004)

Catonephele antinoe (Godart, [1824])
a. IWOKR; January, 1993; As (WE, 2014)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. BERBI; no data available (Jenkins, 1985a)
d. MARLI; no data available (Hall, 1939d; Jenkins, 1985a)
e. No data available (Jenkins, 1985a; Gillman, 2004)

Catonephele numilia (Cramer, 1779)
a. BARTI; no data available (Jenkins, 1985a)
b. No data available (Hall, 1939b; Gillman, 2004)

Catonephele orites Stichel, 1899
WINEP; February, 1971; QH (Emmel, 1972)

5. *Diaethria* Billberg, 1820

    Diaethria clymena (Cramer, 1775)

    a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW [CBr] (in CSBD collection, UG)
    b. KUTAR; no data available (Hall, 1939b as *Callicore clymena*)
    c. MABAR; no data available (Hall, 1939b as *Callicore clymena*)
    d. MT ROR; no data available (Hall, 1939b as *Callicore clymena*)
    e. QUONG; no data available (Hall, 1939b as *Callicore clymena*)
    f. UP COR; no data available (Hall, 1939b as *Callicore clymena*)
    g. No data available (Gillman, 2004 as *Callicore clymena*)

6. *Dynamine* Hübner, [1819]

    Dynamine arene Hübner, [1823]

    a. IWOKR; Janury, 1993; As (WE, 2014)
    b. No data available (Gillman, 2004)

    Dynamine artemesia (Fabricius, 1793)

    CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

    Dynamine athemon (Linnaeus, 1758)

    a. DEM RI; no data available (Hall, 1939b)
    b. OMAI; no data available (Hall, 1939b)
    c. No data available (Gillman, 2004)

    Dynamine myrson (Doubleday, 1849)

    a. IWOKR; July–August, 1992; MG & K (WE, 2014)
    b. IWOKR; January, 1993; As (WE, 2014)
    c. KAM RI; no data available (Hall, 1939b as *Dynamine decima*)
    d. No data available (Gillman, 2004)

    Dynamine onias (Hewitson, 1857)

    No data available (Hall, 1939b; Neild, 1996; Gillman, 2004)

    Dynamine postverta (Cramer, 1780)

    a. IWOKR; July–August, 1992; MG & K (WE, 2014)
    b. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW [CBr] (in CSBD collection, UG)
    c. FAI VI; 4 June, 2007; DBPT (Darwin Butterfly Project, unpubl. data)
    d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Dynamine mylitta*)
    e. OMAI; no data available (Hall, 1939b as *Dynamine mylitta*)
    f. PARIK; no data available (Hall, 1939b as *Dynamine mylitta*)
    g. QUONG; no data available (Hall, 1939b as *Dynamine mylitta*)
    h. No data available (Gillman, 2004)

    Dynamine racidula (Hewitson, 1852)

a. KAIET; no data available (Hall, 1939b)
b. POT RI; no data available (Hall, 1939b)
c. No data available (Gillman, 2004)

Dynamine tithia (Hübner, 1823)
KAIET; 2001; SF (Kelloff, 2003)

7. *Ectima* Doubleday, [1848]

Ectima iona Doubleday, [1848]
a. MAZ PS; 1940s; collector/observer name/names not available (Gillman, 2002)
b. IW CCK; 16 & 20 September, 2002; MG (Gillman, 2002)
c. ANNAI; no data available (Hall, 1939b; Jenkins, 1985b)
d. ESSE R; no data available (Jenkins, 1985b)
e. KAMAK; no data available (Jenkins, 1985b)
f. MABAR; no data available (Hall, 1939b)
g. POT RD; no data available (Hall, 1939b)
h. POT RI; no data available (Jenkins, 1985b)
i. No data available (Gillman, 2004)

Ectima thecla (Fabricius, 1796)
a. WISMA; March, 1939; AH (Hall, 1939d as *Ectima liria*)
b. MARSH; 19 November, 1992; SF [HS] (in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)
d. OMAI; no data available (Jenkins, 1985b)
e. No data available (Jenkins, 1985b; Gillman, 2004)

8. *Eunica* Hübner, [1819]

Eunica alpais (Godart, [1824])
a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. No data available (Jenkins, 1990)

Eunica amelia (Cramer, 1777)
a. BARTI; no data available (Jenkins, 1990)
b. KARTA; no data available (Jenkins, 1990)
c. MAZ RI; no data available (Hall, 1939b)
d. PAR PK; no data available (Jenkins, 1990)
e. POT RD; no data available (Jenkins, 1990)
f. POT RI; no data available (Hall, 1939b)
g. TUMAT; no data available (Jenkins, 1990)
h. No data available (Gillman, 2004)

Eunica anna (Cramer, 1780)
a. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
b. FREN B; no data available (Hall, 1939b)
c. No data available (Jenkins, 1990; Gillman, 2004)

Eunica bechina (Hewitson, 1852)

a. HRE VI; 12 October, 2015; HS [BH] (Sambhu, unpubl. data)
b. No data available (Jenkins, 1990)

Eunica carias (Hewitson, [1857])

POT RI; no data available (Jenkins, 1990)

Eunica concordia (Hewitson, 1852)

a. CP JAG; no data available (Jenkins, 1990)
b. No data available (Jenkins, 1990)

Eunica eurota (Cramer, 1775)

a. MAZ RI; date of collection/observation not available; CW (Hall, 1939d)
b. No data available (Gillman, 2004)

Eunica interphasis Jenkins, 1990

No data available (Jenkins, 1990)

Eunica malvina Bates, 1864

a. CP JAG; no data available (Jenkins, 1990)
b. KAM RI; no data available (Hall, 1939b; Jenkins, 1990)
c. OMAI; no data available (Hall, 1939b; Jenkins, 1990)
d. No data available (Gillman, 2004)

Eunica monima (Stoll, 1782)

a. DEMER; no data available (Hall, 1939b as *Eunica moninia*)
b. No data available (Gillman, 2004)

Eunica orphise (Cramer, 1775)

a. SANDA; 10 April, 2015; HS (Sambhu, unpubl. data)
b. BER RI; no data available (Hall, 1939b)
c. OMAI; no data available (Hall, 1939b; Jenkins, 1990)
d. POT RI; no data available (Jenkins, 1990)
e. No data available (Neild, 1996; Gillman, 2004)

Eunica phasis Felder & Felder, 1862

No specified locality; date of collection/observation not available; DJ (Jenkins, 1990; Neild, 1996)

Eunica pusilla Bates, 1864

a. DEM RB; no data available (Jenkins, 1990)
b. KAM RI; no data available (Jenkins, 1990)

Eunica sophonisba (Cramer, 1780)

a. BAR RI; no data available (Hall, 1939b; Jenkins, 1990)
b. DEM RI; no data available (Hall, 1939b; Jenkins, 1990)

c. ESSE R; no data available (Jenkins, 1990)
d. KAMAR; no data available (Jenkins, 1990)
e. POT RI; no data available (Hall, 1939b; Jenkins, 1990)
f. TUMAT; no data available (Hall, 1939b; Jenkins, 1990)
g. No data available (Gillman, 2004)

Eunica sydonia (Godart, [1824])
a. ESSE R; no data available (Hall, 1939d)
b. No data available (Gillman, 2004)

Eunica viola Bates, 1864
a. MT ROR; 9 November, 1972; MT (Prince *et al*., 2006)
b. MT ROR; 9 November, 1973; MT (Prince *et al*., 2006)
c. MT ROR; 10 November, 1977; MT (Prince *et al*., 2006)
d. KAIET; March, 1993; SF (Fratello, 1993; Kelloff, 2003; in CSBD collection, UG)
e. KAM RI; no data available (Hall, 1939b; Jenkins, 1990)
f. KARIS; no data available (Jenkins, 1990; Neild, 1996)
g. POT RI; no data available (Jenkins, 1990)
h. No data available (Hall, 1939b; Gillman, 2004)

9. *Hamadryas* Hübner, [1806]

Hamadryas amphinome (Linnaeus, 1767)
a. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
c. KARAN; 5 June, 2013; GP (Pereira, pers. comm.)
d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
e. FRIEN; 2015; HS (Sambhu, unpubl. data)
f. SANDA; 2015; HS (Sambhu, unpubl. data)
g. PARIK; no data available (Hall, 1939b as *Ageronia amphinome*)
h. WAKEN; no data available (Jenkins, 1983)

Hamadryas arinome (Lucas, 1853)
a. KUTAR; January–February, 1936; GH (Hall, 1939b as *Ageronia arinome*)
b. IWOKR; July–August, 1996; Mc (WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. DEM RI; no data available (Hall, 1939b as *Ageronia arinome*)
h. GRO CK; no data available (Hall, 1939b as *Ageronia arinome*)
i. KUTAR; no data available (Jenkins, 1983)
j. No data available (Jenkins, 1983; Gillman, 2004)

Hamadryas chloe (Stoll, 1787)
No data available (Jenkins, 1983)

Hamadryas februa (Hübner, [1823])

a. KARAN; 8 July, 2014; GP (Pereira, pers. comm.)
b. ANNAI; no data available (Jenkins, 1983)
c. ESSE R; no data available (Jenkins, 1983)
d. No data available (Hall, 1939b as *Ageronia februa*; Gillman, 2004)

Hamadryas feronia (Linnaeus, 1758)

a. THEWA; 1914–1915; WWh (White, 1917 as *Ageronia feronia*)
b. KURUP; July–August, 1992; MG & K (WE, 2014)
c. IWOKR; January, 1993; As (WE, 2014)
d. IWOKR; July–August, 1995; Wa (WE, 2014)
e. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
f. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
g. JAG RK; 23 September, 2002; MG (Gillman, 2002)
h. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
o. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
p. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
q. BROTH; 2015; HS (Sambhu, unpubl. data)
r. CRAIG; 2015; HS (Sambhu, unpubl. data)
s. CUM VI; 2015; HS (Sambhu, unpubl. data)
t. FRIEN; 2015; HS (Sambhu, unpubl. data)
u. HRE VI; 2015; HS (Sambhu, unpubl. data)
v. LBI CA; 2015; HS (Sambhu, unpubl. data)
w. N63 VI; 2015; HS (Sambhu, unpubl. data)
x. N72 VI; 2015; HS (Sambhu, unpubl. data)
y. SANDA; 2015; HS (Sambhu, unpubl. data)
z. SKE CA; 2015; HS (Sambhu, unpubl. data)
aa. SKE VI; 2015; HS (Sambhu, unpubl. data)
bb. TAI CA; 2015; HS (Sambhu, unpubl. data)
cc. TAI VI; 2015; HS (Sambhu, unpubl. data)
dd. KARAN; 2011–2016; GP (Pereira, pers. comm.)
ee. CHARI; 17 April, 2017; ANk [HS] (Nankishore, pers. obs.)
ff. BARTI; no data available (Jenkins, 1983)
gg. CP JAG; no data available (Jenkins, 1983)
hh. ESSE R; no data available (Jenkins, 1983)
ii. GEORG; no data available (Jenkins, 1983)
jj. KAMAR; no data available (Jenkins, 1983)
kk. PARIK; no data available (Jenkins, 1983)

ll. No data available (Cleare Jr., 1919; Hall, 1939b as *Ageronia feronia*; Gillman, 2004)

Hamadryas iphthime (Bates, 1864)

a. CP JAG; no data available (Jenkins, 1983)
b. ESSE R; no data available (Jenkins, 1983)

Hamadryas laodamia (Cramer, 1777)

No data available (Gillman, 2004)

Hamadryas velutina (Bates, 1865)

a. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. ESSE R; no data available (Jenkins, 1983)
e. No data available (Neild, 1996)

10. *Mestra* Hübner, [1825]

Mestra dorcas (Fabricius, 1775)

a. ANNAI; no data available (Hall, 1939b as *Cystineura cana*)
b. QUONG; no data available (Hall, 1939b as *Cystineura cana*)
c. No data available (Gillman, 2004 as *Mestra cana*)

11. *Myscelia* Doubleday, [1844]

Myscelia cyaniris Doubleday, [1848]

a. QUONG; no data available (Jenkins, 1984)
b. No data available (Gillman, 2004)

12. *Nessaea* Hübner, [1819]

Nessaea batesii (Felder & Felder, 1860)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [AN] (in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)
d. BARAM; date of collection/observation not available; DJ (Jenkins, 1989; Neild, 1996)
e. BARTI; date of collection/observation not available; DJ (Jenkins, 1989)
f. CP JAG; date of collection/observation not available; DJ (Jenkins, 1989)
g. DEM RI; date of collection/observation not available; DJ (Jenkins, 1989)
h. DEMER; no data available (Hall, 1939b)
i. KAM RI; no data available (Hall, 1939b)
j. KAMAR; date of collection/observation not available; DJ (Jenkins, 1989)
k. KARTA; date of collection/observation not available; DJ (Jenkins, 1989)
l. KASSI; date of collection/observation not available; DJ (Jenkins, 1989)
m. KUTAR; date of collection/observation not available; DJ (Hall, 1939b; Jenkins, 1989)

n. RUPUN; date of collection/observation not available; DJ (Jenkins, 1989)
o. TAK MT; date of collection/observation not available; DJ (Jenkins, 1989)
p. No data available (Gillman, 2004)

Nessaea obrinus (Linnaeus, 1758)
a. KING F; 1936; collector/observer name/names not available (NHMUK, 2014)
b. BERBI; 1937; CH (Gillman, 2004; NHMUK, 2014)
c. WINEP; February, 1971; QH (Emmel, 1972)
d. LARIM; 1971; SPa (NHMUK, 2014)
e. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. BROTH; 2015; HS (Sambhu, unpubl. data)
j. CRAIG; 2015; HS (Sambhu, unpubl. data)
k. FRIEN; 2015; HS (Sambhu, unpubl. data)
l. SANDA; 2015; HS (Sambhu, unpubl. data)
m. TAI CA; 2015; HS (Sambhu, unpubl. data)
n. BARTI; date of collection/observation not available; DJ (Jenkins, 1989)
o. BER RI; date of collection/observation not available; DJ (Jenkins, 1989)
p. BERBI; no data available (Hall, 1939b)
q. CP JAG; date of collection/observation not available; DJ (Jenkins, 1989)
r. DEM RB; date of collection/observation not available; DJ (Jenkins, 1989)
s. DEM RI; no data available (Hall, 1939b)
t. KING F; date of collection/observation not available; DJ (Jenkins, 1989)
u. OR NRI; date of collection/observation not available; DJ (Jenkins, 1989)
v. PARIK; date of collection/observation not available; DJ (Hall, 1939b; Jenkins, 1989)
w. UP ESR; date of collection/observation not available; DJ (Jenkins, 1989)
x. DEMER; date of collection/observation not available; Bo (NHMUK, 2014)

13. *Peria* Kirby, 1871
Peria lamis (Cramer, 1779)
a. KAM FB; 30 November–5 December, 2000; SF *et al*. [AN] (in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939b)
c. KAM RI; no data available (Hall, 1939b)
d. No data available (Gillman, 2004)

14. *Pyrrhogyra* Hübner, [1819]
Pyrrhogyra crameri Aurivillius, 1882
a. MABAR; no data available (Hall, 1939b)
b. PARIK; no data available (Hall, 1939b)
c. No data available (Gillman, 2004)

Pyrrhogyra neaerea (Linnaeus, 1758)

a. MABAR; January, 1930; AH (Hall, 1930; Hall, 1939b)
b. BROTH; 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Pyrrhogyra edocla*)
c. CRAIG; 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Pyrrhogyra edocla*)
d. FRIEN; 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Pyrrhogyra edocla*)
e. SANDA; 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Pyrrhogyra edocla*)
f. TAI CA; 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Pyrrhogyra edocla*)
g. DEM RI; no data available (Hall, 1939b)
h. PARIK; date of collection/observation not available; AH (Hall, 1939b)
i. No data available (Gillman, 2004)

Pyrrhogyra stratonicus Fruhstorfer, 1908
a. MABAR; January, 1930; AH (Hall, 1939b)
b. No data available (Gillman, 2004)

15. *Temenis* Hübner, [1819]
Temenis laothoe (Cramer, 1777)
a. KURUP; August, 1996; Mc (WE, 2014)
b. IWOKR; August, 1997; JW (Prince *et al*., 2006; WE, 2014)
c. IW CCK; 27 September, 2002; MG (Gillman, 2002)
d. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. BROTH; 2015; HS (Sambhu, unpubl. data)
g. CRAIG; 2015; HS (Sambhu, unpubl. data)
h. FRIEN; 2015; HS (Sambhu, unpubl. data)
i. SANDA; 2015; HS (Sambhu, unpubl. data)
j. BARTI; no data available (Hall, 1939b as *Temeris laothoe*)
k. DEM RI; no data available (Hall, 1939b as *Temeris laothoe*)
l. FREN B; no data available (Hall, 1939b as *Temeris laothoe*)
m. KAIET; no data available (Hall, 1939b as *Temeris laothoe*)
n. MABAR; no data available (Hall, 1939b as *Temeris laothoe*)
o. OMAI; no data available (Hall, 1939b as *Temeris laothoe*)
p. No data available (Neild, 1996; Gillman, 2004)

16. *Vila* Kirby, 1871
Vila emilia (Cramer, 1779)
a. KING F; date of collection/observation not available; GH (Hall, 1939b)
b. No data available (Gillman, 2004)

Subfamily: Charaxinae

Genus:
1. *Archaeoprepona* Fruhstorfer, 1915
Archaeoprepona amphimachus (Fabricius, 1775)
No data available (NMNH, 2016)

Archaeoprepona demophon (Linnaeus, 1758)

a. IWOKR; August, 1996; Mc (WE, 2014)
b. IWOKR; August, 1997; JW (Prince *et al*., 2006; WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. IWOKR; 22 September, 2002; MG (Gillman, 2002)
e. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
m. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
n. BROTH; 2015; HS (Sambhu, unpubl. data)
o. CRAIG; 2015; HS (Sambhu, unpubl. data)
p. FRIEN; 2015; HS (Sambhu, unpubl. data)
q. SANDA; 2015; HS (Sambhu, unpubl. data)
r. BARTI; no data available (Hall, 1939b as *Prepona demophon*)
s. BERBI; no data available (Hall, 1939b as *Prepona demophon*)
t. MABAR; no data available (Hall, 1939b as *Prepona demophon*)
u. OMAI; no data available (Hall, 1939b as *Prepona demophon*)
v. PARIK; no data available (Hall, 1939b as *Prepona demophon*)

Archaeoprepona demophoon (Hübner, [1814])
a. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
b. No data available (Hall, 1939b as *Prepona antimache*)

Archaeoprepona licomedes (Cramer, 1777)
a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
f. No data available (Gillman, 2004)

Archaeoprepona meander (Cramer, 1775)
a. WINEP; February, 1971; QH (Emmel, 1972 as *Prepona meander*)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Prepona meander*)
c. KAM RI; no data available (Hall, 1939b as *Prepona meander*)
d. No data available (Gillman, 2004)

2. *Consul* Hübner, [1807]

Consul fabius (Cramer, 1776)

a. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Anaea fabius*)
c. BERBI; no data available (Kaye, 1906; Kaye, 1907; Hall, 1939b – all as *Protogonius hippona*)
d. MABAR; no data available (Hall, 1939b as *Protogonius hippona*)
e. OMAI; no data available (Hall, 1939b as *Protogonius hippona*)
f. PARIK; no data available (Hall, 1939b as *Protogonius hippona*)
g. No data available (Gillman, 2004)

3. *Fountainea* Rydon, 1971

Fountainea ryphea (Cramer, 1775)

a. MARUD; date of collection/observation not available; LA (Hall, 1939b as *Anaea helie*)
b. No data available (Gillman, 2004)

4. *Hypna* Hübner, [1819]

Hypna clytemnestra (Cramer, 1777)

a. KAIET; 15 November & 27 December, 1991; SF (Prince *et al*., 2006; in CSBD collection, UG)
b. ENA CK; October, 1992; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. KAIET; March, 1993; SF (Kelloff, 2003; in CSBD collection, UG)
d. IWOKR; July–August, 1996; Mc (WE, 2014)
e. KAIET; March–April, 1999; SF & RH (Fratello, 1999d)
f. SIP RV; 24 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
g. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
k. KUYU R; November (year unknown); collector/observer name/names not available (Comstock, 1961)
l. SHUDI; January (year unknown); collector/observer name/names not available (Comstock, 1961)
m. ANNAI; no data available (Hall, 1939b)
n. KAIET; no data available (Hall, 1939b)
o. KUTAR; no data available (Hall, 1939b)
p. TAKUT; no data available (Hall, 1939b)
q. No data available (Gillman, 2004)

5. *Memphis* Hübner, [1819]

Memphis acidalia (Hübner, [1819])

a. REWA; April, 2012; AZ (Zheludev, 2013 as *Memphis morvus*)
b. BROTH; 2015; HS [AN] (Sambhu, unpubl. data)
c. CRAIG; 2015; HS [AN] (Sambhu, unpubl. data)
d. FRIEN; 2015; HS [AN] (Sambhu, unpubl. data)

e. SANDA; 2015; HS [AN] (Sambhu, unpubl. data)

Memphis basilia (Stoll, 1780)

a. KUTAR; January–February, 1936; GH (Hall, 1939b as *Anaea basilea*)
b. No data available (Gillman, 2004)

Memphis glauce (Felder & Felder, 1862)

a. KAIET; March, 1936; AH (Hall, 1939b as *Anaea glauce*)
b. No data available (Gillman, 2004)

Memphis grandis (Druce, 1877)

FO SIP; 29 October–12 November, 2000; SF *et al*. [AN] (in CSBD collection, UG)

Memphis laertes (Cramer, 1775)

f. IWOKR; July–August, 1996; Mc (WE, 2014)
g. IWOKR; July–August, 1997; JW (Prince *et al*., 2006 as *Memphis eribotes*; WE, 2014)
h. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
i. BROTH; 2015; HS (Sambhu, unpubl. data)
j. CRAIG; 2015; HS (Sambhu, unpubl. data)
k. FRIEN; 2015; HS (Sambhu, unpubl. data)
l. SANDA; 2015; HS (Sambhu, unpubl. data)
m. DEM RI; no data available (Hall, 1939b as *Anaea eribotes*)
n. KAIET; no data available (Hall, 1939b as *Anaea eribotes*)
o. No data available (Gillman, 2004 as *Memphis eribotes*)

Memphis leonida (Stoll, 1782)

a. GEORG; no data available (Hall, 1939b as *Anaea leonida*)
b. No data available (Gillman, 2004)

Memphis montesino Pyrcz, 1995

a. ENA MM; October, 1992; SF (Dias *et al*., 2012)
b. KAI GO; April–May, 1993; SF (Dias *et al*., 2012)
c. KA GO D; date of collection/observation not available; SF (Nakahara *et al*., 2014)
d. KAIET; date of collection/observation not available; SF (Nakahara *et al*., 2014)

Memphis moruus (Fabricius, 1775)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Anaea morvus*)
b. BARTI; no data available (Hall, 1939b as *Anaea morvus*)
c. KAM RI; no data available (Hall, 1939b as *Anaea morvus*)
d. MABAR; no data available (Hall, 1939b as *Anaea morvus*)
e. MT ROR; no data available (Hall, 1939b as *Anaea morvus*)
f. No data available (Gillman, 2004)

Memphis philumena (Doubleday, [1849])
No data available (Gillman, 2004)

Memphis pithyusa (Felder, 1869)
a. KUTAR; no data available (Hall, 1939b as *Anaea pithyusa*)
b. MABAR; no data available (Hall, 1939b as *Anaea pithyusa*)
c. UP COR; no data available (Hall, 1939b as *Anaea pithyusa*)
d. No data available (Gillman, 2004 as *Memphis morena*)

Memphis polycarmes (Fabricius, 1775)
a. FREN B; no data available (Hall, 1939b as *Anaea odilia*)
b. No data available (Gillman, 2004)

6. *Prepona* Boisduval, 1836

Prepona amydon (Hewitson, [1854])
a. NAP CK; 21 February, 1999; SF (NMNH, 2016)
b. KAIET; 2001; SF (Kelloff, 2003 as *Agrias pericles*)

Prepona claudina (Godart, [1824])
a. KAIET; 2001; SF (Kelloff, 2003 as *Agrias claudia*)
b. BERBI; no data available (Hall, 1939b as *Agrias claudia*)
c. DEM RI; no data available (Hall, 1939b as *Agrias claudia*)
d. NEW AM; no data available (Hall, 1939b as *Agrias claudia*)
e. No data available (Neild, 1996 as *Agrias sahlkei*; Gillman, 2004; NMNH, 2016)

Prepona dexamenus Hopffer, 1874
a. DEMER; no data available (Hall, 1939b as *Prepona dexamenes*)
b. No data available (Gillman, 2004)

Prepona laertes (Hübner, [1811])
a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
h. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013 as *Prepona ?dexamenes*)
i. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Prepona ?omphale* and *P. ?rotschildi*)
j. BROTH; 2015; HS (Sambhu, unpubl. data)
k. CRAIG; 2015; HS (Sambhu, unpubl. data)
l. SANDA; 2015; HS (Sambhu, unpubl. data)
m. BERBI; date of collection/observation not available; WA (Hall, 1939d as *Prepona demodice*)

n. DEMER; no data available (Hall, 1939d)
o. No data available (Hall, 1939b as *Prepona omphale*; Gillman, 2004 as *P. phillipponi*)

Prepona narcissus (Staudinger, [1885])

a. OR NRI; date of collection/observation not available; MB (Hall, 1939d as *Agrias narcissus*)
b. No data available (Gillman, 2004 as *Agrias narcissus*)

Prepona pheridamas (Cramer, 1777)

a. IW MT A; 29 March–2 April, 2001; SF [HS] (in CSBD collection, UG)
b. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
g. SANDA; 8 and 10 April, 2015; HS (Sambhu, unpubl. data)
h. OMAI; no data available (Hall, 1939b)
i. No data available (Gillman, 2004)

Prepona pylene Hewitson, [1854]

a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. KAIET; 2001; SF (Kelloff, 2003 as *P. eugenes*)
c. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Prepona eugenes*)
d. BROTH; 16 April, 2015; HS (Sambhu, unpubl. data)
e. SANDA; 8 April, 8 October and 18 November, 2015; HS (Sambhu, unpubl. data)
f. No data available (Gillman, 2004 as *P. eugenes*)

7. *Siderone* Hübner, [1823]

Siderone galanthis (Cramer, 1775)

a. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
b. KAIET; March–April, 1999; SF & RH (Fratello, 1999d as *Siderone marthesia*)
c. KAIET; 2001; SF (Kelloff, 2003 as *Siderone marthesia*)
d. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
e. POT RI; date of collection/observation not available; WK (Hall, 1939b as *Siderone marthesia*)
f. No data available (Gillman, 2004; Warren *et al.*, 2013)

8. *Zaretis* Hübner, [1819]

Zaretis isidora (Cramer, 1779)

a. ACC MT; 31 October–10 November, 2000; SF *et al*. [AN] (in CSBD collection, UG)
b. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)

d. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Zaretis itys*)
e. BROTH; 2015; HS (Sambhu, unpubl. data)
f. CRAIG; 2015; HS (Sambhu, unpubl. data)
g. FRIEN; 2015; HS (Sambhu, unpubl. data)
h. SANDA; 2015; HS (Sambhu, unpubl. data)
i. PARIK; no data available (Hall, 1939b)

Zaretis itys (Cramer, 1777)
a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. No data available (Gillman, 2004)

Subfamily: Cyrestinae

Genus:
1. *Marpesia* Hübner, 1818

Marpesia chiron (Fabricius, 1775)
a. UP COR; 1930s; collector/observer name/names not available (Gillman, 2002)
b. NAP CK; 20 February–10 March, 1999; SF *et al*. (Fratello, 1999d)
c. 2HTMB; 21–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
d. IWOKR; September–October, 2002; MG (Gillman, 2002)
e. UP COR; date of collection/observation not available; GH (Hall, 1939b as *Megalura chiron*)
f. No data available (Hall, 1939b as *Megalura chiron*; Gillman, 2004)

Marpesia corinna (Latreille, [1813])
RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Marpesia egina (Bates, 1865)
a. TROP A; 31 January–12 February, 2001; SF (Fratello, 2003)
b. No data available (Hall, 1939d as *Megalura egina*; Gillman, 2004)

Marpesia orsilochus (Fabricius, 1776)
a. OKO MT; November, 1992; SF [HS] (in CSBD collection, UG)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (Fratello, 1999d; in CSBD collection, UG)
c. ANNAI; no data available (Hall, 1939b as *Megalura orsilochus*)
d. KAIET; no data available (Hall, 1939b as *Megalura orsilochus*)
e. KAM RI; no data available (Hall, 1939b as *Megalura orsilochus*)
f. MABAR; no data available (Hall, 1939b as *Megalura orsilochus*)
g. No data available (Gillman, 2004)

Marpesia petreus (Cramer, 1776)
a. BERBI; 1930s; collector/observer name/names not available (Gillman, 2002)
b. WINEP; February, 1971; QH (Emmel, 1972 as *Marpesia peleus*)
c. IWOKR; September–October, 2002; MG (Gillman, 2002)
d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

e. BERBI; no data available (Hall, 1939b as *Megalura peleus*)
f. No data available (Gillman, 2004)

Subfamily: Danainae

Genus:

1. *Aeria* Hübner, 1816

Aeria elara (Hewitson, 1855)

QUONG; date of collection/observation not available; HW (Neild, 2008)

Aeria eurimedia (Cramer, 1777)

a. No specified locality; 1930s; collector/observer name/names not available (Gillman, 2002)
b. IW CCK; September–October, 2002; MG (Gillman, 2002)
c. KAM RI; no data available (NHMUK, 2014)
d. TAK RI; no data available (NHMUK, 2014)
e. KAIET; no data available (Hall, 1939a)
f. KAM RI; no data available (Hall, 1939a)
g. LO ESS; no data available (Hall, 1939a)
h. MABAR; no data available (Hall, 1939a)
i. TAKUT; no data available (Hall, 1939a)
j. No data available (Gillman, 2004; NHMUK, 2014)

2. *Callithomia* Bates, 1862

Callithomia alexirrhoe Bates, 1862

No data available (Hall, 1939a; Gillman, 2004)

Callithomia lenea (Cramer, 1779)

a. MAZ PS; 1941; collector/observer name/names not available (Gillman, 2002)
b. IW CCK; September–October, 2002; MG (Gillman, 2002)
c. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
e. ANNAI; no data available (Hall, 1939a as *Dircenna lenea*)
f. KUTAR; no data available (Hall, 1939a as *Dircenna lenea*)
g. MABAR; date of collection/observation not available; AH (Hall, 1939a as *Dircenna lenea*)
h. MT ROR; no data available (Hall, 1939a as *Dircenna lenea*)
i. OMAI; no data available (Hall, 1939a as *Dircenna lenea*)
j. TAKUT; no data available (Hall, 1939a as *Dircenna lenea*)
k. No data available (Gillman, 2004)

3. *Ceratinia* Hübner, 1816

Ceratinia cayana (Salvin, 1869)

a. KAIET; no data available (Hall, 1939a as *Calloleria cayana*)
b. POT RI; no data available (Hall, 1939a as *Calloleria cayana*)
c. No data available (Gillman, 2004; Neild, 2008)

Ceratinia neso (Hübner, [1806])
  a. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Ceratinia nise*)
  b. SURAM; April, 2012; AZ [HS] (Zheludev, 2013 as *Ceratinia nise*)
  c. ANNAI; no data available (Hall, 1939a as *Calloleria nise*; NHMUK, 2014)
  d. DEM RI; no data available (Hall, 1939a as *Calloleria nise*)
  e. KAM RI; no data available (Hall, 1939a as *Calloleria nise*; NHMUK, 2014)
  f. MABAR; no data available (Hall, 1939a as *Calloleria nise*; NHMUK, 2014)
  g. OMAI; no data available (Hall, 1939a as *Calloleria nise*)
  h. No data available (Gillman, 2004)

4. *Danaus* Kluk, 1780

Danaus eresimus (Cramer, 1777)
  a. ARA MT; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
  b. KWATA; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
  c. KARAN; 22 October, 2012; GP (Pereira, pers. comm.)
  d. SANDA; 14 July, 2015; HS [AN] (Sambhu, unpubl. data)
  e. SKE CA; 14 July, 2015; HS [AN] (Sambhu, unpubl. data)
  f. ANNAI; no data available (Hall, 1939a as *Danais eresimus*)
  g. No data available (Gillman, 2004)

Danaus plexippus (Linnaeus, 1758)
  a. BER RI; October–November, 1910; JA (Aiken, 1912 as *Anosia plexippus*)
  b. KARTA; 1922; collector/observer name/names not available (NHMUK, 2014)
  c. CANJE; 1963; EP (NHMUK, 2014)
  d. UG TKN; 11 April, 1971; MT (Prince *et al*., 2006)
  e. CAN N1; 9 February, 1983; MT (Prince *et al*., 2006)
  f. DEM RI; 1997; collector/observer name/names not available (NHMUK, 2014)
  g. BARTI; 2001; collector/observer name/names not available (NHMUK, 2014)
  h. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
  i. KARAN; 2011–2016; GP (Pereira, pers. comm.)
  j. NEW AM; no data available (NHMUK, 2014)
  k. No data available (Rodway, 1911; Cleare Jr., 1919 as *Anosia plexippus*; Gillman, 2004; Beccaloni *et al*., 2008)

5. *Dircenna* Doubleday, 1847

Dircenna adina (Hewitson, [1855])

No data available (Neild, 2008; Warren *et al*., 2013)

6. *Episcada* Godman & Salvin, 1879

Episcada sylpha Haensch, 1905
  a. QUONG; no data available (Hall, 1939a)
  b. No data available (Gillman, 2004)

7. *Greta* Hemming, 1934

Greta clavijoi Neild, 2008

a. MT AY B; 10–20 April, 1999; SF, RH, WP & RW (Neild, 2008; Costa *et al*., 2013)
b. MT AY C; no data available (Costa *et al*., 2013)

8. *Hypoleria* Godman & Salvin, 1879

Hypoleria lavinia (Hewitson, [1855])

No data available (Neild, 2008; Warren *et al*., 2013)

9. *Hyposcada* Godman & Salvin, 1879

Hyposcada dujardini Brévignon, 1993

a. MT ROR; no data available (Costa *et al*., 2013)
b. No data available (Neild, 2008)

Hyposcada zarepha (Hewitson, 1869)

a. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Ithomia zarepha*)
b. BARTI; no data available (Hall, 1939a as *Leucothyris zarepha*)
c. DEM RI; no data available (Hall, 1939a as *Leucothyris zarepha*)
d. ESSE R; no data available (Hall, 1939a as *Leucothyris zarepha*)
e. KAIET; no data available (Hall, 1939a as *Leucothyris zarepha*)
f. KAM RI; no data available (Hall, 1939a as *Leucothyris zarepha*)
g. No data available (Gillman, 2004; Neild, 2008; NHMUK, 2014)

10. *Hypothyris* Hübner, 1821

Hypothyris euclea (Godart, 1819)

a. POT RD; 14 May, 1901; WK (Kaye, 1907 as *Ceratinia euclea*)
b. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Ceratinia barii*)
c. TUMAT; 3 April, 1903; Pe (Kaye, 1907 as *Ceratinia euclea*)
d. PAKAR; 1971; collector/observer name/names not available (Gillman, 2002)
e. MT ROR; 29 October, 1972; MT (Prince *et al*., 2006)
f. MT ROR; 20 October, 1973; MT (Prince *et al*., 2006)
g. KAIET; 8 December, 1991; SF (Prince *et al*., 2006)
h. MT ROR; November, 1993; MT (Prince *et al*., 2006)
i. IW CCK; September–October, 2002; MG (Gillman, 2002)
j. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
k. ANNAI; no data available (Hall, 1939a as *Ceratinia barii*)
l. DEM RI; no data available (Hall, 1939a *Ceratinia barii*)
m. MT ROR; no data available (Hall, 1939a as *Ceratinia barii*)
n. OMAI; no data available (Hall, 1939a as *Ceratinia barii*)
o. QUONG; no data available (Hall, 1939a as *Ceratinia barii*)
p. TAKUT; no data available (Hall, 1939a as *Ceratinia barii*)
q. No data available (Gillman, 2004)

Hypothyris fluonia (Hewitson, 1854)

a. KUTAR; date of collection/observation not available; GH (Hall, 1939a as *Napeogenes hygia*)
b. No data available (Gillman, 2004)

Hypothyris gemella Fox, 1971

a. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. KAM RI; no data available (Neild, 2008; NHMUK, 2014)
f. KAMAR; no data available (Neild, 2008)
g. No data available (Warren *et al*., 2013)

Hypothyris ninonia (Hübner, [1806])

a. POT RI; 17 May, 1901; WK (Kaye, 1907 as *Ceratinia philidas*)
b. IWOKR; July–August, 1992; MG & K (WE, 2014)
c. IWOKR; January, 1993; As (WE, 2014)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IW CCK; September–October, 2002; MG (Gillman, 2002)
f. ANNAI; no data available (Hall, 1939a as *Ceratinia pellucida*)
g. BARTI; no data available (Hall, 1939a as *Ceratinia mutilla*)
h. DEM RI; no data available (Hall, 1939a as *Ceratinia mutilla*)
i. DEMER; no data available (Warren *et al*., 2013)
j. KAIET; no data available (Hall, 1939a as *Ceratinia pellucida*)
k. KAM RI; no data available (Hall, 1939a as *Ceratinia mutilla*)
l. MABAR; no data available (Hall, 1939a as *Ceratinia mutilla*)
m. MT ROR; no data available (Hall, 1939a as *Ceratinia mutilla*; Costa *et al*., 2013)
n. OMAI; no data available (Hall, 1939a as *Ceratinia pellucida*)
o. No data available (Gillman, 2004; Neild, 2008; Warren *et al.*, 2013)

Hypothyris vallonia (Hewitson, [1853])

a. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Ceratinia vallonia*)
b. POT RD; 23 February, 1904; CR (Poulton, 1906 as *Ceratinia vallonia*)
c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. ANNAI; no data available (Hall, 1939a as *Ceratinia glycon*; Neild, 2008; Warren *et al*., 2013)
g. KAIET; no data available (Hall, 1939a as *Ceratinia glycon*)
h. KAM RI; no data available (Hall, 1939a as *Ceratinia glycon*)
i. POT RI; no data available (Hall, 1939a as *Ceratinia glycon*)
j. TAK RI; no data available (Neild, 2008)
k. TAKUT; no data available (Hall, 1939a as *Ceratinia glycon*)
l. No data available (Gillman, 2004)

11. *Ithomia* Hübner, 1816

Ithomia agnosia Hewitson, [1855]

No data available (Gillman, 2004 as *Ithomia pellucida*)

12. *Lycorea* Doubleday, [1847]

Lycorea halia (Hübner, 1816)

a. POT RI; November–December, 1901; CR (Kaye, 1907 as *Lycorea ceres*)
b. TUMAT; December, 1901–January, 1902; CR (Kaye, 1907 as *Lycorea ceres*)
c. POT RD; 28 August, 1903; CR (Poulton, 1903)
d. DAWA P; 27 March–10 April, 1970; TP (Pliske, 1975 as *Lycorea ceres*)
e. KAN MT; 2000; collector/observer name/names not available (Gillman, 2002 as *Lycorea ceres*)
f. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Lycorea ceres*)
g. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
i. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Lycorea cleobaea* ssp*?*)
j. ANNAI; no data available (Hall, 1939a as *Lycorea ceres*)
k. MABAR; no data available (Hall, 1939a as *Lycorea ceres*)
l. POT RD; no data available (Hall, 1939a as *Lycorea ceres*)
m. QUONG; no data available (Hall, 1939a as *Lycorea ceres*)
n. No data available (Kaye, 1903 and Gillman, 2004 as *Lycorea ceres*)

Lycorea ilione (Cramer, [1775])

No data available (Basset *et al*., 2005)

Lycorea pasinuntia (Stoll, 1780)

a. TUMAT; October, 1901; CR (Kaye, 1907)
b. POT RD; 28 August, 1903; CR (Poulton, 1903)
c. POT RD; 23 February, 1904; CR (Poulton, 1906)
d. IWOKR; January, 1993; As (WE, 2014)
e. IWOKR; July–August, 1996; Mc (WE, 2014)
f. ANNAI; no data available (Hall, 1939a)
g. MABAR; no data available (Hall, 1939a)
h. OMAI; no data available (Hall, 1939a)
i. POT RD; no data available (Hall, 1939a)
j. POT RI; date of collection/observation not available; CR (Kaye, 1907)
k. No data available (Kaye, 1903; Gillman, 2004)

13. *Mcclungia* Fox, 1940

Mcclungia cymo (Hübner, [1806])

a. MABAR; December, 1929; AH (Hall, 1930 and Hall, 1939a as *Pseudoscada wana*)
b. MABAR; no data available (Neild, 2008; Warren *et al*., 2013)
c. No data available (Gillman, 2004 as *Hypoleria cymo*)

14. *Mechanitis* Fabricius, 1807

Mechanitis lysimnia (Fabricius, 1793)

No data available (Brown Jr., 1977 as *Mechanitis limnaea*; Gillman, 2004)

Mechanitis mazaeus Hewitson, 1860

a. POT RI; August–October, 1901; CR (Kaye, 1907 as *Mechanitis pannifera*)
b. POT RI; 28 August, 1903; CR (Kaye, 1907 as *Mechanitis pannifera*)
c. TUMAT; September, 1903; CR (Kaye, 1907 as *Mechanitis pannifera*)
d. POT RD; 23 February, 1904; CR (Poulton, 1906 as *Mechanitis pannifera*)
e. KAIET; 2001; SF (Kelloff, 2003)
f. ARROW; April, 2012; AZ [HS] (Zheludev, 2013)
g. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Mechanitis ?mazaeus*)
h. ANNAI; no data available (Hall, 1939a as *Mechanitis pannifera*)
i. KAIET; no data available (Hall, 1939a as *Mechanitis pannifera*)
j. MABAR; no data available (Hall, 1939a as *Mechanitis pannifera*)
k. OMAI; no data available (Hall, 1939a as *Mechanitis pannifera*)
l. TAKUT; (Hall, 1939a as *Mechanitis pannifera*)
m. No data available (Brown Jr., 1977; Gillman, 2004)

Mechanitis polymnia (Linnaeus, 1758)

a. POT RD; 14 May, 1901; WK (Kaye, 1907)
b. TUMAT; November–December, 1901; CR (Kaye, 1907)
c. POT RD; 28 August, 1903; CR (Poulton, 1903)
d. TUMAT; 3 September, 1903; CR (Kaye, 1907)
e. POT RD; 23 February, 1904; CR (Poulton, 1906)
f. POT RI; 14 March, 1905; CR (Kaye, 1907)
g. IWOKR; July–August, 1992; MG & K (WE, 2014)
h. IWOKR; January, 1993; As (WE, 2014)
i. KAIET; 2001; SF (Kelloff, 2003)
j. IW CCK; September–October, 2002; MG (Gillman, 2002)
k. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
l. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
o. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
p. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
q. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
r. OMAI; no data available (NHMUK, 2014)
s. No data available (Hall, 1939a; Brown Jr., 1977; Gillman, 2004; NHMUK, 2014)

15. *Melinaea* Hübner, 1816

Melinaea crameri Godman & Salvin, 1898

a. POT RI; 1901; WK (Kaye, 1903)
b. POT RD; 28 August, 1903; CR (Poulton, 1903)
c. TUMAT; 28 August, 1903; CR (Kaye, 1907)
d. POT RD; 23 February, 1904; CR (Poulton, 1906)
e. POT RD; no data available (Brown Jr., 1977)
f. POT RI; date of collection/observation not available; CR (Kaye, 1907)
g. No data available (Neild, 2008)

Melinaea ethra (Godart, 1819)

a. QUONG; no data available (Brown Jr., 1977)
b. No data available (Gillman, 2004)

Melinaea lilis (Doubleday, 1847)

a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. QUONG; no data available (Neild, 2008; Costa *et al*., 2013; Warren *et al*., 2013)

Melinaea ludovica (Cramer, 1780)

a. POT RI; 1901; WK (Kaye, 1903 as *Melinaea egina*)
b. POT RD; 28 August, 1903; CR (Poulton, 1903 and Kaye, 1907 as *Melinaea egina*)
c. POT RD; 23 February, 1904; CR (Poulton, 1906 as *Melinaea egina*)
d. IWOKR; January, 1993; As (WE, 2014)
e. TROP A; 31 January–12 February, 2001; SF (Fratello, 2003)
f. IW CCK; September–October, 2002; MG (Gillman, 2002)
g. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Melinaea ludowica*)
h. ANNAI; no data available (Hall, 1939a as *Melinaea egina*)
i. KAM RI; no data available (Hall, 1939a *Melinaea egina*)
j. OMAI; no data available (Hall, 1939a *Melinaea egina*)
k. POT RD; no data available (Brown, Jr., 1977)
l. POT RI; no data available (Hall, 1939a *Melinaea egina*)
m. POTAR; no data available (Brown Jr., 1977)
n. UP COR; no data available (Hall, 1939a *Melinaea egina*)
o. No data available (Gillman, 2004)

Melinaea marsaeus (Hewitson, 1860)

RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Melinaea menophilus (Hewitson, [1856])

a. POTAR; no data available (Brown Jr., 1977 as *Melinaea maenius*)
b. QUONG; no data available (Brown Jr., 1977 as *Melinaea maenius*)
c. No data available (Hall, 1939a as *Melinaea mediatrix*)

Melinaea mnasias (Hewitson, [1856])

a. TUMAT; 17 March, 1905; CR (Kaye, 1907 as *Melinaea mnasius*)
b. POT RD; date of collection/observation not available; WK (Kaye, 1907 and Hall, 1939a as *Melinaea mnasius*)
c. POTAR; no data available (Brown Jr., 1977 as *Melinaea eratosthenes*)
d. No data available (Hall, 1939a; Gillman, 2004; Warren *et al.*, 2013)

Melinaea mneme (Linnaeus, 1763)

a. POT RI; 1901; WK (Kaye, 1903)
b. POT RD; 28 August, 1903; CR (Poulton, 1903; Kaye, 1907)
c. TUMAT; 28 August, 1903; CR (Kaye, 1907)
d. POT RD; 23 February, 1904; CR (Poulton, 1906)

e. IWOKR; July–August, 1992; MG & K (WE, 2014)
f. IWOKR; July–August, 1996; Mc (WE, 2014)
g. KAIET; 2001; SF (Kelloff, 2003)
h. KARTA; date of collection/observation not available; WB (Beebe, 1925)
i. POTAR; no data available (Brown Jr., 1977)
j. QUONG; no data available (Brown Jr., 1977)
k. No data available (Hall, 1939a; Gillman, 2004)

Melinaea satevis (Doubleday, 1847)
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. No data available (Gillman, 2004; Warren *et al.*, 2013)

16. *Methona* Doubleday, 1847

Methona confusa Butler, 1873
a. TROP A; 31 January–12 February, 2001; SF (Fratello, 2003)
b. ANNAI; no data available (Hall, 1939a as *Thyridia confusa*)
c. KUTAR; date of collection/observation not available; GH (Hall, 1939a as *Thyridia confusa*)
d. POT RI; no data available (Hall, 1939a as *Thyridia confusa*)
e. No data available (Kaye, 1908b; Neild, 2008)

Methona grandior (Forbes, 1944)
No data available (Gillman, 2004; Neild, 2008)

Methona megisto Felder & Felder, 1860
No data available (Neild, 2008)

17. *Napeogenes* Bates, 1862

Napeogenes inachia (Hewitson, 1855)
a. MT ROR; 28 October, 1977; MT (Prince *et al*., 2006)
b. KAIET; 21 November, 1992; SF (Prince *et al*., 2006)
c. POT RD; no data available (Hall, 1939a; D'Almeida, 1960 as *Napeogenes moles*)
d. No data available (Hall, 1939a; Gillman, 2004; Neild, 2008; Warren *et al*., 2013)

Napeogenes pharo (Felder & Felder, 1862)
POT RD; 28 August, 1903; CR (Poulton, 1903 as *Napeogenes pheranthes*)

Napeogenes rhezia (Geyer, [1834])
a. KAIET; 2001; SF (Kelloff, 2003 as *Napeogenes cyrianassa*)
b. BARTI; no data available (Hall, 1939a as *Napeogenes cyrianassa*)
c. ESSEQ; no data available (Hall, 1939a as *Napeogenes cyrianassa*)
d. KAM RI; no data available (Hall, 1939a *Napeogenes cyrianassa*)
e. No data available (Hall, 1939a; Warren *et al*., 2013)

Napeogenes sylphis (Guérin-Méneville, [1844])

a. KAIET; date of collection/observation not available; AH (Hall, 1939a as *Napeogenes potaronus*)
b. POT RI; date of collection/observation not available; WK (Hall, 1939a as *Napeogenes potaronus*; Warren *et al*., 2013)
c. No data available (Gillman, 2004; Neild, 2008)

18. *Oleria* Hübner, 1816

Oleria aegle (Fabricius, 1776)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Leucothyris aegle*)
b. BARTI; no data available (Hall, 1939a as *Leucothyris aegle*)
c. KAIET; no data available (Hall, 1939a as *Leucothyris aegle*)
d. KAM RI; no data available (Hall, 1939a as *Leucothyris aegle*; NHMUK, 2014)
e. POT RI; no data available (Hall, 1939a as *Leucothyris aegle*)
f. No data available (Gillman, 2004 as *Hyposcada clio*; Neild, 2008)

Oleria astrea (Cramer, 1775)

a. No specified locality; 1930s; collector/observer name/names not available (Gillman, 2002 as *Hyposcada astracea*)
b. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Hyposcada astracea*)
k. ANNAI; no data available (Hall, 1939a as *Leucothyris astrea*)
l. KAM RI; no data available (Hall, 1939a as *Leucothyris astrea*)
m. MABAR; no data available (Hall, 1939a as *Leucothyris astrea*)
n. QUONG; no data available (Hall, 1939a as *Leucothyris astrea*)
c. No data available (Gillman, 2004 as *Hyposcada astracea*; NHMUK, 2014)

Oleria boyeri Neild, 2008

MT AY C; 13–18 April, 1999; SF, RH, WP, RW (Neild, 2008; Costa *et al*., 2013)

Oleria similigena d'Almeida, 1962

No data available (Warren *et al*., 2013)

19. *Pseudoscada* Godman & Salvin, 1879

Pseudoscada florula (Hewitson, [1855])

a. POT RD; no data available (Hall, 1939a)
b. No data available (Gillman, 2004; Neild, 2008; Warren *et al*., 2013)

20. *Pteronymia* Butler & Druce, 1872

Pteronymia alissa (Hewitson, 1869)

MT ROR; no data available (Neild, 2008; Costa *et al*., 2013)

Pteronymia primula (Bates, 1862)

a. KAM RI; date of collection/observation not available; HW (Neild, 2008)
b. QUONG; no data available (Neild, 2008)

21. *Sais* Hübner, 1816

Sais rosalia (Cramer, 1779)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. IWOKR; January, 1993; As (WE, 2014)
c. KAM RI; April, 1993; SF (Prince *et al*., 2006)
d. BERBI; no data available (Hall, 1939a)
e. DEM RI; no data available (Hall, 1939a)
f. GEORG; no data available (Hall, 1939a as *Sais paraensis*)
g. KAM FB; no data available (Hall, 1939a as *Sais paraensis*)
h. KUTAR; no data available (Hall, 1939a)
i. OMAI; no data available (Hall, 1939a)
j. No data available (Gillman, 2004; Neild, 2008; Warren *et al*., 2013)

22. *Scada* Kirby, 1871

Scada reckia (Hübner, [1808])

a. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Scada theaphia*)
b. POT RD; 23 February, 1904; CR (Poulton, 1906 as *Scada theaphia*)
c. ANNAI; no data available (Hall, 1939a as *Scada theaphia*)
d. KAIET; no data available (Hall, 1939a as *Scada theaphia*)
e. KAM RI; no data available (Hall, 1939a as *Scada theaphia*)
f. POT RD; no data available (Hall, 1939a as *Scada theaphia*)
g. QUONG; no data available (Hall, 1939a as *Scada theaphia*)
h. No data available (Neild, 2008; Warren *et al*., 2013)

23. *Thyridia* Hübner, 1816

Thyridia psidii (Linnaeus, 1758)

a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
b. KUTAR; date of collection/observation not available; GH (Hall, 1939a as *Aprotopos psidii*)
c. POT RI; date of collection/observation not available; WK (Hall, 1939a as *Aprotopos psidii*)
d. No data available (Gillman, 2004)

24. *Tithorea* Doubleday, 1847

Tithorea harmonia (Cramer, 1777)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. IWOKR; January, 1993; As (WE, 2014)
c. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
f. ANNAI; no data available (Kaye, 1907; Hall, 1939a as *Hirsutis harmonia*)
g. KUTAR; no data available (Hall, 1939a as *Hirsutis harmonia*)No data available (Gillman, 2004)

Subfamily: Heliconiinae

Genus:

1. *Actinote* Hübner, [1819]
    Actinote anteas (Doubleday, [1847])
    a. MT ROR; no data available (Neild, 2008; Costa *et al*., 2013)
    b. No data available (Gillman, 2004)

    Actinote pellenea Hübner, [1821]
    a. CHE SA; no data available (Neild, 2008)
    b. PARIM; no data available (Neild, 2008)

    Actinote thalia Linnaeus, 1758
    a. DEM RI; no data available (Neild, 2008)
    b. No data available (Gillman, 2004)

2. *Agraulis* Boisduval & Le Conte, [1835]
    Agraulis vanillae (Linnaeus, 1758)
    a. TIMEH; 9 August, 1972; MT (Prince *et al*., 2006)
    b. IWOKR; July–August, 1992; MG & K (WE, 2014)
    c. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
    d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
    e. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
    f. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
    g. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
    h. CUM VI; 2015; HS (Sambhu, unpubl. data)
    i. N72 VI; 2015; HS (Sambhu, unpubl. data)
    j. SKE CA; 2015; HS (Sambhu, unpubl. data)
    k. TAI CA; 2015; HS (Sambhu, unpubl. data)
    l. TAI VI; 2015; HS (Sambhu, unpubl. data)
    m. KARAN; 7 June, 2016; GP (Pereira, pers. comm.)
    n. No data available (Hall, 1939a and Shaw, 1951 as *Dione vanillae*; Gillman, 2004)

3. *Dione* Hübner, [1819]
    Dione juno (Cramer, 1779)
    a. IWOKR; January, 1993; As (WE, 2014)
    b. No data available (Hall, 1939a; Gillman, 2004)

4. *Dryadula* Michener, 1942
    Dryadula phaetusa (Linnaeus, 1758)
    a. TIMEH; 10 August, 1973; MT (Prince *et al*., 2006)
    b. CRAIG; 2 January, 1979; KH (Prince *et al*., 2006)
    c. TURKE; August, 1979; DS (Prince *et al*., 2006)
    d. KURUP; August, 1992; MG & K (WE, 2014)
    e. IWOKR; January, 1993; As (WE, 2014)
    f. IWOKR; August, 1995; Wa (WE, 2014)
    g. IW CCK; 22 September, 2002; MG (Gillman, 2002)
    h. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
    i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

j. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. KARAN; 17 March, 2013; GP (Pereira, pers. comm.)
n. N72 VI; 2015; HS (Sambhu, unpubl. data)
o. NIG VI; 2015; HS (Sambhu, unpubl. data)
p. SANDA; 2015; HS (Sambhu, unpubl. data)
q. SKE CA; 2015; HS (Sambhu, unpubl. data)
r. TAI CA; 2015; HS (Sambhu, unpubl. data)
s. NEW AM; 31 March, 2017; BP [HS] (Punu, pers. obs.)
t. GEORG; no data available (Hall, 1939a as *Colaenis phaetusa*)
u. No data available (Gillman, 2004)

5. *Dryas* Hübner, [1807]

Dryas iulia (Fabricius, 1775)

a. KURUP; August, 1992; MG & K (WE, 2014)
b. IWOKR; January, 1993; As (WE, 2014)
c. IRENG; November, 1993; SF (Prince *et al*., 2006)
d. NAP MT; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
e. MT AYA; 2–25 April, 1999; SF (Prince *et al*., 2006)
f. KAIET; 2001; SF (Kelloff, 2003)
g. IW CCK; 25 September, 2002; MG (Gillman, 2002)
h. IWOKR; 26 & 27 September, 2002; MG (Gillman, 2002)
i. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
m. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
n. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Colaenis julia*)
o. KARAN; 2011–2016; GP (Pereira, pers. comm.)
p. No data available (Hall, 1939a as *Colenis julia*; Shaw, 1951 as *Colaenis julia*; Gillman, 2004)

6. *Eueides* Hübner, 1816

Eueides aliphera (Godart, 1819)

a. MT ROR; 8 October and 29 October, 1973; MT (Prince *et al*., 2006)
b. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. No data available (Hall, 1939a; Gillman, 2004)

Eueides isabella (Stoll, 1781)

a. TUMAT; 1904; GC (Kaye, 1907)

b. POT RD; date of collection/observation not available; WK (Kaye, 1907)
c. ANNAI; no data available (Hall, 1939a)
d. BERBI; no data available (Hall, 1939a)
e. POT RD; no data available (Hall, 1939a)

Eueides lampeto Bates, 1862
a. TUMAT; 30 June, 1902; CR (Kaye, 1907 as *Eueides nigrofulva*)
b. POT RI; November–December, 1902; CR (Kaye, 1907 as *Eueides nigrofulva*)
c. POT RI; 25 March, 1905; CR (Kaye, 1907 as *Eueides nigrofulva*)
d. POT RI; no data available (Kaye, 1906; Hall, 1939a; Brown Jr. & Yépez, 1984; Warren *et al*., 2013)
e. No data available (Gillman, 2004)

Eueides lybia (Fabricius, 1775)
a. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
b. IW CCK; 26 & 27 September, 2002; MG (Gillman, 2002)
c. IWOKR; 2007–2008; HS (Sambhu, pers. obs.)
d. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. No data available (Hall, 1939a; Gillman, 2004; Beccaloni *et al*., 2008)

Eueides tales (Cramer, 1775)
a. BARTI; no data available (Hall, 1939a)
b. DEM RI; no data available (Hall, 1939a)
c. DEMER; no data available (Warren *et al*., 2013)
d. POT RD; date of collection/observation not availabe; WK (Kaye, 1908a)
e. No data available (Gillman, 2004; Beccaloni *et al*., 2008)

Eueides vibilia (Godart, 1819)
a. MT WK B; November, 1993; SF (Prince *et al*., 2006)
b. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Euides vibilia*)
e. POT RD; date of collection/observation not available; WK (Kaye, 1907)
f. POT RD; no data available (Hall, 1939a)
g. No data available (Gillman, 2004)

7. *Euptoieta* Doubleday, 1848

Euptoieta hegesia (Cramer, 1779)
a. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. BROTH; 2015; HS (Sambhu, unpubl. data)
d. LBI CA; 2015; HS (Sambhu, unpubl. data)
e. N63 VI; 2015; HS (Sambhu, unpubl. data)
f. SANDA; 2015; HS (Sambhu, unpubl. data)

g. SKE CA; 2015; HS (Sambhu, unpubl. data)
h. SKE VI; 2015; HS (Sambhu, unpubl. data)
i. TAI CA; 2015; HS (Sambhu, unpubl. data)
j. DEMER; no data available (Hall, 1939a)
k. No data available (Moore, 1912; Gillman, 2004; Bourne, pers. obs.)

8. *Heliconius* Kluk, 1780

Heliconius antiochus (Linnaeus, 1767)

a. KARTA; 1927; SW (Masters, 1969)
b. KAN MT; 2000; collector/observer name/names not available (Gillman, 2002)
c. KAIET; 2001; SF (Kelloff, 2003)
d. IW CCK; 19 September–2 October, 2002; MG (Gillman, 2002)
e. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
n. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
o. KARAN; 10 June, 2014; GP (Pereira, pers. comm.)
p. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
q. IWOKR; 7 February, 2017; DG (Geale, 2017)
r. BARTI; no data available (Hall, 1939a)
s. CUY RI; no data available (Hall, 1939d as *Heliconius salvinii*)
t. DEM RI; no data available (Hall, 1939a)
u. KAMAK; no data available (Hall, 1939a)
v. MATOP; no data available (Hall, 1939d as *Heliconius salvinii*; Masters, 1969)
w. OMAI; no data available (Hall, 1939a)
x. QUONG; no data available (Hall, 1939a)
y. TUMAT; date of collection/observation not available; GBo (Hall, 1939d as *Heliconius salvinii*)
z. No data available (Gillman, 2004; Beccaloni *et al*., 2008)

Heliconius burneyi (Hübner, [1831])

a. KAIET; 30 December, 1991; SF (Prince *et al*., 2006)
b. KURUP; August, 1995; Wa (WE, 2014)
c. IW CCK; 24 September, 2002; MG (Gillman, 2002)
d. IWOKR; 26 & 27 September, 2002; MG (Gillman, 2002)
e. IWOKR; 2007–2009; HS (Sambhu, pers. obs.)
f. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
g. ANNAI; no data available (Hall, 1939a)

h. BARTI; no data available (Hall, 1939a)
i. DEM RI; no data available (Hall, 1939a)
j. MT ROR; no data available (Hall, 1939a)
k. OMAI; no data available (Hall, 1939a)
l. POT RD; date of collection/observation not available; WK (Kaye, 1907 as *Heliconius catharinae*; Kaye, 1908a)
m. TAKUT; no data available (Hall, 1939a)
n. No data available (Kaye, 1908b; Gillman, 2004)

Heliconius clysonymus Latreille, [1817]
a. HOSSO; date of collection/observation not available; LC (Hall, 1939d)
b. No data available (Gillman, 2004)

Heliconius demeter Staudinger, 1897
1ST FL; 14 October, 1929; Oxford University Expedition team (Warren *et al*., 2013)

Heliconius doris (Linnaeus, 1771)
a. IWOKR; 2007–2009; HS (Sambhu, pers. obs.)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. KARAN; 2011–2016; GP (Pereira, pers. comm.)
e. ANNAI; no data available (Hall, 1939a)
f. BERBI; no data available (Hall, 1939a)
g. FREN B; no data available (Kaye, 1919)
h. MABAR; no data available (Hall, 1939a)
i. No data available (Gillman, 2004 as *Laparus doris*)

Heliconius egeria (Cramer, 1775)
a. ENA CK; October, 1992; SF (Prince *et al*., 2006)
b. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. POT RD; date of collection/observation not available; WK (Kaye, 1907; Kaye, 1908a; Hall, 1939a)
d. No data available (Gillman, 2004)

Heliconius elevatus Nöldner, 1901
a. TIG CK; May, 1907; CR (Turner, 1966)
b. MT WK A; November, 1993; SF (Fratello, 1993 and 1996a)
c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
d. ESSE R; no data available (Turner, 1966)
e. FORT A; no data available (Turner, 1966; Warren *et al*., 2013)
f. MT ROR; no data available (Costa *et al*., 2013; Warren *et al*., 2013)
g. POT RD; date of collection/observation not available; WK (Kaye, 1908a as *Heliconius cybele*)
h. TUMAT; date of collection/observation not available; WK (Hall, 1939a as *Heliconius tumatumari*)

i. No data available (Kaye, 1906 as *Heliconius tumatumari*; Gillman, 2004)

Heliconius erato (Linnaeus, 1758)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
c. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
i. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
j. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
k. KARAN; 19 July, 2015; GP (Pereira, pers. comm.)
l. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
m. ANNAI; no data available (Hall, 1939a as *Heliconius hydara* and *H. erato*)
n. BERBI; no data available (Hall, 1939a)
o. KAIET; no data available (Hall, 1939a)
p. KAM RI; no data available (Hall, 1939a)
q. MABAR; no data available (Hall, 1939a)
r. No data available (Gillman, 2004; Beccaloni *et al*., 2008; Warren *et al*., 2013; NHMUK, 2014; Bourne, pers. obs.)

Heliconius ethilla (Godart, 1819)

a. TUMAT; 1902; CR (Kaye, 1907 as *Heliconius eucoma*)
b. ARROW; April, 2012; AZ [HS] (Zheludev, 2013)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. BAR RI; no data available (Hall, 1939a)
e. BARTI; date of collection/observation not available; AH (Hall, 1939a as *Heliconius gradatus*)
f. BERBI; no data available (Hall, 1939a as *Heliconius gradatus*)
g. DEMER; no data available (Hall, 1939a as *Heliconius gradatus*)
h. POT RD; date of collection/observation not available; WK (Kaye, 1907 and Hall, 1939a as *Heliconius eucoma*)
i. No data available (Gillman, 2004; Bourne, pers. obs. as *Heliconius ethillus*)

Heliconius hecale (Fabricius, 1776)

a. POT RI; 1901; WK (Kaye, 1903 as *Heliconius vetustus*)
b. POT RD; 28 August, 1903; CR (Poulton, 1903 as *Heliconius vetustus*)
c. POT RI; 18 March, 1905; CR (Kaye, 1907 as *Heliconius vetustus*)
d. MABAR; December, 1929; AH (Hall, 1930; Hall, 1939a)
e. TIMEH; 12 March, 1951; Kw (Prince *et al*., 2006)
f. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
g. BARTI; no data available (Hall, 1939a as *Heliconius vetustus*)
h. BERBI; no data available (Hall, 1939a as *Heliconius vetustus*)

i. DEM RI; no data available (Hall, 1939a as *Heliconius vetustus*)
j. DEMER; no data available (Lathy, 1906 as *Heliconius pasithoë*; Hall, 1939a; Warren *et al*., 2013)
k. MABAR; no data available (Hall, 1939 as *Heliconius vetustas*; Warren *et al*., 2013)
l. PARIK; no data available (Hall, 1939a)
m. POT RD; no data available (Hall, 1939a as *Heliconius vetustas*)
n. No data available (Gillman, 2004; Beccaloni *et al*., 2008)

Heliconius melpomene (Linnaeus, 1758)
a. WINEP; February, 1971; QH (Emmel, 1972)
b. IWOKR; July–August, 1992; MG & K (WE, 2014)
c. IWOKR; January, 1993; As (WE, 2014)
d. KAIET; 2001; SF (Kelloff, 2003)
e. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
f. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
g. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
h. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
i. CEIBA; 2013; GM (Maharaj, unpubl. data)
j. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
k. KASSI; no data available (Turner, 1967)
l. MT ROR; no data available (Hall, 1939a)
m. PARIK; no data available (Hall, 1939a)
n. TUMAT; no data available (Warren *et al*., 2013)
o. No data available (Moore, 1912; Gillman, 2004; Beccaloni *et al*., 2008)

Heliconius numata (Cramer, 1780)
a. POT RI; 1901; WK (Kaye, 1907)
b. POT RI; 1901; WK (Kaye, 1907 as *Heliconius silvana*)
c. TUMAT; 1904; GC (Kaye, 1907 as *Heliconius silvana*)
d. TUMAT; 10 February, 1905; CR (Kaye, 1907)
e. POT RI; 5 March, 1905; CR (Kaye, 1907 as *Heliconius silvana*)
f. POT RI; 2 April, 1905; CR (Kaye, 1907)
g. LO CUY; October, 1991; SF (Prince *et al*., 2006)
h. KAIET; 2 March, 1992; SF (Kelloff, 2003; Prince *et al*., 2006)
i. LO CUY; 1 October, 1992; SF (Prince *et al*., 2006)
j. ENA CK; October, 1992; SF (Prince *et al*., 2006)
k. KURUP; August, 1996; Mc (WE, 2014)
l. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
m. IW CCK; 19 September and 2 October, 2002; MG (Gillman, 2002)
n. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
o. IWOKR; 2007–2009; HS (Sambhu, pers. obs.)
p. AU CON; 28 April–5 May, 2009; RL and MK (ERM & GSEC, 2010 as *Heliconius messene*)
q. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010 as *Heliconius messene*)

r. SURAM; April, 2012; AZ (Zheludev, 2013)
s. ANNAI; no data available (Hall, 1939a as *Heliconius silvana*)
t. DEM RI; no data available (Hall, 1939a as *Heliconius silvana*)
u. KUTAR; no data available (Hall, 1939a as *Heliconius silvana*)
v. LO ESS; no data available (Hall, 1939a)
w. POT RD; no data available (Hall, 1939a as *Heliconius silvana*)
x. No data available (Kaye, 1906 as *Heliconius silvana*; Gillman, 2004; Beccaloni *et al*., 2008)

Heliconius ricini (Linnaeus, 1758)

a. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. ANNAI; no data available (Hall, 1939a as *Eueides ricini*)
d. No data available (Gillman, 2004)

Heliconius sara (Fabricius, 1793)

a. TIMEH; 29 August, 1978; MT (Prince *et al*., 2006)
b. KURUP; August, 1992; MG & K (WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IW CCK; September–October, 2002; MG (Gillman, 2002)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
l. KARAN; 16 November, 2012; GP (Pereira, pers. comm.)
m. CEIBA; 2013; GM (Maharaj, unpubl. data)
n. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
o. MABAR; no data available (Hall, 1939a)
p. No data available (Gillman, 2004; Warren *et al*., 2013; Bourne, pers. obs.)

Heliconius wallacei Reakirt, 1866

a. WINEP; February, 1971; QH (Emmel, 1972 as *Heliconius flavescens*)
b. KURUP; August, 1992; MG & K (WE, 2014)
c. IWOKR; August, 1995; Wa (WE, 2014)
d. IW CCK; September–October, 2002; MG (Gillman, 2002)
e. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)

l. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
m. ANNAI; no data available (Hall, 1939a as *Heliconius clytia* and *H. wallacei*)
n. BARTI; no data available (Hall, 1939a as *Heliconius clytia*)
o. MABAR; no data available (Hall, 1939a as *Heliconius clytia* and *H. wallacei*)
p. PARIK; no data available (Hall, 1939a as *Heliconius clytia*)
q. No data available (Gillman, 2004)

Heliconius xanthocles Bates, 1862
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Heliconius xantocles*)
c. DEM RI; no data available (Hall, 1939a)
d. DEMER; no data available (Warren *et al*., 2013)
e. OMAI; no data available (Hall, 1939a)
f. POT RD; date of collection/observation not available; WK (Kaye, 1908a)
g. POT RD; no data available (Hall, 1939a)
h. QUONG; no data available (Hall, 1939a)
i. No data available (Gillman, 2004)

9. *Neruda* Turner, 1976

Neruda aoede (Hübner, [1813])
a. KURUP; January, 1993; As (WE, 2014)
b. KAIET; 2001; SF (Kelloff, 2003 as *Heliconius aoede*)
c. IW CCK; 21 September, 2002; MG (Gillman, 2002)
d. ANNAI; no data available (Hall, 1939a as *Heliconius aede astydamia*)
e. BARTI; no data available (Hall, 1939a as *Heliconius aede astydamia*)
f. DEM RI; no data available (Hall, 1939a as *Heliconius aede astydamia*)
g. POT RD; date of collection/observation not available; WK (Kaye, 1907 as *Heliconius astydamia*; Kaye, 1908a as *Heliconius aoede*)
h. POT RD; no data available (Hall, 1939a as *Heliconius aede astydamia*)
i. QUONG; no data available (Hall, 1939a as *Heliconius aede astydamia*)
j. TAKUT; (Hall, 1939a as *Heliconius aede astydamia*)
k. No data available (Gillman, 2004; Warren *et al.*, 2013)

Neruda metharme (Erichson, [1849])
a. 2HTMD; 13 September–8 October, 2000; SF *et al*. (Fratello, 2001a)
b. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013 as *Heliconius metharme*)
d. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
e. No data available (Gillman, 2004; Warren *et al.*, 2013)

10. *Philaethria* Billberg, 1820

Philaethria dido (Linnaeus, 1763)
a. OGLE; 20 June, 1981; MT (Prince *et al*., 2006)
b. KURUP; August, 1992; MG & K (WE, 2014)
c. IWOKR; January, 1993; As (WE, 2014)

d. KAIET; 2001; SF (Kelloff, 2003)
e. IW CCK; 24 September–3 October, 2002; MG (Gillman, 2002)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
j. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
k. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
l. GEORG; no data available (Hall, 1939a as *Metamorpha dido*)
m. No data available (Rodway, 1911 and Shaw, 1951 as *Metamorpho dido*; Gillman, 2004; Beccaloni *et al*., 2008)

Subfamily: Libytheinae

Genus:

1. *Libytheana* Michener, 1943

Libytheana carinenta (Cramer, 1777)

POT RI; date of collection/observation not available; WK (Hall, 1939b as *Libythea carinenta*)

Subfamily: Limenitidinae

Genus:

1. *Adelpha* Hübner, [1819]

Adelpha amazona (Austin & Jasinski, 1999)

a. MT AY E; April (year unknown); SF (Willmott, 2003)
b. ESSE R; no data available (Willmott, 2003)

Adelpha boeotia (Felder & Felder,1867)

POT RI; no data available (Willmott, 2003)

Adelpha boreas (Butler, 1866)

a. KAIET; March, 1993; SF [KW] (in CSBD collection, UG)
b. MT AY C; date of collection/observation not available; SF (Willmott, 2003)
c. POT RI; date of collection/observation not available; WK (Willmott, 2003)
d. POT RI; no data available (Hall, 1969b; Warren *et al*., 2013)
e. No data available (Willmott, 2003; Gillman, 2004)

Adelpha capucinus (Walch, 1775)

a. KAM FB; 30 November–5 December, 2000; SF *et al*. [KW] (in CSBD collection, UG)
b. FREN B; no data available (Willmott, 2003)
c. KALAC; no data available (Willmott, 2003)
d. NEW RT; no data available (Willmott, 2003)
e. TAK RI; no data available (Willmott, 2003)

Adelphа cocala (Cramer, 1779)

a. ACC MT; 31 October–10 November, 2000; SF *et al*. [KW] (in CSBD collection, UG)
b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
c. ANNAI; no data available (Hall, 1939b; Willmott, 2003)
d. BARTI; no data available (Willmott, 2003)
e. DEM RI; no data available (Hall, 1939b; Willmott, 2003)
f. ESSE R; no data available (Neild, 1996)
g. KAM RI; no data available (Hall, 1939b; Willmott, 2003)
h. MABAR; no data available (Hall, 1939b; Willmott, 2003)
i. OMAI; no data available (Hall, 1939b; Willmott, 2003)
j. POT RI; no data available (Willmott, 2003)
k. No data available (Willmott, 2003; Gillman, 2004)

Adelpha cytherea (Linnaeus, 1758)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. IWOKR; July–August, 1992; MG & K (WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. SIP RV; 24 October–12 November, 2000; SF *et al*. [KW] (in CSBD collection, UG)
e. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; April, 2012; AZ [HS] (Zheludev, 2013 as *Adelpha cytheria*)
i. BARTI; no data available (Willmott, 2003)
j. BERBI; no data available (Willmott, 2003)
k. DAWA P; no data available (Willmott, 2003)
l. DEM RI; no data available (Willmott, 2003)
m. DEMER; no data available (Willmott, 2003)
n. ESSE R; no data available (Willmott, 2003)
o. GEORG; no data available (Willmott, 2003)
p. KAIET; no data available (Willmott, 2003)
q. KAMAK; no data available (Willmott, 2003)
r. KANGA; no data available (Willmott, 2003)
s. KARTA; no data available (Willmott, 2003)
t. MABAR; no data available (Willmott, 2003)
u. OMAI; no data available (Willmott, 2003)
v. PARIK; no data available (Willmott, 2003)
w. POT RI; no data available (Willmott, 2003)
x. RORAI; no data available (Willmott, 2003)
y. TUMAT; no data available (Willmott, 2003)
z. WISMA; no data available (Willmott, 2003)
aa. No data available (Hall, 1939; Willmott, 2003; Gillman, 2004)

Adelpha erotia (Hewitson, 1847)

a. DEMER; no data available (Willmott, 2003)
b. ESSE R; no data available (Willmott, 2003)
c. MABAR; no data available (Hall, 1939b; Willmott, 2003)
d. No data available (Gillman, 2004)

Adelpha fabricia Fruhstorfer, 1913
DEM RI; no data available (Willmott, 2003)

Adelpha iphicleola (Bates, 1864)
ANNAI; no data available (Willmott, 2003)

Adelpha iphiclus (Linnaeus, 1758)
a. DEM RI; no data available (Hall, 1939b)
b. DEMER; no data available (Willmott, 2003)
c. KARTA; no data available (Willmott, 2003)
d. KUYU R; no data available (Willmott, 2003)
e. MABAR; no data available (Hall, 1939b; Willmott, 2003)
f. No data available (Willmott, 2003; Gillman, 2004)

Adelpha irmina (Doubleday, [1848])
DEM RI; no data available (Willmott, 2003)

Adelpha jordani Fruhstorfer, 1913
POT RI; no data available (Willmott, 2003)

Adelpha melona (Hewitson, 1847)
a. TROP B; 31 January–12 February, 2001; SF *et al*. [KW] (in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939b; Willmott, 2003)
c. KAM RI; no data available (Hall, 1939b; Willmott, 2003)
d. MABAR; no data available (Hall, 1939b)
e. POT RI; no data available (Willmott, 2003)
f. No data available (Willmott, 2003; Gillman, 2004)

Adelpha mesentina (Cramer, 1777)
a. ANNAI; no data available (Hall, 1939b; Willmott, 2003)
b. MABAR; no data available (Willmott, 2003)
c. POT RI; no data available (Willmott, 2003)
d. No data available (Willmott, 2003; Gillman, 2004)

Adelpha messana (Felder & Felder, 1867)
a. FREN B; no data available (Hall, 1939b as *Adelpha delphicola*)
b. No data available (Gillman, 2004)

Adelpha naxia (Felder& Felder, 1867)

2HTMB; 17 September–2 October, 2000; SF *et al*. [KW] (in CSBD collection, UG)

Adelpha nea (Hewitson, 1847)

a. POT RI; no data available (Willmott, 2003)
b. ESSE R; no data available (Willmott, 2003)
c. No data available (Willmott, 2003; Gillman, 2004)

Adelpha paraena (Bates, 1865)

a. KUYU R; no data available (Willmott, 2003)
b. NEW RI; no data available (Willmott, 2003)
c. No data available (Hall, 1939b; Willmott, 2003; Gillman, 2004)

Adelpha plesaure Hübner, 1823

a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
c. BROTH; 16 April, 2015; HS (Sambhu, unpubl. data)
d. ANNAI; no data available (Hall, 1939b as *Adelpha phliassa*; Willmott, 2003)
e. BERBI; no data available (Hall, 1939b as *Adelpha phliassa*)
f. ESSE R; no data available (Willmott, 2003)
g. SABIN; no data available (Hall, 1939b as *Adelpha phliassa*; Willmott, 2003)
h. No data available (Willmott, 2003; Gillman, 2004)

Adelpha pollina Fruhstorfer, 1915

a. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
b. No data available (Gillman, 2004)

Adelpha serpa (Boisduval, 1836)

a. KAM RI; no data available (Hall, 1939b; Willmott, 2003)
b. No data available (Willmott, 2003; Gillman, 2004)

Adelpha thesprotia (Felder & Felder, 1867)

a. BERBI; no data available (Hall, 1939b)
b. DEM RI; no data available (Willmott, 2003)
c. OR NRI; date of collection/observation not available; GH (Hall, 1939b)
d. TAKUT; no data available (Hall, 1939b)
e. No data available (Gillman, 2004)

Adelpha viola Fruhstorfer, 1913

a. KAIET; no data available (Hall, 1939b as *Adelpha pseudococala*; Willmott, 2003)
b. MABAR; no data available (Hall, 1939b as *Adelpha pseudococala*; Willmott, 2003)
c. No data available (Willmott, 2003; Gillman, 2004; Warren *et al*., 2013)

Adelpha ximena (Felder & Felder, 1862)

DEM RI; no data available (Willmott, 2003)

2. *Limenitis* Fabricius, 1807

Limenitis archippus (Cramer, 1775)

No data available (Hall, 1939a and Shaw, 1951 as *Danais archippus*)

Subfamily: Morphinae

Genus:

1. *Antirrhea* Hübner, [1822]

Antirrhea adoptiva (Weymer, 1909)

a. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)

Antirrhea ornata (Butler, 1870)

a. QUONG; no data available (Hall, 1939a)
b. No data available (Gillman, 2004)

Antirrhea philaretes Felder & Felder, 1862

a. MT WK C; November, 1993; SF (Fratello, 1993, misidentified as *A. murena* according to Neild, 2008)
b. No specified locality; date of collection/observation not available; SF (Neild, 2008)

Antirrhea philoctetes (Linnaeus, 1758)

a. MAZ PS; 1941; collector/observer name/names not available (Gillman, 2002)
b. WAS MT; 1 July, 1999; RW (in CSBD collection, UG)
c. TUR MT; 20–26 March, 2001; SF (Fratello, 2003 as *Antirrhea philocletes*)
d. IW CCK; 19 September–2 October, 2002; MG (Gillman, 2002)
e. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Antirrhea philocletes*)
f. SANDA; 3–5 March, 2015; HS [AN, CBr & SN] (Sambhu, unpubl. data)
g. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
h. BARTI; no data available (Hall, 1939a)
i. BERBI; no data available (Hall, 1939a)
j. DEM RI; no data available (Hall, 1939a)
k. MT ROR; no data available (Hall, 1939a)
l. PARIK; no data available (Hall, 1939a)
m. No data available (Gillman, 2004)

Antirrhea taygetina (Butler, 1868)

a. ANNAI; no data available (Hall, 1939a)
b. No data available (Hall, 1939a; Gillman, 2004; Warren *et al*., 2013)

Antirrhea ulei Strand, 1912

a. MT ROR; February–April, 1999; SF (Fratello, 1999a)
b. MT WK D; February–April, 1999; SF (Costa *et al*., 2013)

c. MT AY B; 10–20 April, 1999; SF, RH, WP & RW [HS] (Fratello, 1999d; in CSBD collection, UG)
d. MT ROR; 2001; RW (Fratello, 2003)
e. MT AY C; date of collection/observation not available; SF (Costa *et al*., 2013)
f. No data available (Gillman, 2004)

2. *Bia* Hübner, [1819]

Bia actorion (Linnaeus, 1763)

a. KANGA; 2 November, 1908; collector/observer name/names not available (Penz *et al*., 2017)
b. BER RI; 1913; collector/observer name/names not available (Penz *et al*., 2017)
c. No specified locality; 15 June, 1925; collector/observer name/names not available (Penz *et al*., 2017)
d. KARTA; 18 August, 1927; collector/observer name/names not available (Penz *et al*., 2017)
e. UP COR; September, 1935; collector/observer name/names not available (Penz *et al*., 2017)
f. NEW RI; 10 December, 1935; collector/observer name/names not available (Penz *et al*., 2017)
g. KUTAR; December, 1935; collector/observer name/names not available (Penz *et al*., 2017)
h. OR NRI; 20 August–20 September, 1937; collector/observer name/names not available (Penz *et al*., 2017)
i. KARIS; 4 July, 1968; AW (NHMUK, 2014; Penz *et al.*, 2017)
j. JAWAL; 1969; AS (NHMUK, 2014)
k. MACKE; 26 April, 1 and 3 August 1969; AS (NHMUK, 2014; Penz *et al.*, 2017)
l. BARAM; 22 July, 1971; BC (NHMUK, 2014; Penz *et al*., 2017)
m. MOKO M; 21 November, 1974; collector/observer name/names not available (Penz *et al*., 2017)
n. KAIET; 26 December, 1991; SF (Kelloff, 2003; Prince *et al*., 2006)
o. ENA CK; 4 October, 1992; SF (Prince *et al*., 2006)
p. IWOKR; January, 1993; As (WE, 2014)
q. KAIET; April, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
r. IWOKR; August, 1996; Mc (WE, 2014)
s. IWOKR; August, 1997; JW (Prince *et al*., 2006; WE, 2014)
t. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
u. 2HTME; 21–28 September, 2000; collector/observer name/names not available (Penz *et al*., 2017)
v. TROP A; 31 January–12 February, 2001; collector/observer name/names not available (Penz *et al*., 2017)
w. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
x. IW CCK; September–October, 2002; MG (Gillman, 2002)
y. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
z. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
aa. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
bb. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

cc. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
dd. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
ee. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
ff. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
gg. BROTH; 2015; HS (Sambhu, unpubl. data)
hh. CRAIG; 2015; HS (Sambhu, unpubl. data)
ii. FRIEN; 2015; HS (Sambhu, unpubl. data)
jj. SANDA; 2015; HS (Sambhu, unpubl. data)
kk. IWOKR; 8 February, 2017; DG (Geale, 2017)
ll. ANNAI; no data available (Penz *et al*., 2017)
mm. BARTI; no data available (Penz *et al*., 2017)
nn. DEM RI; no data available (Penz *et al*., 2017)
oo. ESSE R; no data available (Penz *et al*., 2017)
pp. KAM RI; no data available (Penz *et al*., 2017)
qq. RORAI; no data available (Penz *et al*., 2017)
rr. TUR MT; no data available (Penz *et al*., 2017)
ss. No data available (Kaye, 1908b; Hall, 1939a; Shaw, 1951; Gillman, 2004; Penz *et al*., 2017)

3. *Brassolis* Fabricius, 1807
   Brassolis sophorae (Linnaeus, 1758)
   a. BROTH; 2015; HS (Sambhu, unpubl. data)
   b. CRAIG; 2015; HS (Sambhu, unpubl. data)
   c. SANDA; 2015; HS (Sambhu, unpubl. data)
   d. GEORG; no data available (Hall, 1939a)
   e. No data available (Rodway, 1911; Bodkin, 1913; Cleare Jr., 1918; Squire, 1932; Box, 1953; Simmonds, 1958; Caswell, 1962; Rai, 1972; Lamb, 1974; Rai, 1977; Yaseen, 1984; Gillman, 2004; Beccaloni *et al*., 2008)

4. *Caerois* Hübner, [1819]
   Caerois chorinaeus (Fabricius, 1775)
   a. PARIK; 1930s; collector/observer name/names not available (Gillman, 2002)
   b. SIP RV; 24 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
   c. IW CCK; 2 October, 2002; MG (Gillman, 2002)
   d. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   e. PARIK; date of collection/observation not available; AH (Hall, 1939a)
   f. DEM RI; no data available (Hall, 1939a)
   g. No data available (Rodway, 1911; Gillman, 2004)

5. *Caligo* Hübner, [1819]
   Caligo euphorbus (Felder & Felder, 1862)
   a. MAZ PS; 1941; collector/observer name/names not available (Gillman, 2002 as *Caligo suzanna*)
   b. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Caligo suzanna*)

c. BURRO; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010 as *Caligo suzanna*)
d. CAN IW; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010 as *Caligo suzanna*)
e. SURAM; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010 as *Caligo suzanna*)
f. TUR MT; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010 as *Caligo suzanna*)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS [AN & CBr] (EMC, 2013 as *Caligo suzanna*)
h. CRAIG; 25 February, 2015; HS [AN & CBr] (Sambhu, unpubl. data as *Caligo suzanna*)
i. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm. as *Caligo suzanna*)
j. No data available (Hall, 1939a as *Caligo suzanna*; Gillman, 2004 as *Caligo suzanna*)

Caligo eurilochus (Cramer, 1775)
a. BURRO; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
b. CAN IW; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
c. SURAM; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
d. TUR MT; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
e. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
f. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
g. SANDA; 5 May, 2015; HS [AN] (Sambhu, unpubl. data)
h. KARAN; 15 July, 2015; GP (Pereira, pers. comm.)
i. DEM RI; no data available (Hall, 1939a)
j. FREN B; no data available (Hall, 1939a)
k. TAKUT; no data available (Hall, 1939a)
l. No data available (Gillman, 2004)

Caligo idomeneus (Linnaeus, 1758)
a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. FO SIP; 29 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
e. IW CCK; September–October, 2002; MG (Gillman, 2002)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
l. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

m. BROTH; 2015; HS (Sambhu, unpubl. data)
n. CRAIG; 2015; HS (Sambhu, unpubl. data)
o. FRIEN; 2015; HS (Sambhu, unpubl. data)
p. SANDA; 2015; HS (Sambhu, unpubl. data)
q. BERBI; no data available (Hall, 1939a)
r. DEM RI; no data available (Hall, 1939a)
s. KAIET; no data available (Hall, 1939a)
t. KAM RI; no data available (Hall, 1939a)
u. No data available (Gillman, 2004)

Caligo illioneus (Cramer, 1775)

a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
g. BROTH; 2015; HS (Sambhu, unpubl. data)
h. CRAIG; 2015; HS (Sambhu, unpubl. data)
i. CUM VI; 2015; HS (Sambhu, unpubl. data)
j. FRIEN; 2015; HS (Sambhu, unpubl. data)
k. LBI CA; 2015; HS (Sambhu, unpubl. data)
l. N63 VI; 2015; HS (Sambhu, unpubl. data)
m. N72 VI; 2015; HS (Sambhu, unpubl. data)
n. SANDA; 2015; HS (Sambhu, unpubl. data)
o. SKE CA; 2015; HS (Sambhu, unpubl. data)
p. SKE VI; 2015; HS (Sambhu, unpubl. data)
q. TAI CA; 2015; HS (Sambhu, unpubl. data)
r. TAI VI; 2015; HS (Sambhu, unpubl. data)
s. DEM RI; no data available (Piffard, 1864 as *Pavonia ilioneus*)
t. No data available (Bodkin, 1913; Moore, 1913; Moore, 1915; Cleare Jr., 1919; Hall, 1939a; Box, 1953; Gillman, 2004; Beccaloni *et al*., 2008)

Caligo oileus Felder & Felder, 1861

a. MARUD; date of collection/observation not available; LA (Hall, 1939a)
b. No data available (Gillman, 2004)

Caligo teucer (Linnaeus, 1758)

a. ARA MT; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010 as *Caligo brasiliensis*)
b. BURRO; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010 as *Caligo brasiliensis*)
c. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS [AN] (EMC, 2013 as *Caligo brasiliensis*)
d. BROTH; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)

e. CRAIG; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)
f. FRIEN; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)
g. LBI CA; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)
h. LBI VI; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)
i. SANDA; 2015; HS [AN] (Sambhu, unpubl. data as *Caligo brasiliensis*)
j. BERBI; no data available (Hall, 1939a)
k. DEM RI; no data available (Hall, 1939a)
l. PARIK; no data available (Hall, 1939a)
m. No data available (Gillman, 2004)

6. *Catoblepia* Stichel, 1901

Catoblepia berecynthia (Cramer, 1777)

a. MAH CK; 10 November, 1992; SF [HS] (in CSBD collection, UG)
b. IWOKR; January, 1993; As (WE, 2014)
c. IWOKR; July–August, 1995; Wa (WE, 2014)
d. IWOKR; July–August, 1996; Mc (WE, 2014)
e. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
f. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (in CSBD collection, UG)
g. IW CCK; September–October, 2002; MG (Gillman, 2002)
h. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. ARROW; April, 2012; AZ [HS] (Zheludev, 2013 as *Catoblepia berecinthia*)
n. BROTH; 2015; HS (Sambhu, unpubl. data)
o. CRAIG; 2015; HS (Sambhu, unpubl. data)
p. FRIEN; 2015; HS (Sambhu, unpubl. data)
q. SANDA; 2015; HS (Sambhu, unpubl. data)
r. MT ROR; no data available (Warren *et al*., 2013)
s. BARTI; no data available (Hall, 1939a)
t. KAM RI; no data available (Hall, 1939a)
u. MT ROR; no data available (Hall, 1939a)
v. PARIK; no data available (Hall, 1939a)
w. No data available (Gillman, 2004)

Catoblepia soranus (Westwood, 1851)

a. SIP RV; 24 October–12 November, 2000; SF *et al*. [AN] (in CSBD collection, UG)
b. IW CCK; September–October, 2002; MG (Gillman, 2002)

Catoblepia versitincta Stichel, 1901

a. MAZ PS; 1940s; collector/observer name/names not available (Gillman, 2002)
b. IW CCK; September–October, 2002; MG (Gillman, 2002)

c. No data available (Gillman, 2004)

Catoblepia xanthus (Linnaeus, 1758)

a. TUMAT; 21 July, 1923; GBr (Macfie, 1935)
b. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Catoblepia xanthos*)
c. BARTI; no data available (Hall, 1939a)
d. DEM RI; no data available (Hall, 1939a)
e. No data available (Gillman, 2004)

7. *Dynastor* Doubleday, [1849]

Dynastor darius (Fabricius, 1775)

a. MABAR; date of collection/observation not available; AH (Hall, 1939a)
b. No data available (Gillman, 2004)

8. *Eryphanis* Boisduval, 1870

Eryphanis automedon (Cramer, 1775)

a. OKO MT; November, 1992; SF (in CSBD collection, UG)
b. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
h. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
i. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
j. BROTH; 2015; HS (Sambhu, unpubl. data)
k. CRAIG; 2015; HS (Sambhu, unpubl. data)
l. FRIEN; 2015; HS (Sambhu, unpubl. data)
m. SANDA; 2015; HS (Sambhu, unpubl. data)
n. DEM RI; no data available (Hall, 1939a as *Eryphanis polyxena*)
o. MT ROR; no data available (Hall, 1939a as *Eryphanis polyxena*)
p. TAKUT; no data available (Hall, 1939a as *Eryphanis polyxena*)
q. No data available (Gillman, 2004)

Eryphanis reevesii (Doubleday, [1849])

a. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
e. BROTH; 2015; HS (Sambhu, unpubl. data)
f. CRAIG; 2015; HS (Sambhu, unpubl. data)
g. FRIEN; 2015; HS (Sambhu, unpubl. data)
h. SANDA; 2015; HS (Sambhu, unpubl. data)
i. SKE CA; 2015; HS (Sambhu, unpubl. data)

9. *Morpho* Fabricius, 1807

Morpho achilles (Linnaeus, 1758)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. KAIET; 2001; SF (Kelloff, 2003)
c. OKO MT; November, 1992; SF (in CSBD collection, UG)
d. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
e. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
f. BERBI; no data available (NHMUK, 2014)
g. No data available (Shaw, 1951; Gillman, 2004; NHMUK, 2014)

Morpho deidamia (Hübner, [1819])

a. WINEP; February, 1971; QH (Emmel, 1972)
b. ENA CK; October, 1992; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. FO SIP; 29 October–12 November, 2000; SF *et al*. [AN] (in CSBD collection, UG)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IW CCK; September–October, 2002; MG (Gillman, 2002)
f. LINDN; 30 December, 2008; JU & TI (Uehara & Inoue, 2014)
g. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
h. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
i. DEM RI; no data available (Neild, 2008)
j. No data available (Shaw, 1951; Gillman, 2004; Neild, 2008)

Morpho eugenia Deyrolle, 1860

a. SIPU R; October–November, 1998; SF (Neild, 2008)
b. No data available (Neild, 2008)

Morpho hecuba (Linnaeus, 1771)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. 2HTMD; 23–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
c. SIPU R; 22 October–15 November, 2000; RW (Fratello, 2005)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
e. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
f. FAI VI; 14 January, 2010; HS (Sambhu, unpubl. data)
g. KARTA; date of collection/observation not available; WB (Beebe, 1925)
h. DEMER; no data available (Hall, 1939a)
i. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
j. KAIET; no data available (Hall, 1939a)
k. POT RD; no data available (Hall, 1939a)
l. No data available (Shaw, 1951; Gillman, 2004)

Morpho helenor (Cramer, 1776)

a. KITTY; 11 December, 1967; RM (Prince *et al*., 2006)
b. GEORG; 4 April, 1977; MT (Prince *et al*., 2006)
c. CAN N1; 1 December, 1978; CP (Prince *et al*., 2006)

d. KAIET; 17 November, 1991; SF (Prince *et al*., 2006; in CSBD collection, UG)
e. OKO MT; November, 1992; SF (in CSBD collection, UG)
f. IWOKR; July–August, 1997; JW (Prince *et al*., 2006)
g. KOAT R; 2–25 April, 1999; SF, RH, WP and RW [HS] (in CSBD collection, UG)
h. 2HTMB; 21–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
i. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
n. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
o. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
p. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
q. BROTH; 2015; HS (Sambhu, unpubl. data)
r. CRAIG; 2015; HS (Sambhu, unpubl. data)
s. FRIEN; 2015; HS (Sambhu, unpubl. data)
t. SANDA; 2015; HS (Sambhu, unpubl. data)
u. No data available (Gillman, 2004)

Morpho marcus (Schaller, 1785)
a. TIMEH; 12 August, 1973; MT (Gillman, 2002; Prince *et al*., 2006)
b. KAIET; 2001; SF (Kelloff, 2003)
c. IW CCK; September–October, 2002; MG (Gillman, 2002)
d. No data available (Distant, 1881; Kaye, 1917 and Shaw, 1951 as *Morpho adonis*; Gillman, 2004)

Morpho menelaus (Linnaeus, 1758)
a. KARTA; 26 March, 1922; WB (Beebe, 1925)
b. WINEP; February, 1971; QH (Emmel, 1972)
c. KAM RG; April, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
d. OMAI; 23 October, 1995; collector/observer name/names not available (Prince *et al*., 2006)
e. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
f. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
g. FO SIP; 29 October–12 November, 2000; SF *et al*. [AN] (in CSBD collection, UG)
h. SIP RV; 24 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
i. KAIET; 2001; SF (Kelloff, 2003)
j. IWOKR; 26 December, 2008; JU & TI (Uehara & Inoue, 2014)
k. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
l. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

o. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
p. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
q. SURAM; April, 2012; AZ [AN] (Zheludev, 2013)
r. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
s. BROTH; 2015; HS (Sambhu, unpubl. data)
t. SANDA; 2015; HS (Sambhu, unpubl. data)
u. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
v. No data available (Kaye, 1916; Cleare Jr., 1919; Shaw, 1951; Gillman, 2004; Bourne, pers. obs.)

Morpho rhetenor (Cramer, 1775)

a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. AU CON; 28 April–5 May, 2009; RL and MK (ERM & GSEC, 2010)
f. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
h. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
i. SANDA; 7 October and 17 November, 2015; HS (Sambhu, unpubl. data)
j. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
k. No data available (Shaw, 1951; Burgess, 1971; Gillman, 2004)

Morpho telemachus (Linnaeus, 1758)

a. DEMER; no data available (Kaye, 1919 and Hall, 1939a as *Morpho perseus*)
b. OMAI; no data available (Kaye, 1919 as *Morpho perseus*)
c. No data available (Shaw, 1951 as *Morpho perseus*; Gillman, 2004; Warren *et al*., 2013)

10. *Opsiphanes* Doubleday, [1849]

Opsiphanes cassiae (Linnaeus, 1758)

a. TURKE; 20 August, 1972; MT (Prince *et al*., 2006)
b. CRAIG; 9 January, 1979; MT (Prince *et al*., 2006)
c. IWOKR; July–August, 1995; Mc (WE, 2014)
d. IW CCK; September–October, 2002; MG (Gillman, 2002)
e. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
j. BROTH; 2015; HS (Sambhu, unpubl. data)
k. CRAIG; 2015; HS (Sambhu, unpubl. data)
l. FRIEN; 2015; HS (Sambhu, unpubl. data)

m. MON VI; 2015; HS (Sambhu, unpubl. data)
n. SANDA; 2015; HS (Sambhu, unpubl. data)
o. SKE CA; 2015; HS (Sambhu, unpubl. data)
p. KARAN; 20 June, 2016; GP (Pereira, pers. comm.)
q. ATT JL; 11 February, 2017; DG (Geale, 2017)
r. DEMER; no data available (Hall, 1939a)
s. No data available (Gillman, 2004)

Opsiphanes cassina Felder & Felder, 1862
a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
h. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
i. BROTH; 2015; HS (Sambhu, unpubl. data)
j. CRAIG; 2015; HS (Sambhu, unpubl. data)
k. CUM VI; 2015; HS (Sambhu, unpubl. data)
l. FRIEN; 2015; HS (Sambhu, unpubl. data)
m. HRE VI; 2015; HS (Sambhu, unpubl. data)
n. LBI CA; 2015; HS (Sambhu, unpubl. data)
o. LBI VI; 2015; HS (Sambhu, unpubl. data)
p. MON VI; 2015; HS (Sambhu, unpubl. data)
q. N63 VI; 2015; HS (Sambhu, unpubl. data)
r. N72 VI; 2015; HS (Sambhu, unpubl. data)
s. NIG VI; 2015; HS (Sambhu, unpubl. data)
t. SANDA; 2015; HS (Sambhu, unpubl. data)
u. SKE CA; 2015; HS (Sambhu, unpubl. data)
v. SKE VI; 2015; HS (Sambhu, unpubl. data)
w. TAI CA; 2015; HS (Sambhu, unpubl. data)
x. TAI VI; 2015; HS (Sambhu, unpubl. data)
y. DEMER; no data available (Hall, 1939a)
z. No data available (Gillman, 2004)

Opsiphanes invirae (Hübner, [1808])
a. BERBI; no data available (Hall, 1939a)
b. DEMER; no data available (Hall, 1939a)
c. MT ROR; no data available (Hall, 1939a; Costa *et al*., 2013; Warren *et al*., 2013)
d. No data available (Gillman, 2004)

Opsiphanes quiteria (Stoll, 1780)
a. WINEP; February, 1971; QH (Emmel, 1972 as *Opsiphanes quitena*)
b. MT ROR; no data available (Hall, 1939a)

c. No data available (Gillman, 2004)

11. *Selenophanes* Staudinger, 1887

Selenophanes cassiope (Cramer, 1775)

a. GEORG; 23 July, 1926; LC (Cleare Jr., 1929)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [AN] (in CSBD collection, UG)
c. BERBI; no data available (Bristow, 1982)
d. DEMER; no data available (Bristow, 1982)
e. ESSE R; no data available (Bristow, 1982)
f. GEORG; no data available (Bristow, 1982)
g. KONAW; no data available (Bristow, 1982)
h. MACKE; no data available (Bristow, 1982)
i. No data available (Gillman, 2004; Warren *et al.*, 2013)

Subfamily: Nymphalinae

Genus:

1. *Anartia* Hübner, [1819]

Anartia amathea (Linnaeus, 1758)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. CRAIG; 7 December, 1978; KM (Prince *et al*., 2006)
c. SIP RV; 24 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
d. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. LINDN; 27 July, 2016; BP [HS] (Punu, pers. obs.)
g. No data available (Hall, 1939b; Gillman, 2004)

Anartia jatrophae (Linnaeus, 1763)

a. ST CUT; 20 September, 1974; MT (Prince *et al*., 2006)
b. TIMEH; 28 March, 1975; MT (Prince *et al*., 2006)
c. KURUP; August, 1992; MG & K (WE, 2014)
d. KURUP; January, 1993; As (WE, 2014)
e. KURUP; August, 1996; Mc (WE, 2014)
f. RP SAV; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
g. KAIET; 2001; SF (Kelloff, 2003)
h. IW CCK; 26 September, 2002; MG (Gillman, 2002)
i. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
j. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
o. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
p. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

q. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
r. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
s. CUM VI; 2015; HS (Sambhu, unpubl. data)
t. FRIEN; 2015; HS (Sambhu, unpubl. data)
u. HRE VI; 2015; HS (Sambhu, unpubl. data)
v. LBI VI; 2015; HS (Sambhu, unpubl. data)
w. N63 VI; 2015; HS (Sambhu, unpubl. data)
x. N72 VI; 2015; HS (Sambhu, unpubl. data)
y. NIG VI; 2015; HS (Sambhu, unpubl. data)
z. SKE CA; 2015; HS (Sambhu, unpubl. data)
aa. SKE VI; 2015; HS (Sambhu, unpubl. data)
bb. TAI VI; 2015; HS (Sambhu, unpubl. data)
cc. BET HP; 19 April, 2017; ANk (Nankishore, pers. obs.)
dd. DEM RI; no data available (Piffard, 1864)
ee. No data available (Hall, 1939b; Shaw, 1951; Gillman, 2004)

2. *Baeotus* Hemming, 1939

Baeotus aeilus (Stoll, 1780)

No data available (Gillman, 2004)

Baeotus beotus (Doubleday, [1849])

a. KUTAR; no data available (Hall, 1939b as *Megistanis baeotus*)
b. No data available (Gillman, 2004)

Baeotus japetus (Staudinger, [1885])

a. ORO RI; no data available (Hall, 1939b as *Megistanis baeotus*)
b. No data available (Gillman, 2004)

3. *Chlosyne* Butler, 1870

Chlosyne lacinia (Geyer, 1837)

No data available (Hall, 1939a; Gillman, 2004; Neild, 2008)

4. *Colobura* Billberg, 1820

Colobura annulata Willmott, Constantino & Hall, 2001

REWA; April, 2012; AZ [AN] (Zheludev, 2013 as *Colobura dirce*)

Colobura dirce (Linnaeus, 1758)

a. KURUP; August, 1996; Mc (WE, 2014)
b. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
c. IW CCK; 21 September, 2002; MG (Gillman, 2002)
d. SUR MT; September–October, 2002; MG (Gillman, 2002)
e. KATO; 17 April, 2007; DBPT (Darwin Butterfly Project, unpubl. data)
f. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
n. BROTH; 2015; HS (Sambhu, unpubl. data)
o. CRAIG; 2015; HS (Sambhu, unpubl. data)
p. FRIEN; 2015; HS (Sambhu, unpubl. data)
q. SANDA; 2015; HS (Sambhu, unpubl. data)
r. DEM RI; no data available (Piffard, 1864 as *Gynecia dirce*)
s. No data available (Rodway, 1911; Hall, 1939b; Le Pelley, 1968 – all as *Gynaecia dirce*; Gillman, 2004; Beccaloni *et al*., 2008)

5. *Eresia* Boisduval, 1836

Eresia clio (Linnaeus, 1758)

a. HOSSO; June, 1916; collector/observer name/names not available (Poulton, 1931 as *Phyciodes clio*)
b. KAM FB; 30 November–5 December, 2000; SF *et al*. [HS] (in CSBD collection, UG)
c. No data available (Hall, 1939a as *Phyciodes clio*; Gillman, 2004; NHMUK, 2014)

Eresia eunice (Hübner, [1807])

a. KAIET; March, 1936; AH(Hall, 1939a as *Phyciodes eunice*; Gillman, 2002)
b. KAIET; 2001; SF (Kelloff, 2003)
c. IW CCK; 25 September, 2002; MG (Gillman, 2002)
d. POT RD; date of collection/observation not available; WK (Kaye, 1907)
e. No data available (Hall, 1939a as *Phyciodes eunice*; Gillman, 2004)

Eresia nauplius (Linnaeus, 1758)

a. BERBI; no data available (Hall, 1939a as *Phyciodes nauplia*)
b. DEM RI; no data available (Hall, 1939a as *Phyciodes nauplia*)
c. KUTAR; no data available (Hall, 1939a as *Phyciodes nauplia*)
d. No data available (Gillman, 2004; NHMUK, 2014)

Eresia perna (Hewitson, 1852)

a. MT AY D; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999a and 1999d as *Eresia aveyrona*)
b. BAR RI; no data available (Hall, 1939a as *Phyciodes aveyrona*)
c. No data available (Gillman, 2004)

6. *Haematera* Doubleday, 1849

Haematera pyrame (Hübner, [1819])

a. QUONG; date of collection/observation not available; HW (Hall, 1939b as *Haematera pyramus*)
b. No data available (Gillman, 2004)

7. *Historis* Hübner, [1819]

Historis acheronta (Fabricius, 1775)

a. GEORG; 23 July, 1929; LC (Cleare Jr., 1929 as *Coea cadmus*)
b. KIT BC; 27 July, 1926; LC (Cleare Jr., 1929 as *Coea cadmus*)
c. KIT BC; 28 July, 1926; CW (Cleare Jr., 1929 as *Coea cadmus*)
d. RP SAV; November, 1933; JM (Hall, 1939b)
e. IWOKR; July–August, 1992; MG & K (WE, 2014)
f. KWATA; August, 2007; HS (Sambhu, pers. obs.)
g. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013)
h. BROTH; 2015; HS (Sambhu, unpubl. data)
i. CUM VI; 2015; HS (Sambhu, unpubl. data)
j. LBI CA; 2015; HS (Sambhu, unpubl. data)
k. LBI VI; 2015; HS (Sambhu, unpubl. data)
l. MON VI; 2015; HS (Sambhu, unpubl. data)
m. N63 VI; 2015; HS (Sambhu, unpubl. data)
n. N72 VI; 2015; HS (Sambhu, unpubl. data)
o. NIG VI; 2015; HS (Sambhu, unpubl. data)
p. SANDA; 2015; HS (Sambhu, unpubl. data)
q. SKE CA; 2015; HS (Sambhu, unpubl. data)
r. SKE VI; 2015; HS (Sambhu, unpubl. data)
s. TAI CA; 2015; HS (Sambhu, unpubl. data)
t. TAI VI; 2015; HS (Sambhu, unpubl. data)
u. No data available (Gillman, 2004)

Historis odius (Fabricius, 1775)

a. ARA MT; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
b. BURRO; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
c. FAI VI; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
d. KWATA; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
e. SURAM; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
f. TUR MT; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
g. KARAN; 18 October, 2011; GP (Pereira, pers. comm.)
h. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
i. BROTH; 2015; HS [CBr] (Sambhu, unpubl. data)
j. CRAIG; 2015; HS [CBr] (Sambhu, unpubl. data)
k. CUM VI; 2015; HS [CBr] (Sambhu, unpubl. data)
l. FRIEN; 2015; HS [CBr] (Sambhu, unpubl. data)
m. LBI CA; 2015; HS [CBr] (Sambhu, unpubl. data)
n. LBI VI; 2015; HS [CBr] (Sambhu, unpubl. data)
o. MON VI; 2015; HS [CBr] (Sambhu, unpubl. data)
p. N63 VI; 2015; HS [CBr] (Sambhu, unpubl. data)
q. N72 VI; 2015; HS [CBr] (Sambhu, unpubl. data)
r. NIG VI; 2015; HS [CBr] (Sambhu, unpubl. data)
s. SANDA; 2015; HS [CBr] (Sambhu, unpubl. data)
t. SKE CA; 2015; HS [CBr] (Sambhu, unpubl. data)

u. SKE VI; 2015; HS [CBr] (Sambhu, unpubl. data)
v. TAI CA; 2015; HS [CBr] (Sambhu, unpubl. data)
w. TAI VI; 2015; HS [CBr] (Sambhu, unpubl. data)
x. OMAI; no data available (Hall, 1939b)
y. PARIK; no data available (Hall, 1939b)
z. No data available (Gillman, 2004; Beccaloni *et al*., 2008)

8. *Hypolimnas* Hübner, [1819]

Hypolimnas misippus (Linnaeus, 1764)

a. CUM VI; 28 November, 2015; HS (Sambhu, unpubl. data)
b. LBI CA; 1 December, 2015; HS (Sambhu, unpubl. data)
c. MABAR; no data available (Hall, 1939b)
d. PARIK; no data available (Hall, 1939b)
e. No data available (Cleare Jr., 1919; Gillman, 2004)

9. *Junonia* Hübner, [1819]

Junonia divaricata Felder, 1867

NR HAI; 26–27 April, 1999; SF, RH, WP & RW [CBr & AN] (in CSBD collection, UG)

Junonia evarete (Cramer, 1779)

a. IRENG; 6–14 August, 1911; collector/observer name/names not available (Forbes, 1928 as *Junonia lavinia*)
b. TIMEH; 2 August, 1978; MT (Prince *et al*., 2006)
c. IWOKR; July–August, 1992; MG & K (WE, 2014)
d. NR HAI; 26–27 April, 1999; SF, RH, WP & RW [CBr & AN] (in CSBD collection, UG)
e. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
j. KARAN; 11 June, 2013; GP (Pereira, pers. comm.)
k. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
l. TAI CA; 14 December, 2015; HS (Sambhu, unpubl. data)
m. DEM RI; no data available (Piffard, 1864 as *Junonia lavinia*)
n. GEORG; no data available (Hall, 1939b as *Precis lavinia*)
o. KAIET; no data available (Forbes, 1928 as *Junonia lavinia*; Costa *et al.*, 2013; Warren *et al*., 2013)
p. KARTA; no data available (Forbes, 1928 as *Junonia lavinia*)
q. RORAI; no data availalbe (Forbes, 1928 as *Junonia lavinia*)
r. No data available (Shaw, 1951 as *Precis lavinia*; Bourne, pers. obs.)

Junonia genoveva (Cramer, 1780)

a. KURUP; August, 1992; collector/observer name/names not available (Gillman, 2002)

b. KAIET; 2001; SF (Kelloff, 2003)
c. IW CCK; 25 & 30 September, 2002; MG (Gillman, 2002)
d. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. No data available (Gillman, 2004)

Junonia wahlbergi Brévignon, 2008
IRENG; November, 1993; SF [CBr & AN] (in CSBD collection, UG)

10. *Ortilia* Higgins, 1981
Ortilia liriope (Cramer, 1775)
a. WINEP; February, 1971; QH (Emmel, 1972 as *Phyciodes liriope*)
b. IWOKR; July–August, 1992; MG & K (WE, 2014)
c. SURAM; April, 2012; AZ [CBr] (Zheludev, 2013 as *Ortilia ?gentina*)
d. BARTI; 16 July, 2012; HS [CBr] (Sambhu, pers. obs.)
e. MABAR; no data available (Hall, 1939a as *Phyciodes liriope*)
f. No data available (Gillman, 2004)

11. *Siproeta* Hübner, [1823]
Siproeta stelenes (Linnaeus, 1758)
a. KAIET; 18 November, 1991; SF (in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
e. No data available (Hall, 1939b as *Victorina steneles*; Gillman, 2004)

12. *Telenassa* Higgins, 1981
Telenassa fontus (Hall, 1928)
No data available (Hall, 1939a; Gillman, 2004; Neild, 2008; Warren *et al.*, 2013)

13. *Tigridia* Hübner, [1819]
Tigridia acesta (Linnaeus, 1758)
a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. IWOKR; July–August, 1997; JW (Prince *et al.*, 2006; WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. KAIET; 2001; SF (Kelloff, 2003)
e. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
k. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
l. BROTH; 2015; HS (Sambhu, unpubl. data)
m. CRAIG; 2015; HS (Sambhu, unpubl. data)

n. SANDA; 2015; HS (Sambhu, unpubl. data)
o. ANNAI; no data available (Hall, 1939b as *Callizona acesta*)
p. BERBI; no data available (Hall, 1939b as *Callizona acesta*)
q. MABAR; no data available (Hall, 1939b as *Callizona acesta*)
r. No data available (Rodway, 1911; Neild, 1996; Gillman, 2004)

14. *Vanessa* Fabricius, 1807

Vanessa cardui (Linnaeus, 1758)

a. GEORG; March, 1963; collector/observer name/names not available (Neild, 2008)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. BARTI; no data available (Hall, 1939b as *Pyrameis cardui*)
d. No data available (Gillman, 2004)

Vanessa myrinna (Doubleday, 1849)

a. MT ROR; no data available (Hall, 1939b as *Pyrameis myrinna*)
b. No data available (Gillman, 2004)

Subfamily: Satyrinae

Genus:

1. *Archeuptychia* Forster, 1964

Archeuptychia cluena (Drury, 1782)

a. MT ROR; no data available (Hall, 1939a as *Euptychia cluena*)
b. No data available (Gillman, 2004)

2. *Caeruleuptychia* Forster, 1964

Caeruleuptychia aegrota (Butler, 1867)

a. BARTI; no data available (Hall, 1939d as *Euptychia aegrota*)
b. No data available (Gillman, 2004)

Caeruleuptychia brixius (Godart, [1824])

a. 2HTMD; 23–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
b. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Caeruleuprychia brixius*)
c. TUR MT; 9 February, 2017; DG (Geale, 2017)
d. ANNAI; date of collection/observation not available; CB (Hall, 1939d as *Euptychia briscius*)
e. BAR RI; date of collection/observation not available; CB (Hall, 1939d as *Euptychia briscius*)
f. No data available (Gillman, 2004)

Caeruleuptychia caerulea (Butler, 1869)

a. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

e. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
f. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
g. ATT JL; 11 February, 2017; DG (Geale, 2017)
h. ANNAI; no data available (Hall, 1939d as *Euptychia caerulea*)
i. BARTI; no data available (Hall, 1939d as *Euptychia caerulea*)
j. MT ROR; no data available (Hall, 1939d as *Euptychia caerulea*)
k. QUONG; no data available (Hall, 1939d as *Euptychia caerulea*)

Caeruleuptychia cyanites (Butler, 1871)
ATT JL; 11 February, 2017; DG (Geale, 2017)

Caeruleuptychia urania (Butler, 1867)
ACB MT; 31 October–10 November, 2000; SF *et al*. [SN] (in CSBD collection, UG)

3. *Calisto* Hübner, 1823

Calisto zangis (Fabricius, 1775)
DEMER; date of collection/observation not available; HA (Lathy, 1899)

4. *Cepheuptychia* Forster, 1964

Cepheuptychia cephus (Fabricius, 1775)
a. DEMER; 1930s; collector/observer name/names not available (Gillman, 2002 as *Euptychia cephus*)
b. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Euptychia cephus*)
c. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
d. DEMER; no data available (Hall, 1939a as *Euptychia cephus*)
e. No data available (Gillman, 2004)

5. *Chloreuptychia* Forster, 1964

Chloreuptychia agatha (Butler, 1867)
a. BROTH; 2015; HS (Sambhu, unpubl. data)
b. CRAIG; 2015; HS (Sambhu, unpubl. data)
c. FRIEN; 2015; HS (Sambhu, unpubl. data)
d. SANDA; 2015; HS (Sambhu, unpubl. data)
e. SKE VI; 2015; HS (Sambhu, unpubl. data)
f. IWOKR; 8 February, 2017; DG (Geale, 2017)

Chloreuptychia arnaca (Fabricius, 1776)
a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. MID MZ; October, 1992; SF [HS] (in CSBD collection, UG as *Chloreuptychia urnaea*)
c. IWOKR; July–August, 1996; Mc (WE, 2014)
d. IWOKR; July–August, 1997; JW (WE, 2014)
e. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
f. KOAT R; 2–25 April, 1999; SF, RH, WP & RW [SN] (in CSBD collection, UG)

g. KAIET; 2001; SF (Kelloff, 2003)
h. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
i. No data available (Hall, 1939a as *Euptychia arnaea*; Gillman, 2004)

Chloreuptychia chlorimene (Hübner, [1819])
a. IWOKR; July–August, 1992; MG &K (WE, 2014)
b. MARSH; 14 November, 1992; SF (in CSBD collection, UG as *Euptychia chloris*)
c. IWOKR; July–August, 1996; Mc (WE, 2014)
d. IWORK; November, 1998 to February, 1999; M & W (WE, 2014)
e. ACC MT; 31 October–10 November, 2000; SF *et al*. [SN] (in CSBD collection, UG)
f. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
g. ANNAI; no data available (Hall, 1939a as *Euptychia chloris*)
h. BARTI; no data available (Hall, 1939a as *Euptychia chloris*)
i. KAM RI; no data available (Hall, 1939a as *Euptychia chloris*)
j. No data available (Gillman, 2004)

Chloreuptychia herseis (Godart, [1824])
a. LO MAZ; 11 November, 1991; SF (Prince *et al*., 2006 & in CSBD collection, UG as *Euptychia herse*)
b. LO CUY; 7 October, 1992; SF (Prince *et al*., 2006 & in CSBD collection, UG as *Euptychia herse*)
c. ENA CK; October, 1993; SF (Prince *et al*., 2006)
d. IWOKR; August, 1996; Mc (WE, 2014)
e. IWOKR; August, 1997; JW (Prince *et al*., 2006; WE, 2014)
f. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
g. 2HTMB; 21–28 September, 2000; SF *et al*. [SN] (in CSBD collection, UG)
h. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Euptychia herse*)
i. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
j. IWOKR; 8 February, 2017; DG (Geale, 2017)
k. ANNAI; no data available (Hall, 1939a as *Euptychia herse*)
l. BARTI; no data available (Hall, 1939a as *Euptychia herse*)
m. KAM RI; no data available (Hall, 1939a as *Euptychia herse*)
n. OMAI; no data available (Hall, 1939a as *Euptychia herse*)
o. No data available (Gillman, 2004)

Chloreuptychia hewitsonii (Butler, 1867)
a. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
b. IW CCK; 19 September, 2002; MG (Gillman, 2002 as *Euptychia hewitsonii*)
c. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
d. ANNAI; no data available (Hall, 1939a as *Euptychia hewitsonii*)
e. BARTI; no data available (Hall, 1939a as *Euptychia hewitsonii*)
f. KAM RI; no data available (Hall, 1939a as *Euptychia hewitsonii*)
g. QUONG; no data available (Hall, 1939a as *Euptychia hewitsonii*)
h. No data available (Gillman, 2004)

Chloreuptychia tolumnia (Cramer, 1777)

a. TUR MT; 9 February, 2017; DG (Geale, 2017)
b. BERBI; no data available (Hall, 1939a as *Euptychia tolumnia*)
c. No data available (Hall, 1939d as *Euptychia tolumnia*; Gillman, 2004)

6. *Cissia* Doubleday, 1848

Cissia myncea (Cramer, 1780)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
c. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (in CSBD collection, UG)
d. No data available (Hall, 1939a as *Euptychia myncea*; Gillman, 2004)

Cissia palladia (Butler, 1867)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. No data available (Gillman, 2004)

Cissia penelope (Fabricius, 1775)

a. MT ROR; 30 October, 1973; MT (Prince *et al*., 2006)
b. MT ROR; 28 October, 1978; MT (Prince *et al*., 2006)
c. IWOKR; July–August, 1992; MG & K (WE, 2014)
d. MT ROR; 30 October, 1993; SF (Prince *et al*., 2006)
e. IWOKR; July–August, 1995; Wa (WE, 2014)
f. IWOKR; July–August, 1997; JW (WE, 2014)
g. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
h. IW CCK; September–October, 2002; MG (Gillman, 2002)
i. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
o. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
p. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
q. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Cissia ?penelope*)
r. SURAM; April, 2012; AZ [HS] (Zheludev, 2013 as *Cissia ?penelope*)
s. BROTH; 2015; HS (Sambhu, unpubl. data)
t. CRAIG; 2015; HS (Sambhu, unpubl. data)
u. FRIEN; 2015; HS (Sambhu, unpubl. data)
v. SANDA; 2015; HS (Sambhu, unpubl. data)
w. SKE CA; 2015; HS (Sambhu, unpubl. data)
x. SKE VI; 2015; HS (Sambhu, unpubl. data)
y. TAI CA; 2015; HS (Sambhu, unpubl. data)
z. No data available (Hall, 1939a as *Euptychia penelope*; Gillman, 2004)

Cissia terrestris (Butler, 1867)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. KAIET; October, 1993; SF [HS] (in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)
d. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
e. No data available (Hall, 1939a as *Euptychia terrestris*; Gillman, 2004)

7. *Cithaerias* Hübner, [1819]

Cithaerias andromeda (Fabricius, 1775)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Callitaera philis*)
b. ENA CK; October, 1991; SF (Prince *et al*., 2006)
c. KAIET; March, 1992; SF (Kelloff, 2003; Prince *et al*., 2006; in CSBD collection, UG)
d. ENA CK; October, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
e. IWOKR; July–August, 1996; Mc (WE, 2014)
f. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
g. PONG R; 2–25 April, 1999; SF, RH, WP & RW (in CSBD collection, UG)
h. BARTI; no data available (Hall, 1939a as *Callitaera philis*)
i. DEM RI; no data available (Hall, 1939a as *Callitaera philis*)
j. KAM RI; no data available (Hall, 1939a as *Callitaera philis*)
k. MT ROR; no data available (Hall, 1939a as *Callitaera philis*)
l. No data available (Gillman, 2004; in CSBD collection, UG)

8. *Erichthodes* Forster, 1964

Erichthodes antonina (Felder & Felder, 1867)

a. SUR CK; November, 1993; SF (Fratello, 1993 and 1996a as *Erichthodes erichtho*)
b. IWOKR; July–August, 1997; JW (WE, 2014)
c. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
e. TROP A; 31 January–12 February, 2001; KD (Fratello, 2003)
f. KAIET; no data available (Hall, 1939a as *Euptychia erictho*)
g. KAM RI; no data available (Hall, 1939a as *Euptychia erictho*)
h. MT ROR; no data available (Hall, 1939a as *Euptychia erictho*)
i. No data available (Gillman, 2004)

9. *Euptychia* Hübner, 1818

Euptychia alacristata Neild, Nakahara & Fratello, 2014

FO SIP; 29 October–12 November, 2000; SF (Neild *et al*., 2014; NMNH, 2016)

Euptychia aquila Fratello, Nakahara, Brévignon & Harvey, 2015

a. KUTAR; January–February, 1936; GH (Fratello *et al*., 2015)
b. KA MT A; 21 February–10 March, 1999; SF, RH, SH, RW (Fratello *et al*., 2015)
c. KA MT B; 21 February–10 March, 1999; SF, RH, SH, RW (Fratello *et al*., 2015)
d. 2HAT M; 23–28 September, 2000; SF *et al.* (Fratello *et al*., 2015; NMNH, 2016)
e. ACC MT; 31 October–10 November, 2000; SF *et al*. (Fratello *et al*., 2015)

f. ACB MT; 6–9 November, 2000; SF *et al*. (Fratello *et al*., 2015)
g. NP MT B; date of collection/observation not available; SF *et al*. (Fratello *et al*., 2015)

Euptychia audacia Brévignon, Fratello & Nakahara, 2015
a. KAIET; February–March, 1936; AH (Fratello *et al*., 2015)
b. MARSH; 18 November, 1992; SF [SN] (in CSBD collection, UG)
c. NAP CK; 21 February–10 March, 1999; SF, RH, SH, RW (Fratello *et al*., 2015)
d. NP MT B; 21 February–10 March, 1999; SF, RH, SH, RW (Fratello *et al*., 2015)
e. KUIEW; 2–25 April, 1999; SF, RH, WP, RW (Fratello *et al*., 2015)
f. ACC MT; 31 October–10 November, 2000; SF *et al*. (Fratello *et al*., 2015)
g. FO SIP; 29 October–12 November, 2000; SF *et al*. (Fratello *et al*., 2015)
h. ACB MT; 6–9 November, 2000; SF *et al*. (Fratello *et al*., 2015)
i. ACA MT; 4–10 November, 2000; SF *et al*. (Fratello *et al*., 2015)
j. 2HTMD; 23–28 November, 2000; SF *et al*. (Fratello *et al*., 2015)
k. KAM FB; 30 November–5 December, 2000; SF *et al*. (Fratello *et al*., 2015)
l. IWOKR; 28 March–1 April, 2001; SF (Fratello *et al*., 2015)
m. IWO MT; 28 March–1 April, 2001; SF (Fratello *et al*., 2015)
n. BARTI; date of collection/observation not available; HP (Fratello *et al*., 2015)
o. DEM RI; no data available (Fratello *et al*., 2015)
p. KAM RI; date of collection/observation not available; HW (Fratello *et al*., 2015)
q. BARTI; no data available (Hall, 1939a as *Euptychia picea*)
r. DEM RI; no data available (Hall, 1939a as *Euptychia picea*)
s. KAIET; date of collection/observation not available; AH (Hall, 1939a as *Euptychia picea*)
t. KAM RI; no data available (Hall, 1939a as *Euptychia picea*)
u. No data available (Fratello *et al*., 2015)

Euptychia marceli Brévignon, 2005
a. SHANK; 20–28 September, 1981; MD (Nakahara, pers. comm.)
b. No specified locality; date of collection/observation and collector/observer name/names not available (Fratello *et al*., 2015)

Euptychia mollina Hübner, 1818
a. SIP RV; 24 October–12 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
b. OR NRI; no data available (Hall, 1939d)
c. No data available (Gillman, 2004)

Euptychia roraima Nakahara *et al*., 2014
MR 1ST; 12 March–16 April, 2001; WH & RW
(Warren *et al*., 2013; Nakahara *et al*. 2014; NMNH, 2016)

10. *Haetera* Fabricius, 1807
Haetera piera (Linnaeus, 1758)
a. ARIM R; 27 September, 1991; SF (Prince *et al*., 2006)

b. OKO MT; November, 1992; SF (in CSBD collection, UG)
c. IWOKR; August, 1997; JW (WE, 2014)
d. TIMEH; 15 November, 1997; MT (Prince *et al*., 2006)
e. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
f. KOAT R; 2–25 April, 1999; SF, RH, WP & RW (in CSBD collection, UG)
g. KAIET; 2001; SF (Kelloff, 2003)
h. IW CCK; September–October, 2002; MG (Gillman, 2002)
i. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
n. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
o. BROTH; 2015; HS (Sambhu, unpubl. data)
p. CRAIG; 2015; HS (Sambhu, unpubl. data)
q. FRIEN; 2015; HS (Sambhu, unpubl. data)
r. SANDA; 2015; HS (Sambhu, unpubl. data)
s. IWOKR; 10 February, 2017; DG (Geale, 2017)
t. BARTI; no data available (Hall, 1939a)
u. DEM RI; no data available (Hall, 1939a)
v. KAIET; no data available (Hall, 1939a)
w. KAM RI; no data available (Hall, 1939a)
x. MABAR; no data available (Hall, 1939a)
y. PARIK; no data available (Hall, 1939a)
z. No data available (Cleare Jr., 1919; Gillman, 2004; in CSBD collection, UG)

11. *Hermeuptychia* Forster, 1964

Hermeuptychia hermes (Fabricius, 1775)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. OKO MT; 21 November, 1992; SF (in CSBD collection, UG as *Euptychia hermes*)
c. IWOKR; January, 1993; As (WE, 2014)
d. IRENG; November, 1993; SF [HS & SN] (in CSBD collection, UG)
e. IW CCK; September–October, 2002; MG (Gillman, 2002)
f. ARROW; April, 2012; AZ [HS] (Zheludev, 2013 as *Euptychia ?hermes*)
g. No data available (Hall, 1939a as *Euptychia hermes*; Gillman, 2004)

12. *Harjesia* Forster, 1964

Harjesia blanda (Möschler, 1877)

CP JAG; no data available (Warren *et al*., 2013)

13. *Huberonympha* Viloria & Costa, 2016

Huberonympha neildi Viloria, Costa, Fratello & Nakahara, 2016

MT AY C; 13–18 April, 1999; SF, RH, WP, RW (Costa *et al*. 2016)

14. *Magneuptychia* Forster, 1964

Magneuptychia andrei Zacca, Casagrande & Mielke, 2017

a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Zacca *et al*., 2017)
b. 2HTMB; 17 September–2 October, 2000; SF *et al*. (Zacca *et al*., 2017)

Magneuptychia gera (Hewitson, 1850)

a. OR NRI; August, 1937; GH (Hall, 1939d as *Euptychia gera*)
b. No data available (Gillman, 2004)

Magneuptychia harpyia (Felder & Felder, 1867)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Euptychia batesii*)
b. KAIET; 26 December, 1991; SF [HS] (in CSBD collection, UG)
c. IWOKR; July–August, 1997; JW (WE, 2014)
d. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
e. ACB MT; 6–9 November, 2000; SF *et al*. [HS] (in CSBD collection, UG)
f. TROP B; 31 January–12 February, 2001; SF *et al*. [HS] (in CSBD collection, UG)
g. KAIET; 2001; SF (Kelloff, 2003)
h. TUR MT; 20–26 March, 2001; SF (Fratello, 2003 as *Magneuptychia batesii*)
i. IW CCK; September–October, 2002; MG (Gillman, 2002)
j. ARROW; April, 2012; AZ [HS] (Zheludev, 2013)
k. IWOKR; 8 February, 2017; DG (Geale, 2017)
l. DEM RI; no data available (Hall, 1939a as *Euptychia batesii*)
m. KAIET; no data available (Hall, 1939a as *Euptychia batesii*)
n. KAM RI; no data available (Hall, 1939a as *Euptychia batesii*)
o. OMAI; no data available (Hall, 1939a as *Euptychia batesii*)
p. No data available (Gillman, 2004)

Magneuptychia lea (Cramer, 1777)

a. ANNAI; 1930s; collector/observer name/names not available (Gillman, 2002 as *Euptychia lea*)
b. BERBI; 1930s; collector/observer name/names not available (Gillman, 2002 as *Euptychia lea*)
c. 2HTMB; 21–28 September, 2000; SF *et al*. [SN] (in CSBD collection, UG)
d. IW CCK; 18–28 September, 2002; MG (Gillman, 2002 as *Euptychia lea*)
e. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
f. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
g. ANNAI; no data available (Hall, 1939a as *Euptychia lea*; Gillman, 2002)
h. BERBI; no data available (Hall, 1939a as *Euptychia lea*)
i. No data available (Gillman, 2004; Warren *et al.*, 2013)

Magneuptychia lethra (Möschler, 1883)

a. SURAM; April, 2012; AZ [HS] (Zheludev, 2013 as *Magneuptychia ?newtoni*)
b. PARIK; no data available (Hall, 1939d as *Euptychia newtoni*)
c. No data available (Gillman, 2004; Warren *et al*., 2013 as *Magneuptychia newtoni*)

Magneuptychia libye (Linnaeus, 1767)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. BROTH; 2015; HS (Sambhu, unpubl. data)
c. CRAIG; 2015; HS (Sambhu, unpubl. data)
d. FRIEN; 2015; HS (Sambhu, unpubl. data)
e. HRE VI; 2015; HS (Sambhu, unpubl. data)
f. LBI CA; 2015; HS (Sambhu, unpubl. data)
g. SANDA; 2015; HS (Sambhu, unpubl. data)
h. SKE CA; 2015; HS (Sambhu, unpubl. data)
i. TAI CA; 2015; HS (Sambhu, unpubl. data)
j. TAI VI; 2015; HS (Sambhu, unpubl. data)
k. No data available (Hall, 1939a as *Euptychia libye*; Gillman, 2004)

Magneuptychia modesta (Butler, 1867)
a. BARTI; no data available (Hall, 1939a as *Euptychia modesta*)
b. KAM RI; no data available (Hall, 1939a as *Euptychia modesta*)
c. PARIK; no data available (Hall, 1939a as *Euptychia modesta*)
d. No data available (Gillman, 2004)

Magneuptychia ocypete (Fabricius, 1776)
a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
b. BROTH; 2015; HS (Sambhu, unpubl. data)
c. CRAIG; 2015; HS (Sambhu, unpubl. data)
d. FRIEN; 2015; HS (Sambhu, unpubl. data)
e. LBI CA; 2015; HS (Sambhu, unpubl. data)
f. SANDA; 2015; HS (Sambhu, unpubl. data)
g. SKE CA; 2015; HS (Sambhu, unpubl. data)
h. SKE VI; 2015; HS (Sambhu, unpubl. data)
i. TAI CA; 2015; HS (Sambhu, unpubl. data)
j. TAI VI; 2015; HS (Sambhu, unpubl. data)
k. ANNAI; no data available (Hall, 1939a as *Euptychia ocypete*)
l. OMAI; no data available (Hall, 1939a as *Euptychia ocypete*)
m. No data available (Gillman, 2004)

Magneuptychia tricolor (Hewitson, 1850)
a. ENA CK; October, 1991; SF (Prince *et al*., 2006 & in CSBD collection, UG as *Euptychia tricolor*)
b. IWOKR; July–August, 1995; Wa (WE, 2014)
c. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (in CSBD collection, UG as *Euptychia tricolor*)
d. KAIET; 2001; SF (Kelloff, 2003)
e. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
f. AU CON; 28 April–5 May, 2009; RL and MK (ERM & GSEC, 2010)
g. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
h. IWOKR; 10 February, 2017; DG (Geale, 2017)
i. DEMER; no data available (Hall, 1939a as *Euptychia tricolor*)

j. OR NRI; date of collection/observation not available; GH (Hall, 1939a as *Euptychia tricolor*)
k. POT RI; date of collection/observation not available; HR (Hall, 1939a as *Euptychia tricolor*)
l. SUPEN; no data available (Hall, 1939a as *Euptychia tricolor*)
m. No data available (Gillman, 2004)

15. *Megeuptychia* Forster, 1964

Megeuptychia antonoe (Cramer, 1775)

a. PARIK; date of collection/observation not available; AH (Hall, 1939d as *Euptychia antonoe*)
b. No data available (Gillman, 2004)

16. *Oressinoma* Doubleday, [1849]

Oressinoma typhla Doubleday, [1849]

MT WK B; November, 1993; SF [SN] (in CSBD collection, UG)

17. *Oxeoschistus* Butler, 1867

Oxeoschistus romeo Pyrcz & Fratello, 2005

MR 2ND; 12 March–16 April, 2001; RW and WH (Costa *et al.*, 2013; NMNH, 2016)

18. *Pareuptychia* Forster, 1964

Pareuptychia binocula (Butler, 1869)

a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. IWOKR; July–August, 1995; W (WE, 2014)
c. IWOKR; July–August, 1997; JW (Prince *et al*., 2006; WE, 2014)
d. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
e. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (in CSBD collection, UG)
f. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Euptychia binocula*)
g. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
h. ARA MT; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
i. BURRO; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
j. CAN IW; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
k. FAI VI; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
l. SURAM; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
m. TUR MT; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010 as *Pareuptychia metaleuca*)
n. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS [CBr] (EMC, 2013 as *Pareuptychia metaleuca*)

o. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
p. BROTH; 2015; HS [CBr] (Sambhu, unpubl. data as *Pareuptychia metaleuca*)
q. CRAIG; 2015; HS [CBr] (Sambhu, unpubl. data as *Pareuptychia metaleuca*)
r. FRIEN; 2015; HS [CBr] (Sambhu, unpubl. data as *Pareuptychia metaleuca*)
s. SANDA; 2015; HS [CBr] (Sambhu, unpubl. data as *Pareuptychia metaleuca*)
t. BARTI; no data available (Hall, 1939a as *Euptychia binocula*)
u. KAM RI; no data available (Hall, 1939a as *Euptychia binocula*)
v. PARIK; no data available (Hall, 1939a as *Euptychia binocula*)
w. QUONG; no data available (Hall, 1939a as *Euptychia binocula*)
x. No data available (Gillman, 2004)

Pareuptychia hesionides Forster, 1964

a. SURAM; April, 2012; AZ [HS] (Zheludev, 2013 as *Pareuptychia ?hessionides*)
b. No data available (Hall, 1939a and Johnson, 1986 as *Euptychia hesione*)

Pareuptychia lydia (Cramer, 1777)

a. NP MT B; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003 as *Euptychia calpurnia*)
d. IW CCK; 19 September, 2002; MG (Gillman, 2002 as *Euptychia lydia*)
e. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
f. ANNAI; no data available (Hall, 1939a as *Euptychia lydia*)
g. DEM RI; no data available (Hall, 1939a as *Euptychia lydia*)
h. KAIET; no data available (Hall, 1939a as *Euptychia lydia*)
i. KAM RI; no data available (Hall, 1939a as *Euptychia lydia*)
j. MT ROR; no data available (Hall, 1939a as *Euptychia lydia*)
k. PARIK; no data available (Hall, 1939a as *Euptychia lydia*)
l. No data available (Johnson, 1986 as *Euptychia lydia*; Gillman, 2004)

Pareuptychia ocirrhoe (Fabricius, 1776)

a. PAKAR; 1971; collector/observer name/names not available (Gillman, 2002)
b. KAIET; 2001; SF (Kelloff, 2003)
c. IW CCK; September–October, 2002; MG (Gillman, 2002)
d. No data available (Gillman, 2004)

19. *Paryphthimoides* Forster, 1964

Paryphthimoides argulus (Godart, [1824])

a. BROTH; 2015; HS (Sambhu, unpubl. data)
b. CRAIG; 2015; HS (Sambhu, unpubl. data)
c. FRIEN; 2015; HS (Sambhu, unpubl. data)
d. LBI CA; 2015; HS (Sambhu, unpubl. data)
e. SANDA; 2015; HS (Sambhu, unpubl. data)
f. SKE CA; 2015; HS (Sambhu, unpubl. data)
g. TAI CA; 2015; HS (Sambhu, unpubl. data)
h. DEMER; no data available (Hall, 1939a as *Euptychia argante*)

20. *Pedaliodes* Butler, 1867

Pedaliodes roraimae Strand, 1912

MT ROR; no data available (Costa *et al*., 2013; Warren *et al*., 2013)

21. *Pharneuptychia* Forster, 1964

Pharneuptychia innocentia (Felder & Felder, 1867)

2HTMC; 14 September, 2000; SF *et al*. [SN] (in CSBD collection, UG)

22. *Pierella* Westwood, 1851

Pierella astyoche (Erichson, [1849])

a. WINEP; February, 1971; QH (Emmel, 1972)
b. MT WK E; November, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. IWOKR; July–August, 1996; Mc (WE, 2014)
d. KAIET; 2001; SF (Kelloff, 2003)
e. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
f. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
j. ARROW; April, 2012; AZ [HS] (Zheludev, 2013 as *Pierella astayoche*)
k. IWOKR; 8 February, 2017; DG (Geale, 2017)
l. KAM RI; no data available (Hall, 1939a)
m. MABAR; no data available (Hall, 1939a)
n. LO ESS; no data available (Hall, 1939a)
o. No data available (Gillman, 2004; Warren *et al*., 2013)

Pierella hyalinus (Gmelin, [1790])

a. KAMAR; April, 1992; SF (Prince *et al*., 2006)
b. ENA CK; October, 1992; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. IWOKR; January, 1993; As (WE, 2014)
d. KAMAR; April, 1993; SF (Prince *et al*., 2006)
e. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [HS] (in CSBD collection, UG)
f. KAIET; 2001; SF (Kelloff, 2003)
g. IW CCK; September–October, 2002; MG (Gillman, 2002)
h. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
i. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
j. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
k. SURAM; April, 2012; AZ [HS] (Zheludev, 2013)
l. No data available (Hall, 1939a and Shaw, 1951 as *Pierella dracontis*; Gillman, 2004)

Pierella lamia (Sulzer, 1776)

a. WINEP; February, 1971; QH (Emmel, 1972)

b. ENA CK; October, 1991; SF (Prince *et al*., 2006 & in CSBD collection, UG as *Pierella rhea*)
c. PAKAR; 1993; collector/observer name/names not available (Gillman, 2002)
d. KAIET; March, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
e. MT WK B; November, 1993; SF (Prince *et al*., 2006)
f. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Pierella rhea*)
g. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
h. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Pierella rhea*)
i. BROTH; 12 June and 9 September, 2015; HS (Sambhu, unpubl. data)
j. SANDA; 16 July, 2015; HS (Sambhu, unpubl. data)
k. BERBI; no data available (Hall, 1939a)
l. DEM RI; no data available (Hall, 1939a)
m. KAIET; no data available (Hall, 1939a)
n. KAM RI; no data available (Hall, 1939a)
o. MT ROR; no data available (Hall, 1939a)
p. OMAI; no data available (Hall, 1939a)
q. No data available (Gillman, 2004)

Pierella lena (Linnaeus, 1767)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. MARSH; November, 1991; SF (in CSBD collection, UG)
c. IWOKR; August, 1992; MG & K (WE, 2014)
d. KUIEW; 2–25 April, 1999; SF, RH, WP & RW [HS] (in CSBD collection, UG)
e. KAIET; 2001; SF (Kelloff, 2003)
f. IW CCK; September–October, 2002; MG (Gillman, 2002)
g. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
j. REWA; April, 2012; AZ [HS] (Zheludev, 2013)
k. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
l. BARTI; no data available (Hall, 1939a)
m. DEM RI; no data available (Hall, 1939a)
n. KAM RI; no data available (Hall, 1939a)
o. MT ROR; no data available (Hall, 1939a)
p. No data available (Gillman, 2004)

23. *Posttaygetis* Forster, 1964

Posttaygetis penelea (Cramer, 1777)

a. No specified locality; 1930s; collector/observer name/names not available (Gillman, 2002 as *Taygetis penelea*)
b. TUR MT; 20–26 March, 2001; SF (Fratello, 2003 as *Taygetis penelea*)
c. IW CCK; September–October, 2002; MG (Gillman, 2002 as *Taygetis penelea*)
d. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

f. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
g. BROTH; 2015; HS (Sambhu, unpubl. data)
h. FRIEN; 2015; HS (Sambhu, unpubl. data)
i. SANDA; 2015; HS (Sambhu, unpubl. data)
j. No data available (Hall, 1939a as *Taygetis penelea*; Gillman, 2004)

24. *Pseudodebis* Forster, 1964

Pseudodebis celia (Cramer, 1779)

a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003 as *Taygetis celia*)
b. DEMER; no data available (Hall, 1939a as *Taygetis celia*)
c. MT ROR; no data available (Hall, 1939a as *Taygetis celia*)

Pseudodebis marpessa (Hewitson, 1862)

a. FO SIP; 29 October–12 November, 2000; SF [HS] (in CSBD collection, UG)
b. REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Tagetis marpessa*)

Pseudodebis valentina (Cramer, 1779)

a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. BERBI; no data available (Hall, 1939a as *Taygetis valentina*)
c. No data available (Gillman, 2004)

25. *Splendeuptychia* Forster, 1964

Splendeuptychia clorimena (Stoll, 1790)

BARTI; no data available (Hall, 1939d as *Euptychia clorimene*)

Splendeuptychia doxes (Godart, [1824])

NA MT B; 21 February–10 March, 1999; SF, RH, SH & RW [SN] (in CSBD collection, UG)

Splendeuptychia furina (Hewitson, 1862)

a. KA MT A; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
c. TUR MT; 9 February, 2017; DG (Geale, 2017)
d. MT ROR; no data available (Hall, 1939d as *Euptychia furina*)
e. OR NRI; no data available (Hall, 1939d as *Euptychia furina*)
f. QUONG; no data available (Hall, 1939d as *Euptychia furina*)
g. No data available (Gillman, 2004)

Splendeuptychia itonis (Hewitson, 1862)

a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
b. ANNAI; no data available (Hall, 1939d as *Euptychia itonis*)
c. TAKUT; no data available (Hall, 1939d as *Euptychia itonis*)
d. No data available (Gillman, 2004)

Splendeuptychia junonia (Butler, 1867)

KA MT A; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)

26. *Stevenaria* Viloria, Costa, Neild & Nakahara, 2016
Stevenaria nakaharai Viloria, Costa, Fratello & Neild, 2016
MT AY C; 13–18 April, 1999; SF, RH, WP, RW (Costa *et al*., 2016)

27. *Taygetina* Forster, 1964
Taygetina gulnare (Butler, 1870)
No data available (Hall, 1939a as *Euptychia gulnare*)

Taygetina oreba (Butler, 1870)
No data available (Gillman, 2004)

28. *Taygetis* Hübner, [1819]
Taygetis cleopatra Felder & Felder, 1867

a. IWOKR; August, 1992; collector/observer name/names not available (Gillman, 2002 as *Taygetis xenana*)
b. IWOKR; August, 1996; collector/observer name/names not available (Gillman, 2002 as *Taygetis xenana*)
c. IWOKR; August, 1997; collector/observer name/names not available (Gillman, 2002 as *Taygetis xenana*)
d. IW CCK; 28 September, 2002; MG (Gillman, 2002 as *Taygetis xenana*)
e. ANNAI; no data available (Hall, 1939a as *Taygetis xenana*)
f. BARTI; no data available (Hall, 1939a as *Taygetis xenana*)
g. KAIET; no data available (Hall, 1939a as *Taygetis xenana*)
h. No data available (Gillman, 2004)

Taygetis echo (Cramer, 1775)

a. ANNAI; 1930s; collector/observer name/names not available (Gillman, 2002)
b. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
c. IW CCK; 17 September–2 October, 2002; MG (Gillman, 2002)
d. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
k. ANNAI; April, 2012; AZ [CBr] (Zheludev, 2013 as *Taygetis xenana*)
l. BROTH; 2015; HS (Sambhu, unpubl. data)
m. CRAIG; 2015; HS (Sambhu, unpubl. data)
n. FRIEN; 2015; HS (Sambhu, unpubl. data)
o. SANDA; 2015; HS (Sambhu, unpubl. data)
p. ANNAI; no data available (Hall, 1939a)
q. DEM RI; no data available (Hall, 1939a; Gillman, 2002)

r. TAKUT; no data available (Hall, 1939a; Gillman, 2002)
s. No data available (Gillman, 2004)

Taygetis laches Fabricius, 1793

a. IWOKR; August, 1992; collector/observer name/names not available (Gillman, 2002 as *Taygetis andromeda*)
b. IWOKR; January, 1993; collector/observer name/names not available (Gillman, 2002 as *Taygetis andromeda*)
c. IWOKR; August, 1995; collector/observer name/names not available (Gillman, 2002 as *Taygetis andromeda*)
d. IWOKR; November, 1998–February, 1999; collector/observer name/names not available (Gillman, 2002 as *Taygetis andromeda*)
e. IW CCK; 21 September–2 October, 2002; MG (Gillman, 2002 as *Taygetis andromeda*)
f. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
n. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
o. BROTH; 2015; HS (Sambhu, unpubl. data)
p. CRAIG; 2015; HS (Sambhu, unpubl. data)
q. FRIEN; 2015; HS (Sambhu, unpubl. data)
r. HRE VI; 2015; HS (Sambhu, unpubl. data)
s. LBI CA; 2015; HS (Sambhu, unpubl. data)
t. SANDA; 2015; HS (Sambhu, unpubl. data)
u. SKE CA; 2015; HS (Sambhu, unpubl. data)
v. TAI CA; 2015; HS (Sambhu, unpubl. data)
w. TAI VI; 2015; HS (Sambhu, unpubl. data)
x. No data available (Moore, 1915 as *Taygetis andromeda*; Hall, 1939a as *T. andromeda*; Box, 1953 as *T. andromeda*; Warren *et al*., 2013)

Taygetis mermeria (Cramer, 1776)

a. TAKUT; 1930s; collector/observer name/names not available (Gillman, 2002)
b. IW CCK; 27 & 28 September, 2002; MG (Gillman, 2002)
c. IWOKR; September–October, 2002; MG (Gillman, 2002)
d. SUR MT; September–October, 2002; MG (Gillman, 2002)
e. BURRO; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
f. CAN IW; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
g. TUR MT; 2006–2009; DBPT [CBr] (Darwin Butterfly Project, 2010)
h. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS [CBr] (EMC, 2013)

i. TAKUT; no data available (Hall, 1939a)
j. No data available (Gillman, 2004)

Taygetis thamyra (Cramer, 1779)
a. TIMEH; 5 November, 1975; MT (Prince *et al*., 2006)
b. IWOKR; July–August, 1992; MG & K (WE, 2014)
c. IWOKR; January, 1993; As (WE, 2014)
d. IWOKR; July–August, 1995; Wa (WE, 2014)
e. IWOKR; July–August, 1996; Mc (WE, 2014)
f. CRAIG; 4 January, 1997; KM (Prince *et al*., 2006)
g. IWOKR; July–August, 1997; JW (Prince *et al*., 2006)
h. IWOKR; November, 1998 to February, 1999; M & W (WE, 2014)
i. IW CCK; September–October, 2002; MG (Gillman, 2002)
j. ANNAI; April, 2012; AZ [HS] (Zheludev, 2013 as *Taygetis ?thamyra*)
k. CP JAG; no data available (Warren *et al*., 2013)
l. No data available (Gillman, 2004)

Taygetis virgilia (Cramer, 1776)
a. IWOKR; July–August, 1996; Mc (WE, 2014)
b. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
c. BROTH; 2015; HS (Sambhu, unpubl. data)
d. CRAIG; 2015; HS (Sambhu, unpubl. data)
e. FRIEN; 2015; HS (Sambhu, unpubl. data)
f. SANDA; 2015; HS (Sambhu, unpubl. data)
g. TAI CA; 2015; HS (Sambhu, unpubl. data)
h. No data available (Hall, 1939a; Gillman, 2004)

Taygetis zippora Butler, 1869
REWA; April, 2012; AZ [HS] (Zheludev, 2013 as *Tagetis ?zippera*)

29. *Yphthimoides* Forster, 1964
Yphthimoides renata (Stoll, 1780)
a. IWOKR; July–August, 1992; MG & K (WE, 2014)
b. 2HTMD; 23–28 September, 2000; SF *et al*. [HS] (in CSBD collection, UG)
c. DEM RI; no data available (Hall, 1939a as *Euptychia renata*)
d. KAM RI; no data available (Hall, 1939a as *Euptychia renata*)
e. OMAI; no data available (Hall, 1939a as *Euptychia renata*)
f. PARIK; no data available (Hall, 1939a as *Euptychia renata*)
g. No data available (Gillman, 2004)

30. *Zischkaia* Forster, 1964
Zischkaia mima (Butler, 1867)
KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Nakahara, pers. comm.)

FAMILY: PAPILIONIDAE

Subfamily: Papilioninae

Genus:

1. *Battus* Scopoli, 1777

   Battus belus (Cramer, 1777)

   a. CAB RD; 16 April, 1901; WK (Kaye, 1906 and Hall, 1939c as *Papilio belus*)
   b. KAIET; 2001; SF (Kelloff, 2003)
   c. No data available (Racheli & Oliverio, 1993)

   Battus crassus (Cramer, 1777)

   a. NAP CK; 21 February, 1999; SF (Fratello, 1999b and 1999d; NMNH 2016)
   b. REWA; April, 2012; AZ (Zheludev, 2013)
   c. BERBI; date of collection/observation not available; PC (Hall, 1939c as *Papilio crassus*; NHMUK, 2014)
   d. NEW AM; no data available (NHMUK, 2014)
   e. No data available (Hall, 1939c as *Papilio crassus*)

   Battus polydamas (Linnaeus, 1758)

   a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   c. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   d. KARAN; 2 July, 2015; GP (Pereira, pers. comm.)
   e. BERBI; date of collection/observation not available; PC (NHMUK, 2014)
   f. DEMER; date of collection/observation not available; RT (NHMUK, 2014)
   g. MT ROR; date of collection/observation not available; PC (NHMUK, 2014)
   h. No data available (Rodway, 1911 as *Papilio polydamas*; Hall, 1939c as *P. polydamas*; Shaw, 1951 as *P. polydamas*)

2. *Eurytides* Hübner, [1821]

   Eurytides dolicaon (Cramer, 1775)

   a. KAI GO/KA GO B/KA GO C; March, 1999; SF (Fratello, 1999d and 2007)
   b. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
   c. DEM RI; no data available (Hall, 1939d as *Papilio dolicaon*)
   d. MACKE; no data available (Hall, 1939d as *Papilio dolicaon*)
   e. TAK RI; date of collection/observation not available; HW (NHMUK, 2014)
   f. TAKUT; no data available (Hall, 1939d as *Papilio dolicaon*)

3. *Heraclides* Hübner, [1819]

   Heraclides anchisiades (Esper, 1788)

   a. No specified locality; 1935; FS (Squire, 1937 as *Papilio anchisiades*)
   b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
   c. BERBI; date of collection/observation not available; PC (Hall, 1939c as *Papilio anchisiades*; NHMUK, 2014)
   d. GEORG; no data available (Hall, 1939c as *Papilio anchisiades*)
   e. MABAR; no data available (Hall, 1939c as *Papilio anchisiades*)

f. OMAI; date of collection/observation not available; WSc (Hall, 1939c as *Papilio anchisiades*; NHMUK, 2014)
g. No data available (Rodway, 1911; Moore, 1912; Cleare Jr., 1919; Shaw, 1951 – all as *Papilio anchisiades*; Beccaloni *et al*., 2008)

Heraclides androgeus (Cramer, 1775)
a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. BARTI; date of collection/observation not available; HW (Hall, 1939c as *Papilio androgeus*; NHMUK, 2014)
c. BERBI; date of collection/observation not available; PC (Hall, 1939c as *Papilio androgeus*; NHMUK, 2014)
d. ESSE R; no data available (Hall, 1939c as *Papilio androgeus*)

Heraclides astyalus (Godart, 1819)
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

Heraclides hyppason (Cramer, 1775)
a. SURAM; April, 2012; AZ (Zheludev, 2013)
b. BERBI; date of collection/observation not available; PC (Hall, 1939c as *Papilio hyppason*; NHMUK, 2014)
c. DEMER; no data available (Hall, 1939c as *Papilio hyppason*; NHMUK, 2014)

Heraclides thoas (Linnaeus, 1771)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. NAP MT; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
c. KAIET; 2001; SF (Kelloff, 2003)
d. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
h. KARAN; 28 October, 2011; GP (Pereira, pers. comm.)
i. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
j. BERBI; date of collection/observation not available; PC (NHMUK, 2014)
k. DEMER; no data available (NHMUK, 2014)
l. No data available (Hall, 1939c; Forbes, 1944; Shaw, 1951 – all as *Papilio thoas*; Bourne, pers. obs.)

Heraclides torquatus (Cramer, 1777)
No data available (Hall, 1939c as *Papilio torquatus*)

4. *Mimoides* Brown, 1991

Mimoides ariarathes (Esper, 1788)
a. KAIET; 2001; SF (Kelloff, 2003)
b. BARTI; no data available (Hall, 1939d as *Papilio ariarathes*)

c. BARTI; date of collection/observation not available; HP (NHMUK, 2014)
d. BERBI; no data available (Hall, 1939d as *Papilio ariarathes*)
e. CHRIS; no data available (Hall, 1939d as *Papilio ariarathes*; Warren *et al*., 2013)
f. KAMAK; no data available (Hall, 1939d as *Papilio ariarathes*)

Mimoides pausanias (Hewitson, 1852)

a. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. KAN MT; 20 February–10 March, 1999; SH (Fratello, 1999b and 1999d as *Eurytides pausanias*)
c. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. DEM RI; no data available (Hall, 1939d as *Papilio pausanias*)
e. DEMER; no data available (NHMUK, 2014)
f. MT ROR; date of collection/observation not available; PC (NHMUK, 2014)
g. MT ROR; no data available (Hall, 1939d as *Papilio pausanias*)

5. *Neographium* Möhn, 2002

Neographium agesilaus (Guérin-Méneville & Percheron, 1835)

a. KARIS; 1968; BR (NHMUK, 2014)
b. KAIET; March–April, 1999; SF & RH (Fratello, 1999d as *Eurytides agesilaus*)
c. DEM RI; no data available (Hall, 1939d as *Papilio agesilaus*)
d. DEMER; date of collection/observation not available; PC (NHMUK, 2014)
e. ESSE R; no data available (Hall, 1939d as *Papilio agesilaus*)

6. *Parides* Hübner, [1819]

Parides aeneas (Linnaeus, 1758)

a. BARTI; 1901; WR (NHMUK, 2014)
b. KAM FA; 1904; CHa (NHMUK, 2014)
c. KARTA; 14 October, 1920; collector/observer name/names not available (NMNH, 2016)
d. BERBI; 1937; CH (NHMUK, 2014)
e. OKO MT; November, 1992; SF (in CSBD collection, UG)
f. KAN MT; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
g. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
h. IW CCK; September–October, 2002; MG (Gillman, 2002)
i. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
l. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
m. BARTI; date of collection/observation not available; HP & HW (Hall, 1939c as *Papilio aeneas*; NHMUK, 2014)
n. DEMER; date of collection/observation not available; WR & Bo (Hall, 1939c as *Papilio aeneas*; NHMUK, 2014)
o. INL ER; date of collection/observation not available; WR (NHMUK, 2014)
p. KAM FB; no data available (Hall, 1939c as *Papilio aeneas*)

q. ROCKS; no data available (NMNH, 2016)

Parides anchises (Linnaeus, 1758)

a. NAP CK; 21 February, 1989; SF (NMNH, 2016)
b. PR TUK; 18 March, 1999; SF (NMNH, 2016)
c. TROP A; 12 February, 2001; SF (NMNH, 2016)
d. INL ER; date of collection/observation not available; WR (NHMUK, 2014)
e. KAIET; date of collection/observation not available; AH (NHMUK, 2014)
f. KAM FA; date of collection/observation not available; WR (NHMUK, 2014)
g. QUONG; no data available (Hall, 1939c as *Papilio anchises*)
h. No data available (Hall, 1939c as *Papilio anchises*)

Parides echemon (Hübner, [1813])

a. KARTA; 7 April, 1905; collector/observer name/names not available (NMNH, 2016)
b. ENA CK; October, 1992; SF (Prince *et al*., 2006)
c. KAM FB; 5 July–30 November, 2000; SF (NMNH, 2016)
d. 2HTMB; 21–28 October, 2000; SF (NMNH, 2016)
e. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003; NMNH, 2016)
f. ANNAI; date of collection/observation not available; HW (Hall, 1939c as *Papilio echemon*; NHMUK, 2014)
g. DEM RI; no data available (Hall, 1939c as *Papilio echemon*)
h. KAM RI; date of collection/observation not available; WR (Hall, 1939c as *Papilio echemon*; NHMUK, 2014)

Parides eurimedes (Stoll, 1782)

a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
b. No specified locality; date of collection/observation not available; WK (Hall, 1939c as *Papilio arcas*)
   Parides lysander Cramer, 1775

a. BARTI; 1904; WR (NHMUK, 2014)
b. BARTI; 1929; AH (NHMUK, 2014)
c. FO SIP; 24 October–12 November, 2000; SF (NMNH, 2016)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003; NMNH, 2016)
e. REWA; April, 2012; AZ (Zheludev, 2013)
f. AKYMA; no data available (Hall, 1939c as *Papilio lysander*)
g. BARTI; date of collection/observation not available; HP & HW (Hall, 1939c as *Papilio lysander*; NHMUK, 2014)
h. BER RI; no data available (Hall, 1939c as *Papilio lysander*)
i. DEMER; date of collection/observation not available; CE (NHMUK, 2014)
j. KAIET; no data available (Hall, 1939c as *Papilio lysander*)
k. MABAR; no data available (Hall, 1939c as *Papilio lysander*)
l. NEW AM; date of collection/observation not available; WR (Hall, 1939c as *Papilio lysander*; NHMUK, 2014)
m. ROCKS; no data available (NMNH, 2016)

Parides mithras(Grose-Smith, 1902)

a. BARTI; 1904; WR (NHMUK, 2014)
b. BARTI; 1917; HW (NHMUK, 2014)
c. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
d. IW CCK; 24 September–2 October, 2002; MG (Gillman, 2002 as *Parides chabrias* and *P. triopas*)
e. CAN IW; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
f. TUR MT; 2006–2009; DBPT [AN] (Darwin Butterfly Project, 2010)
g. SURAM; April, 2012; AZ (Zheludev, 2013)
h. ANNAI; date of collection/observation not available; HW (Hall, 1939c as *Papilio triopas*; NHMUK, 2014)
i. BARTI; date of collection/observation not available; HP (Hall, 1939c as *Papilio triopas*; NHMUK, 2014)
j. DEMER; date of collection/observation not available; Bo (Hall, 1939c as *Papilio triopas*; NHMUK, 2014)
k. KAM RI; date of collection/observation not available; HW (Hall, 1939c as *Papilio triopas*; NHMUK, 2014)
l. OMAI; no data available (NMNH, 2016 as *Parides chabrias*)
m. No data available (Heppner, 1991 as *Parides tiopas*; Warren *et al*., 2013)

Parides neophilus (Geyer, 1837)

a. KARTA; 9 November and 8 December, 1920; EW (NMNH, 2016)
b. BARTI; 1929; AH (NHMUK, 2014)
c. WINEP; February, 1971; QH (Emmel, 1972)
d. KARTA; 24–25 December, 1983; collector/observer name/names not available (NMNH, 2016)
e. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Fratello, 1999b and 1999d; Prince *et al*., 2006; in CSBD collection, UG)
f. ANNAI; date of collection/observation not available; HW (Hall, 1939c as *Papilio neophilus*; NHMUK, 2014)
g. BARTI; date of collection/observation not available; WR (Hall, 1939c as *Papilio neophilus*; NHMUK, 2014)
h. DEMER; date of collection/observation not available; JJ (NHMUK, 2014)
i. GEORG; date of collection/observation not available; JJ (NHMUK, 2014; NMNH, 2016)
j. QUONG; no data available (Hall, 1939c as *Papilio neophilus*)

Parides panthonus (Cramer, 1780)

a. BARTI; 1904; WR (NHMUK, 2014)
b. 2HTMB; 21 September, 2000; SF (NMNH, 2016)
c. ACA MT; 29 October–12 November, 2000; SF (NMNH, 2016)
d. KAM FB; 29 October–12 November, 2000; SF (NMNH, 2016)
e. BARTI; date of collection/observation not available; HW (Hall, 1939c as *Papilio panthonus*; NHMUK, 2014)
f. DEMER; date of collection/observation not available; HB, BPi & WCH (NHMUK, 2014)

g. NEW AM; date of collection/observation not available; WR (Hall, 1939c as *Papilio panthonus*; NHMUK, 2014)
h. DEM RI; no data available (Piffard, 1864 and Hall, 1939c as *Papilio panthonus*)
i. PARIK; no data available (Hall, 1939c as *Papilio panthonus*)

Parides phosphorus (Bates, 1861)

a. DEMER; date of collection/observation not available; HB (Hall, 1939c as *Papilio phosphorus*; NHMUK, 2014)
b. OMAI; date of collection/observation not available; WR (NHMUK, 2014)
c. No data available (Hall, 1939c as *Papilio phosphorus*; Warren *et al*., 2013)

Parides sesostris (Cramer, 1779)

a. BERBI; 1937; AH (NHMUK, 2014)
b. KARTA; 25 December, 1984; ML (NMNH, 2016)
c. KAN MT; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
e. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)SURAM; April, 2012; AZ (Zheludev, 2013)
h. ANNAI; no data available (Hall, 1939c as *Papilio sesostris*)
i. BARTI; no data available (Hall, 1939c as *Papilio sesostris*)
j. BERBI; date of collection/observation not available; PC (NHMUK, 2014)
k. KAIET; no data available (Hall, 1939c as *Papilio sesostris*)
l. PARIK; no data available (Hall, 1939c as *Papilio sesostris*)
m. QUONG; no data available (Hall, 1939c as *Papilio sesostris*)
n. ROCKS; no data available (NMNH, 2016)

Parides vertumnus (Cramer, 1779)

a. BERBI; 1937; GH (NHMUK, 2014)
b. ENA CK; October, 1992; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. ACA MT; 29 October–12 November, 2000; SF (NMNH, 2016)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
e. ANNAI; date of collection/observation not available; HW (NHMUK, 2014)
f. DEMER; no data available (Hall, 1939c as *Papilio vertumnus*)
g. ESSE R; no data available (Hall, 1939c as *Papilio vertumnus*)
h. KAIET; no data available (Hall, 1939c as *Papilio vertumnus*)
i. KAM FB; no data available (Hall, 1939c as *Papilio vertumnus*)

7. *Protesilaus* Swainson, [1832]

Protesilaus glaucolaus (Bates, 1864)

a. FAI VI; 1 July, 2007; DBPT (Darwin Butterfly Project, unpubl. data)
b. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. BERBI; date of collection/observation not available; PC (NHMUK, 2014)
e. DEMER; date of collection/observation not available; PC (NHMUK, 2014)
f. BERBI; no data available (Hall, 1939d as *Papilio glaucolaus*)

g. DEM RI; no data available (Hall, 1939d as *Papilio glaucolaus*)

Protesilaus molops (Rothschild & Jordan, 1906)

a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
b. DEMER; no data available (Hall, 1939d as *Papilio molops*)
c. TAK RI; date of collection/observation not available; HW (NHMUK, 2014)
d. No data available (Warren *et al*., 2013)

Protesilaus protesilaus (Linnaeus, 1758)

a. KAIET; 2001; SF (Kelloff, 2003)
b. DEM RI; no data available (Hall, 1939d as *Papilio protesilaus*)

Protesilaus telesilaus (Felder & Felder, 1864)

a. DEMER; 1922; collector/observer name/names not available (NHMUK, 2014)
b. DEM RI; no data available (Hall, 1939d as *Papilio telesilaus*)
c. ESSE R; no data available (Hall, 1939d as *Papilio telesilaus*)

8. *Pterourus* Scopoli, 1777

Pterourus zagreus (Doubleday, 1847)

RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

FAMILY: PIERIDAE

Subfamily: Coliadinae

Genus:

1. *Anteos* Hübner, [1819]

Anteos maerula (Fabricius, 1775)

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

Anteos menippe (Hübner, [1818])

MARUD; no data available (Hall, 1939c as *Gonepteryx menippe*)

2. *Aphrissa* Butler, 1873

Aphrissa statira (Cramer, 1777)

a. YAW SV; 16 June, 1919; AA (Cleare Jr., 1921 as *Catopsilia statira*)
b. GEORG; 20 & 21 July, 1926; LC (Cleare Jr., 1929 as *Catopsilia statira*)
c. KARTA; 15 August, 1926; JP (Cleare Jr., 1929 as *Catopsilia statira*)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
f. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
g. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
k. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

l. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
m. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
n. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
o. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
p. N72 VI; 2015; HS (Sambhu, unpubl. data)
q. NIG VI; 2015; HS (Sambhu, unpubl. data)
r. SANDA; 2015; HS (Sambhu, unpubl. data)
s. SKE CA; 2015; HS (Sambhu, unpubl. data)
t. TAI CA; 2015; HS (Sambhu, unpubl. data)
u. TAI VI; 2015; HS (Sambhu, unpubl. data)
v. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
w. No data available (Hall, 1939c and Shaw, 1951 as *Catopsilia statira*; Beccaloni *et al*., 2008)

3. *Archonias* Hübner, [1831]

Archonias brassolis (Fabricius, 1776)

KURUP; 25 January, 1993; MG (Nakahara, pers. comm.)

4. *Eurema* Hübner, [1819]

Eurema agave (Cramer, 1775)

a. MAZ PS; February, 1936; AH (Hall, 1939c)
b. WINEP; February, 1971; QH (Emmel, 1972)

Eurema albula (Cramer, 1775)

a. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
b. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. CP JAG; no data available (Warren *et al*., 2013)
g. No data available (Hall, 1939c as *Terias albula*)

Eurema arbela (Geyer, 1832)

a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. No data available (Hall, 1939c as *Terias gratiosa*)

Eurema daira (Godart, 1819)

QUONG; no data available (Hall, 1939c as *Terias daira*)

Eurema elathea (Cramer, 1777)

a. KWATA; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010)
b. SURAM; 2006–2009; DBPT [AN & CBr] (Darwin Butterfly Project, 2010)
c. No data available (Hall, 1939c as *Terias elathea*)

5. *Leucidia* Doubleday, 1847

Leucidia brephos (Hübner, [1809])

a. WINEP; February, 1971; QH (Emmel, 1972)
b. SUR CK; November, 1993; SF (Fratello, 1993 and 1996a)
c. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
f. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
g. SURAM; April, 2012; AZ (Zheludev, 2013)
h. KAI GO; date of collection/observation not available; SF (Fratello, 1993)
i. BARTI; no data available (Hall, 1939c)
j. KAIET; no data available (Hall, 1939c)
k. MABAR; no data available (Hall, 1939c)
l. POT RD; no data available (Hall, 1939c)

6. *Phoebis* Hübner, [1819]

Phoebis agarithe (Boisduval, 1836)

GEORG; 21 July, 1926; LC (Cleare Jr., 1929 as *Catopsilia agarithe*)

Phoebis argante (Fabricius, 1775)

a. ARIM R; 1 October, 1991; SF (Prince *et al*., 2006)
b. NAP CK; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
d. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
j. KARAN; 19 October, 2013; GP (Pereira, pers. comm.)
k. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
l. CRAIG; 2015; HS (Sambhu, unpubl. data)
m. CUM VI; 2015; HS (Sambhu, unpubl. data)
n. FRIEN; 2015; HS (Sambhu, unpubl. data)
o. LBI CA; 2015; HS (Sambhu, unpubl. data)
p. N72 VI; 2015; HS (Sambhu, unpubl. data)
q. NIG VI; 2015; HS (Sambhu, unpubl. data)
r. SANDA; 2015; HS (Sambhu, unpubl. data)
s. SKE CA; 2015; HS (Sambhu, unpubl. data)
t. TAI CA; 2015; HS (Sambhu, unpubl. data)
u. KAIET; date of collection/observation not available; SF (Fratello, 2001b)
v. No data available (Hall, 1939c as *Catopsilia argante*; Beccaloni *et al*., 2008; Warren *et al*., 2013)

Phoebis philea (Linnaeus, 1763)

a. GEORG; 21 July, 1926; LC (Cleare Jr., 1929 as *Catopsilia philea*)

b. KARTA; 15 August, 1926; JP (Cleare Jr., 1929 as *Catopsilia philea*)
c. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
f. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
g. MON VI; 2015; HS (Sambhu, unpubl. data)
h. N72 VI; 2015; HS (Sambhu, unpubl. data)
i. NIG VI; 2015; HS (Sambhu, unpubl. data)
j. SKE CA; 2015; HS (Sambhu, unpubl. data)
k. TAI CA; 2015; HS (Sambhu, unpubl. data)
l. No data available (Hall, 1939c and Shaw, 1951 as *Catopsilia philea*; Beccaloni *et al*., 2008)

Phoebis sennae (Linnaeus, 1758)
a. GOL FL; June, 1915; HM (Cleare Jr., 1929 as *Callidryas eubule*)
b. TAY MR; June, 1915; HM (Cleare Jr., 1929 as *Callidryas eubule*)
c. PL LUN; 17 June, 1915; HM (Cleare Jr., 1929 as *Callidryas eubule*)
d. ARUKA; 1–10 August, 1916; CW (Williams, 1917 as *Callidryas eubule*)
e. BARTI; 11–13 September, 1916; CW (William, 1917 as *Callidryas eubule*)
f. GEORG; 18 March, 1919; AM & LC (Cleare Jr., 1921 as *Callidryas eubule*)
g. No specified locality; 1921; HM (Cleare Jr., 1929 as *Callidryas eubule*)
h. WAKEN; 25, June, 1921; HM (Cleare Jr., 1929 as *Callidryas eubule*)
i. GEORG; 21 July, 1926; LC (Cleare Jr., 1929 as *Catopsilia senna*)
j. UG TKN; 24 February, 1972; collector/observer name/names not available (Prince *et al*., 2006)
k. ST CUT; 8 March, 1973; SP (Prince *et al*., 2006)
l. ST CUT; 1975; MT (Prince *et al*., 2006)
m. TIMEH; 2 November, 1976; MT (Prince *et al*., 2006)
n. KITTY; 4 April, 1979; collector/observer name/names not available (Prince *et al*., 2006)
o. KAN MT; 21 February–10 March, 1999; SF (Fratello, 1999d; Prince *et al*., 2006)
p. KATO; 18 April, 2007; DBPT (Darwin Butterfly Project, unpubl. data)
q. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
r. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
s. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
t. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
u. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
v. KARAN; 19 October, 2013; GP (Pereira, pers. comm.)
w. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
x. CUM VI; 2015; HS (Sambhu, unpubl. data)
y. BROTH; 2015; HS (Sambhu, unpubl. data)
z. FRIEN; 2015; HS (Sambhu, unpubl. data)
aa. MON VI; 2015; HS (Sambhu, unpubl. data)
bb. N63 VI; 2015; HS (Sambhu, unpubl. data)

cc. N72 VI; 2015; HS (Sambhu, unpubl. data)
dd. SKE CA; 2015; HS (Sambhu, unpubl. data)
ee. TAI CA; 2015; HS (Sambhu, unpubl. data)
ff. NR TUM; 8 December, 2016; BP [HS] (Punu, pers. obs.)
gg. CHARI; 25 March, 2017; ANk [HS] (Nankishore, pers. obs.)
hh. DEM RI; no data available (Piffard, 1864 as *Callidryas eubule*)
ii. No data available (Rodway, 1911; Moore, 1912; Cleare Jr., 1919 – all as *Callidryas eubule*; Hall, 1939c and Shaw, 1951 as *Catopsilia eubule*; Beccaloni *et al*., 2008)

7. *Pyrisitia* Butler, 1870

Pyrisitia leuce (Boisduval, 1836)

a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. MABAR; no data available (Hall, 1939c as *Teriao leuce*)

Pyrisitia venusta (Boisduval, 1836)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Eurema venusta*)
b. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
c. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
g. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SURAM; April, 2012; AZ (Zheludev, 2013)
j. LBI CA; 2015; HS (Sambhu, unpubl. data)
k. N63 VI; 2015; HS (Sambhu, unpubl. data)
l. N72 VI; 2015; HS (Sambhu, unpubl. data)
m. IWOKR; 7 February, 2017; DG (Geale, 2017)
n. No data available (Hall, 1939c as *Terias venusta*)

8. *Rhabdodryas* Godman & Salvin, 1889

Rhabdodryas trite (Linnaeus, 1758)

a. KAIET; 2001; SF (Kelloff, 2003)
b. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
c. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
d. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. No data available (Hall, 1939c as *Catopsilia trite*)

Subfamily: Dismorphiinae

Genus:

1. *Dismorphia* Hübner, 1816

Dismorphia amphione (Cramer, 1779)

a. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

b. BERBI; no data available (Hall, 1939c)
c. DEM RI; no data available (Hall, 1939c)
d. TAKUT; no data available (Hall, 1939c)
e. No data available (Kaye, 1907)

Dismorphia crisia (Drury, 1782)
a. MT WK A; November, 1993; SF (Fratello, 1999c)
b. MT AY B; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999d)
c. MT WK E; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999a and 1999d)
d. MT AYA; 10–20 April, 1999; SF (Prince *et al*., 2006)
e. MT ROR; no data available (Hall, 1939c; Costa *et al*., 2013; Warren *et al*., 2013)

Dismorphia laja (Cramer, 1779)
a. MT AY E; 2–25 April, 1999; SF *et al*. (Fratello, 1999a and 1999d)
b. DEMER; no data available (Hewitson, 1869 as *Leptalis carthesis*; Hall, 1939c as *Dismorphia carthesis*; Warren *et al*., 2013)
c. KAM RI; no data available (Hall, 1939c as *Dismorphia tapajona*)
d. QUONG; no data available (Hall, 1939c as *Dismorphia carthesis*)

Dismorphia thermesia (Godart, 1819)
No data available (Warren *et al*., 2013)

Dismorphia zathoe (Hewitson, [1858])
a. MT AY B; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999a and 1999d)
b. MT AYA; 10–20 April, 1999; SF (Prince *et al*., 2006)
c. MT ROR; no data available (Hall, 1939c as *Dismorphia proserpina*; Costa *et al*., 2013; Warren *et al*., 2013)

2. *Enantia* Hübner, [1819]
Enantia melite (Linnaeus, 1763)
a. MABAR; no data available (Hall, 1939c as *Dismorphia licinia*)
b. TAKUT; no data available (Hall, 1939c as *Dismorphia licinia*)

3. *Moschoneura* Butler, 1870
Moschoneura pinthous (Linnaeus, 1758)
a. ANUND; January, 1928; GT *et al*. (Brown, 1932 as *Dismorphia pinthaeus*)
b. MT ROR; 23 October, 1972; MT (Prince *et al*., 2006)
c. ARIM R; 1 October, 1992; SF (Prince *et al*., 2006)
d. ENA CK; 20 October, 1992; SF (Prince *et al*., 2006)
e. MT WK E; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999a and 1999d)
f. KAIET; 2001; SF (Kelloff, 2003)
g. CAN IW; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
h. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
k. BARTI; no data available (Hall, 1939c as *Dismorphia pinthaeus*)

l. KAIET; no data available (Hall, 1939c as *Dismorphia pinthaeus*)
m. KAM RI; no data available (Hall, 1939c as *Dismorphia pinthaeus*)
n. MT ROR; no data available (Hall, 1939c as *Dismorphia pinthaeus*)

Subfamily: Pierinae

Genus:

1. *Archonias* Hübner, [1831]

Archonias brassolis (Fabricius, 1776)

a. SUR CK; November, 1993; SF (Fratello, 1993 and 1996a)
b. MT WK B; February–April, 1999; SF (Fratello, 1999a as *Archonias bellona*)
c. MT AY D; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999a and 1999d as *Archonia bellona*)
d. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
e. ANNAI; no data available (Hall, 1939c as *Archonias bellona*)
f. MT ROR; no data available (Hall, 1939c as *Archonias bellona*)

2. *Ascia* Scopoli, 1777

Ascia monuste (Linnaeus, 1764)

a. ALBIO; September, 1919; LC (Cleare Jr., 1921 as *Pieris phileta*)
b. No data available (Rodway 1911 as *Pontia monuste*; Hall, 1939c and Shaw, 1951 as *Pieris monuste*; Beccaloni *et al*., 2008)

3. *Catasticta* Butler, 1870

Catasticta duida (Brown, 1932)

a. MT AYA; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999d)
b. MR 3RD; March, 2007; MC (Neild, pers. comm.)

Catasticta sisamnus (Fabricius, 1793)

a. MT AYA; February–April, 1999; SF (Fratello, 1999a)
b. PONG R; February–April, 1999; SF (Fratello, 1999a)
c. KOAT R; 2–25 April, 1999; SF, RH, WP, RW (Bollino & Costa, 2007; Warren *et al*., 2013)

4. *Ganyra* Billberg, 1820

Ganyra phaloe (Godart, 1819)

a. ANNAI; no data available (Hall, 1939c as *Pieris buniae*)
b. BERBI; no data available (Hall, 1939c as *Pieris buniae*)

5. *Glutophrissa* Butler, 1887

Glutophrissa drusilla (Cramer, 1777)

a. BERBI; 1901; collector/observer name/names not available (Williams, 1920 as *Appias margarita*)
b. GEORG; 21 July, 1926; LC (Cleare Jr., 1929 as *Appias drusilla*)
c. LICHF; 7 March, 1927; LC (Cleare Jr., 1929 as *Appias drusilla*)
d. PL BLM; 14 March, 1927; S (Cleare Jr., 1929 as *Appias drusilla*)

e. ANUND; January, 1928; GT *et al*. (Brown, 1932 as *Appias drusilla*)
f. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
g. KAIET; 2001; SF (Kelloff, 2003)
h. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. SURAM; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. BROTH; 2015; HS (Sambhu, unpubl. data)
k. CUM VI; 2015; HS (Sambhu, unpubl. data)
l. LBI CA; 2015; HS (Sambhu, unpubl. data)
m. N63 VI; 2015; HS (Sambhu, unpubl. data)
n. N72 VI; 2015; HS (Sambhu, unpubl. data)
o. NIG VI; 2015; HS (Sambhu, unpubl. data)
p. SKE CA; 2015; HS (Sambhu, unpubl. data)
q. TAI CA; 2015; HS (Sambhu, unpubl. data)
r. TAI VI; 2015; HS (Sambhu, unpubl. data)
s. NR TUM; 8 December, 2016; BP [HS] (Punu, pers. obs.)
t. No data available (Hall, 1939c as *Appias drusilla*)

6. *Hesperocharis* Felder, 1862
   Hesperocharis nera (Hewitson, 1852)
   a. POT RI; no data available (Hall, 1939c as *Hesperocharis nymphaea*)
   b. TUMAT; no data available (Kaye, 1920; Hall, 1939c as *Hesperocharis nymphaea*)

7. *Itaballia* Kaye, 1904
   Itaballia demophile (Linnaeus, 1763)
   a. ARA MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
   b. BERBI; no data available (Hall, 1939c)

8. *Melete* Swainson, [1831]
   Melete lycimnia (Cramer, 1777)
   a. KAM RI; no data available (Hall, 1939c as *Daptonoura lycimnia*)
   b. MABAR; no data available (Hall, 1939c as *Daptonoura lycimnia*)
   c. MT ROR; no data available (Hall, 1939c as *Daptonoura lycimnia*)
   d. POT RI; no data available (Hall, 1939c as *Daptonoura lycimnia*)

9. *Perrhybris* Hübner, [1819]
   Perrhybris pamela (Stoll, 1780)
   ANNAI; no data available (Hall, 1939c as *Perrhybris pyrrha*)

FAMILY: RIODINIDAE

Subfamily: Euselasiinae

Genus:
1. *Euselasia* Hübner, [1819]
   Euselasia arbas (Stoll, 1781)

POT RI; no data available (Hall, 1939c)

Euselasia bilineata Lathy, 1926
  a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
  b. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)

Euselasia cafusa (Bates, 1868)
ANNAI; no data available (Hall, 1939b)

Euselasia cataleuca (Felder, 1869)
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

Euselasia cheles (Godman & Salvin, 1889)
  a. OMAI; no data available (Hall, 1939c)
  b. QUONG; no data available (Hall, 1939c)

Euselasia euboea (Hewitson, [1853])
  a. ANNAI; no data available (Hall, 1939c)
  b. No data available (in CSBD collection, UG)

Euselasia eubotes (Hewitson, 1856)
ANNAI; no data available (Hall, 1939b)

Euselasia eucritus (Hewitson, [1853])
KAM RI; no data available (Hall, 1939b)

Euselasia eugeon (Hewitson, 1856)
  a. 2HTMB; 17 September–2 October, 2000; SF *et al*. [CBr] (in CSBD collection, UG as *Euselasia geon*)
  b. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)
  c. OMAI; no data available (Hall, 1939c)
  d. QUONG; no data available (Hall, 1939c)

Euselasia eulione (Hewitson, 1856)
POT RI; no data available (Hall, 1939b)

Euselasia eumedia (Hewitson, [1853])
KAIET; 2001; SF (Kelloff, 2003)

Euselasia euodias (Hewitson, 1856)
  a. KAIET; March–April, 1999; SF & RH (Fratello, 1999d)
  b. KAIET; 2001; SF (Kelloff, 2003)
  c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)

Euselasia euoras (Hewitson, [1855])

FO SIP; 29 October–21 November, 2000; SF *et al*. [CBr] (Prince *et al*., 2006; in CSBD collection, UG)

Euselasia euphaes (Hewitson, [1855])
ANNAI; no data available (Hall, 1939c)

Euselasia eurypus (Hewitson, 1856)
KAM RI; no data available (Hall, 1939c)

Euselasia eutychus (Hewitson, 1856)
KUTAR; no data available (Hall, 1939b)

Euselasia gelanor (Stoll, 1780)
a. KAIET; 2001; SF (Kelloff, 2003)
b. ANNAI; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)
d. MT ROR; no data available (Hall, 1939c)
e. QUONG; no data available (Hall, 1939c)

Euselasia gelon (Stoll, 1787)
a. KAIET; April, 1993; SF (Prince *et al*., 2006)
b. KAN MT; 17 February, 2000; SF (Prince *et al*., 2006)

Euselasia issoria (Hewitson, 1869)
a. KAIET; March–April, 1999; SF & RH (Fratello, 1999d)
b. KAIET; 2001; SF (Kelloff, 2003)
c. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Euselasia labdacus (Stoll, 1780)
No data available (Hall, 1939c)

Euselasia licinia (Godman, 1903)
MT ROR; no data available (Hall, 1939b as *Euselasia eustachius*; Warren *et al*., 2013)

Euselasia lisias (Cramer, 1777)
a. KAIET; 2001; SF (Kelloff, 2003)
b. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)
c. IWOKR; 10 February, 2017; DG (Geale, 2017)
d. ANNAI; no data available (Hall, 1939c)
e. KA MT B; no data available (Hall, 1939c)
f. KAM RI; no data available (Hall, 1939c)
g. QUONG; no data available (Hall, 1939c)

Euselasia melaphaea (Hübner, 1823)

a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
d. KAIET; no data available (Hall, 1939b)
e. KAM RI; no data available (Hall, 1939b)

Euselasia midas (Fabricius, 1775)
a. KAIET; 2001; SF (Kelloff, 2003)
b. KAM RI; no data available (Hall, 1939c as *Euselasia crotopus*)
c. MABAR; no data available (Hall, 1939c as *Euselasia crotopus*)

Euselasia mys (Herrich-Schäffer, [1853])
a. MT ROR; no data available (Hall, 1939b)
b. QUONG; no data available (Hall, 1939b)

Euselasia orfita (Cramer, 1777)
a. IW CCK; September–October, 2002; MG (Gillman, 2002)
b. ANNAI; no data available (Hall, 1939b)
c. KAM RI; no data available (Hall, 1939b)
d. MABAR; no data available (Hall, 1939b)

Euselasia pelor (Hewitson, [1853])
ANNAI; no data available (Hall, 1939c)

Euselasia phedica (Boisduval, 1836)
IW CCK; September–October, 2002; MG (Gillman, 2002)

Euselasia teleclus (Stoll, 1787)
a. DEM RI; no data available (Hall, 1939c)
b. KAM RI; no data available (Hall, 1939c)
c. MT ROR; no data available (Hall, 1939c)
d. POT RI; no data available (Hall, 1939c)

Euselasia urites (Hewitson, [1853])
a. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)
b. MT ROR; no data available (Hall, 1939c)

Euselasia utica (Hewitson, [1855])
ANNAI; no data available (Hall, 1939b)

Euselasia uzita (Hewitson, [1853])
a. KAN MT; 20 February–10 March, 1999; SF (Fratello, 1999b and 1999d)
b. KAN MT; 21 January, 2000; SF (Prince *et al*., 2006)
c. 2HTMB; 21–28 September, 2000; SF *et al.* (in CSBD collection, UG)
d. ANNAI; no data available (Hall, 1939b)

Euselasia zena (Hewitson, 1860)
UP COR; date of collection/observation not available; JM (Hall, 1939b)

2. *Methone* Doubleday, 1847
Methone cecilia (Cramer, 1777)
a. NEW RI; December, 1935; JM (Hall, 1939c as *Methonella cecilia*)
b. ACA MT; 4 October, 2000; SF (Prince *et al*., 2006)
c. KAIET; 2001; SF (Kelloff, 2003)
d. ANNAI; no data available (Hall, 1939c as *Methonella cecilia*)
e. KAM RI; no data available (Hall, 1939c as *Methonella cecilia*)
f. QUONG; no data available (Hall, 1939c as *Methonella cecilia*)

Subfamily: Riodininae

Genus:
1. *Adelotypa* Warren, 1895
Adelotypa annulifera (Godman, 1903)
QUONG; no data available (Hall, 1939c as *Echenais annulifera*; Warren *et al*., 2013)

Adelotypa penthea (Cramer, 1777)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. BARTI; no data available (Hall, 1939c as *Echenais penthea*)
c. KAIET; no data available (Hall, 1939c as *Echenais penthea*)
d. KAM RI; no data available (Hall, 1939c as *Echenais penthea*)
e. MABAR; no data available (Hall, 1939c as *Echenais penthea*)

Adelotypa tinea (Bates, 1868)
KAIET; no data available (Hall, 1939c as *Echenais tinea*)

Adelotypa zerna (Hewitson, 1872)
MT ROR; no data available (Hall, 1939c as *Echenais zerua*)

2. *Alesa* Doubleday, 1847
Alesa amesis (Cramer, 1777)
a. KAIET; March & April, 1993; SF [CBr] (in CSBD collection, UG)
b. FO SIP; 29 October–12 November, 2000; SF *et al*. (in CSBD collection, UG)
c. ACC MT; 31 October–10 November, 2000; SF *et al*. (in CSBD collection, UG)
d. ACA MT; 30 October and 29 December, 2000; SF (Prince *et al*., 2006)
e. KAIET; 2001; SF (Kelloff, 2003)
f. DEMER; no data available (Hall, 1939c)
g. KAM RI; no data available (Hall, 1939c)
h. QUONG; no data available (Hall, 1939c)

Alesa rothschildi (Seitz, 1913)
a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. DEM RI; no data available (Hall, 1939c as *Mimocastnia rothschildi*)
c. DEMER; no data available (Warren *et al*., 2013)

3. *Amarynthis* Hübner, [1819]

Amarynthis meneria (Cramer, 1776)
a. SIP RV; 24 October–12 November, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. MABAR; no data available (Hall, 1939c)
d. POT RI; no data available (Hall, 1939c)

4. *Ancyluris* Hübner, [1819]

Ancyluris aulestes (Cramer, 1777)
a. ANNAI; no data available (Hall, 1939c as *Ancylurus aulestes*)
b. BARTI; no data available (Hall, 1939c as *Ancylurus aulestes*)
c. KAIET; no data available (Hall, 1939c as *Ancylurus aulestes*)
d. KAM RI; no data available (Hall, 1939c as *Ancylurus aulestes*)
e. MT ROR; no data available (Hall, 1939c as *Ancylorus aulestes*)

Ancyluris meliboeus (Fabricius, 1776)
KAIET; 2001; SF (Kelloff, 2003)

Ancyluris tedea (Cramer, 1777)
a. DEMER; no data available (Hall, 1939c as *Anyclorus tedea*)
b. QUONG; no data available (Hall, 1939c as *Ancylorus tedea*)

5. *Anteros* Hübner, [1819]

Anteros aerosus Stichel, 1924
a. KING F; March, 1936; GH (Hall, 1939c as *Anteros violetta*)
b. No data available (Hall, 1939c as *Anteros violetta*)

Anteros formosus (Cramer, 1777)
a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
b. IWOKR; 8 February, 2017; DG (Geale, 2017)
c. ANNAI; no data available (Hall, 1939c)

Anteros renaldus (Stoll, 1790)
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

6. *Argyrogrammana* Strand, 1932

Argyrogrammana rameli (Stichel, 1930)
a. ACA MT; 6 September & 31 October, 2000; SF (Prince *et al*., 2006)
b. FO SIP; 31 October–10 November, 2000; SF *et al*. (in CSBD collection, UG)
c. KAM RI; no data available (Hall & Willmott, 1996a)

Argyrogrammana trochilia (Westwood, 1851)
KAM RI; no data available (Hall, 1939c as *Argyrogramma trochila*)

Argyrogrammana venilia (Bates, 1868)
MT ROR; no data available (Hall, 1939c as *Argyrogramma venilia*)

7. *Aricoris* Westwood, 1851

Aricoris epulus (Cramer, 1775)

a. KARTA; 19 November, 1924; collector/observer name/names not available (NMNH, 2016)
b. TIMEH; 15 October, 1943; WW (NMNH, 2016)
c. TAK MT; 13–14 & 17–18 December, 1983; WS (NMNH, 2016)
d. ANNAI; April, 2012; AZ (Zheludev, 2013)
e. IWOKR; 10 February, 2017; DG (Geale, 2017)
f. BARTI; no data available (Hall, 1939c as *Haemearis epulus*)
g. DEMER; no data available (Hall, 1939c as *Haemearis epulus*)

Aricoris erostratus (Westwood, 1851)

a. 2HTMC; 15 September–4 October, 2000; SF (NMNH, 2016)
b. KAN MT; no data available (NMNH, 2016)

8. *Baeotis* Hübner, [1819]

Baeotis barce Hewitson, 1875
No data available (Warren *et al*., 2013)

Baeotis hisbon (Cramer, 1775)
DEMER; date of collection/observation not available; GR (Hall, 1939c)

9. *Calephelis* Grote & Robinson, 1869

Calephelis argyrodines (Bates, 1866)
No data available (Hall, 1939c as *Charis argyrodines*)

10. *Calospila* Geyer, 1832

Calospila apotheta (Bates, 1868)
KAIET; date of collection/observation not available; AH (Hall, 1939c as *Lemonias lyncestes*)

Calospila caecina (Felder & Felder, 1865)
KAM RI; no data available (Hall, 1939c as *Lemonias cerealis*)

Calospila emylius (Cramer, 1775)

a. LO CUY; 1 October, 1991; SF (Prince *et al*., 2006; in CSBD collection, UG)
b. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)

d. ANNAI; April, 2012; AZ (Zheludev, 2013)
e. CEIBA; 2004–2015; GM and GB (Maharaj,unpubl. data; Bourne, unpubl. data, pers. comm.)
f. No data available (Hall, 1939c & Bourne, pers. obs. as *Lemonias emylius*)

Calospila fannia (Godman, 1903)
a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
b. ANNAI; no data available (Hall, 1939c as *Lemonias fannia*; Warren *et al*., 2013)

Calospila lucetia (Hübner, 1821)
NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)

Calospila lucianus (Fabricius, 1793)
a. FO SIP; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. REWA; April, 2012; AZ (Zheludev, 2013)
c. ANNAI; no data available (Hall, 1939c as *Lemonias lucianus*)
d. QUONG; no data available (Hall, 1939c as *Lemonias lucianus*)

Calospila maeonoides (Godman, 1903)
Berg-en-Daal; no data available (Warren *et al*., 2013)

Calospila parthaon (Dalman, 1823)
KAM RI; no data available (Hall, 1939c as *Lemonias porthaon*)

Calospila rhodope (Hewitdon, 1853)
a. KAIET; 2001; SF (Kelloff, 2003)
b. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
c. POT RI; no data available (Hall, 1939c as *Lemonias rhodope*)

Calospila satyroides (Lathy, 1932)
No data available (Hall, 1939c as *Nymphidium satyroides*; Warren *et al*., 2013)

Calospila thara (Hewitson, 1858)
a. TROP A; 31 January–12 February, 2001; RW (Fratello, 2003)
b. SURAM; 13 February, 2017; DG (Geale, 2017)
c. ANNAI; no data available (Hall, 1939c as *Lemonias nomia*; Warren *et al*., 2013)

Calospila zeanger (Stoll, 1790)
ANNAI; no data available (Hall, 1939c as *Lemonias zeanger*)

11. *Caria* Hübner, 1823
Caria plutargus (Fabricius, 1793)
QUONG; no data available (Hall, 1939c as *Symmachia amazonica*)

Caria trochilus Erichson, [1849]
No data available (Warren *et al*., 2013)

12. *Cariomothis* Stichel, 1910
Cariomothis erythromelas (Sepp, [1841])
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

13. *Catocyclotis* Stichel, 1911
Catocyclotis aemulius (Fabricius, 1793)
MT ROR; no data available (Hall, 1939c as *Echenais aemulius*)

14. *Chalodeta* Stichel, 1910
Chalodeta chaonitis (Hewitson, 1866)
No data available (Hall, 2002a)

Chalodeta chitinosa Hall, 2002
No data available (Hall, 2002a)

15. *Charis* Hübner, [1819]
Charis anius (Cramer, 1776)
a. SUR CK; November, 1993; SF (in CSBD collection, UG)
b. UP IRE; November, 1993; SF (Prince *et al*., 2006)
c. ACA MT; 4–10 November, 2000; SF (Prince *et al*., 2006)
d. KAIET; 2001; SF (Kelloff, 2003)
e. IWOKR; 10 February, 2017; DG (Geale, 2017)
f. BARTI; no data available (Hall, 1939c)
g. KAIET; no data available (Hall, 1939c)
h. KAM RI; no data available (Hall, 1939c)
i. MT ROR; no data available (Hall, 1939c)
j. QUONG; no data available (Hall, 1939c)
k. No data available [CBr] (Bourne, pers. obs.)

16. *Chorinea* Gray, 1832
Chorinea batesii (Saunders, 1859)
a. IW CCK; 20 September, 2002; MG (Gillman, 2002)
b. ANNAI; no data available (Hall, 1939c as *Zeonia batesii*)

Chorinea octauius (Fabricius, 1787)
a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
b. POT RI; date of collection/observation not available; WK (Hall, 1939c as *Zeonia faunus*)

17. *Colaciticus* Stichel, 1910
Colaciticus johnstoni (Dannatt, 1904)
No data available (Dannatt, 1904; Nielson & Salazar-e, 2014)

18. *Comphotis* Stichel, 1910

Comphotis eanes (Godman, 1903)

No data available (Hall & Willmott, 1996b)

Comphotis irroratum (Godman, 1903)

a. KAIET; no data available (Hall, 1939c as *Cricosoma irrorata*)
b. KAM RI; no data available (Hall, 1939c as *Cricosoma irrorata*; Warren *et al*., 2013; NHMUK, 2014)

Comphotis sophistes (Bates, 1868)

TUR MT; 20–26 March, 2001; SF (Fratello, 2003)

19. *Cyrenia* Westwood, 1851

Cyrenia martia Westwood, 1851

QUONG; no data available (Hall, 1939c)

20. *Detritivora* Hall & Harvey, 2002

Detritivora cleonus (Stoll, 1781)

a. TROP B; 31 January–12 February, 2001; SF *et al*. (in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. DEMER; no data available (Hall, 1939c as *Charis cleonus*)
d. KAIET; no data available (Hall, 1939c as *Charis cleonus*)
e. KAM RI; no data available (Hall, 1939c as *Charis cleonus*)
f. MT ROR; no data available (Hall, 1939c as *Charis cleonus*)

Detritivora gallardi (Hall & Harvey, 2001)

a. CP JAG; 6 November, 1980; RS (Hall & Harvey, 2001b as *Charis gallardi*)
b. TROP B; 31 January–12 February, 2001; SF *et al*. (in CSBD collection, UG)
c. UP COR; August (year unknown); GH (Hall & Harvey, 2001b as *Charis gallardi*)
d. ROCKS; September (year unknown); collector/observer name/names not available (Hall & Harvey, 2001b as *Charis gallardi*)
e. ANNAI; date of collection/observation not available; HW (Hall & Harvey, 2001b as *Charis gallardi*)

Detritivora zama (Bates, 1868)

ANNAI; no data available (Hall, 1939c as *Charis zama*)

21. *Dysmathia* Bates, 1868

Dysmathia glaucoconia Stichel, 1911

No data available (Warren *et al*., 2013)

Dysmathia portia Bates, 1868

No data available (Hall, 1939c)

22. *Echenais* Hübner, [1819]

Echenais thelephus (Cramer, 1775)

KAIET; 2001; SF (Kelloff, 2003)

23. *Emesis* Fabricius, 1807

Emesis brimo Godman & Salvin, 1889

a. TROP A; 31 January–12 February, 2001; SF (Fratello, 2003)
b. POT RI; date of collection/observation not available; WK (Hall, 1939c as *Emesis progne*)

Emesis cera (Linnaeus, 1767)

DEMER; date of collection/observation not available; GR (Hall, 1939c as *Emesis ovidius*)

Emesis fatimella Westwood, 1851

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

Emesis lucinda (Cramer, 1775)

a. KAIET; April, 1993; SF (Kelloff, 2003; Prince *et al*., 2006; in CSBD collection, UG)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
d. KAM RI; no data available (Hall, 1939c)
e. PARIK; no data available (Hall, 1939c)
f. TAKUT; no data available (Hall, 1939c)

Emesis mandana (Cramer, 1780)

a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. DEM RI; no data available (Hall, 1939c)
c. QUONG; no data available (Hall, 1939c)

24. *Esthemopsis* Felder & Felder, 1865

Esthemopsis aeolia Bates, 1868

QUONG; no data available (Hall, 1939c)

Esthemopsis colaxes Hewitson, 1870Hall, 1939d

a. OR NRI; date of collection/observation not available; MB (Hall, 1939d as *Tmetoglene colaxes*)
b. No data available (Warren *et al*., 2013)

Esthemopsis sericina (Bates, 1867)

POT RI; date of collection/observation not available; WK (Kaye, 1907; Hall, 1939c)

25. *Eunogyra* Westwood, 1851

Eunogyra satyrus Westwood, 1851

a. KAIET; 2001; SF (Kelloff, 2003)
b. BARTI; no data available (Hall, 1939c)

c. KAIET; no data available (Hall, 1939c)
d. KAM RI; no data available (Hall, 1939c)
e. QUONG; no data available (Hall, 1939c)
f. TAKUT; no data available (Hall, 1939c)

26. *Eurybia* [Illiger], 1807

Eurybia dardus (Fabricius, 1787)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. DEM RI; no data available (Hall, 1939c)
c. MT ROR; no data available (Hall, 1939c)

Eurybia donna Felder & Felder, 1862

RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)

Eurybia franciscana Felder & Felder, 1862

BARTI; no data available (Hall, 1939c as *Eurybia lamia*)

Eurybia halimede (Hübner, [1807])

POT RI; date of collection/observation not available; WK (Hall, 1939c as *Eurybia haliemede*)

Eurybia nicaeus (Fabricius, 1775)

a. LO CUY; 8 November, 1992; SF [CBr] (in CSBD collection, UG)
b. ARIM R; October, 1993; SF [CBr] (in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)
d. BARTI; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. QUONG; no data available (Hall, 1939c)

Eurybia patrona Weymer, 1875

No specified locality; date of collection/observation not available; SF (Fratello, 2007)

27. *Helicopis* Fabricius, 1807

Helicopis cupido (Linnaeus, 1758)

a. CRAIG; December, 1929; AH (Hall, 1939c as *Helicopis lindeni*)
b. PARIK; December, 1929; AH (Hall, 1939c as *Helicopis lindeni*)
c. WINEP; February, 1971; QH (Emmel, 1972 as *Helicopis eupido*)
d. CUY RI; 29 November–6 December, 2000; SF *et al*. (Fratello, 2001a)
e. KAIET; 2001; SF (Kelloff, 2003)
f. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
g. AU CON; 28 April–5 May, 2009; RL and MK (ERM & GSEC, 2010)
h. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
i. ARROW; April, 2012; AZ (Zheludev, 2013)
j. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

k. TAI CA; 9 August, 2015; HS (Sambhu, unpubl. data)
l. ADEL R; 3 February, 2017; DG (Geale, 2017)
m. GEORG; date of collection/observation not available; JMa (Hall *et al*., 2004)
n. DEM RI; no data available (Piffard, 1864)
o. No data available (Rodway, 1911; Hall, 1939c; Shaw, 1951; Beccaloni *et al*., 2008)

Helicopis endymiaena (Hübner, [1819])
a. DEM RI; no data available (Hall, 1939c as *Helicopis endymion*)
b. MABAR; no data available (Hall, 1939c as *Helicopis endymion*)

Helicopis gnidus (Fabricius, 1787)
POT RI; November, 1993; SF (Prince *et al*., 2006)

28. *Hyphilaria* Hübner, [1819]
Hyphilaria anthias (Hewitson, 1874)
a. KAIET; 2001; SF (Kelloff, 2003)
b. KAIET; date of collection/observation not available; SF (Nakahara *et al*., 2014)
c. KAIET; no data available (Hall, 1939c as *Hyphilaria orsedice*)
d. KA GO B; date of collection/observation not available; SF (Nakahara *et al*., 2014)
e. RORAI; no data available (Hall, 1939c as *Hyphilaria orsedice*)

Hyphilaria nicia Hübner, [1819]
a. KAIET; 2001; SF (Kelloff, 2003)
b. KAM RI; no data available (Hall, 1939c as *Hyphilaria nicias*)

29. *Isapis* Doubleday, 1847
Isapis agyrtus (Cramer, 1777)
a. ANNAI; no data available (Hall, 1939c)
b. DEM RI; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)

30. *Ithomiola* Felder & Felder, 1865
Ithomiola floralis Felder & Felder, 1865
a. KUIEW; 2–25 April, 1999; SF, RH, WP & RW (Fratello, 1999a; Prince *et al*., 2006; in CSBD collection, UG)
b. MT AY E; 30 March–27 April, 1999; SF *et al*. (Fratello, 1999d)
c. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
d. KAIET; no data available (Hall, 1939c; Hall, 2003)
e. KAM RI; no data available (Hall, 1939c)
f. MT AYA; no data available (Hall, 2003)
g. TUMAT; no data available (Hall, 2003)

Ithomiola nepos (Fabricius, 1793)
KAIET; 2001; SF (Kelloff, 2003)

Ithomiola orpheus (Westwood, 1851)

BERBI; no data available (Hall, 1939c as *Napaea orpheus*)

31. *Juditha* Hemming, 1964

Juditha azan (Westwood, 1851)

a. KAIET; March, 1993; SF (in CSBD collection, UG as *Juditha lamis*)
b. KAIET; April and November, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
c. 2HTMB; 21–28 September, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)
d. ANNAI; no data available (Hall, 1939c as *Nymphidium lamis*)
e. BARTI; no data available (Hall & Harvey, 2001a)
f. CP JAG; no data available (Hall & Harvey, 2001a)
g. DEM RC; no data available (Hall & Harvey, 2001a)
h. KAM RI; no data available (Hall, 1939c as *Nymphidium lamis*)
i. KARTA; no data available (Hall & Harvey, 2001a)
j. MABUR; no data available (Hall & Harvey, 2001a)
k. NAP CK; no data available (Hall & Harvey, 2001a)
l. POT RI; no data available (Hall & Harvey, 2001a)
m. QUONG; no data available (Hall, 1939c as *Nymphidium lamis*)
n. TAK MT; no data available (Hall & Harvey, 2001a)
o. No data available (Hall & Harvey, 2001a)

Juditha molpe (Hübner, [1808])

a. TROP B; 31 January–12 February, 2001; SF *et al*. (in CSBD collection, UG)
b. IWOKR; 20–26 March, 2001; SF (Prince *et al*., 2006)
c. ANNAI; April, 2012; AZ [CBr] (Zheludev, 2013)
d. ANNAI; no data available (Hall & Harvey, 2001a)
e. KAM RI; no data available (Hall & Harvey, 2001a)
f. PARIK; no data available (Hall, 1939c as *Nymphidium molpe*)
g. QUONG; no data available (Hall & Harvey, 2001a)
h. RORAI; no data available (Hall & Harvey, 2001a)
i. No data available (Hall & Harvey, 2001a)

Juditha odites (Cramer, 1775)

a. ADEL R; 4 February, 2017; DG (Geale, 2017)
b. CP JAG; no data available (Hall & Harvey, 2001a)
c. DEMER; date of collection/observation not available; GR (Hall, 1939c as *Nymphidium phylleus*)
d. No data available (Hall & Harvey, 2001a)

32. *Lasaia* Bates, 1868

Lasaia agesilas (Latreille, [1809])

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

33. *Lemonias* Hübner, [1807]

Lemonias egaensis (Butler, 1867)

KAIET; 2001; SF (Kelloff, 2003)

Lemonias zygia Hübner, [1807]

a. FO SIP; 29 October–12 November, 2000; SF *et al*. (in CSBD collection, UG)
b. ACA MT; 29 December, 2000; SF (Prince *et al*., 2006)
c. KAIET; 2001; SF (Kelloff, 2003)
d. QUONG; no data available (Hall, 1939c as *Anatole zygia*)
e. UP COR; no data available (Hall, 1939c as *Anatole zygia*)

34. *Leucochimona* Stichel, 1909

Leucochimona hyphea (Cramer, 1776)

a. WINEP; February, 1971; QH (Emmel, 1972 as *Diophthalma hyphea*)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006 & in CSBD collection, UG as *Leucochimona hyphaea*)
c. KAIET; 2001; SF (Kelloff, 2003)
d. No data available (Hall, 1939c as *Diopthalma hyphaea*)

Leucochimona icare (Hübner, [1819])

a. MT ROR; no data available (Hall, 1939c as *Diopthalma philemon*)
b. ROCKS; no data available (Hall, 2003)

Leucochimon iphias Stichel, 1909

a. ANNAI; no data available (Hall, 1939c as *Diopthalma iphias*)
b. KAM RI; no data available (Hall, 1939c as *Diopthalma iphias*)
c. MT ROR; no data available (Hall, 1939c as *Diopthalma iphias*)

35. *Livendula* Hall, 2007

Livendula aristus (Stoll, [1790])

a. BARTI; no data available (Hall, 1939c as *Echenais aristus*)
b. KAIET; no data available (Hall, 1939c as *Echenais aristus*)
c. MABAR; no data available (Hall, 1939c as *Echenais aristus*)

Livendula huebneri (Butler, 1867)

a. KAIET; 2001; SF (Kelloff, 2003)
b. BARTI; no data available (Hall, 1939c as *Echenais hübneri*)
c. KAM RI; no data available (Hall, 1939c as *Echenais hübneri*)

Livendula leucocyana (Geyer, 1837)

a. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)
b. ANNAI; no data available (Hall, 1939c as *Echenais leucocyana*)

36. *Lyropteryx* Westwood, 1851

Lyropteryx terpsichore Westwood, 1851

SAV IR; November, 1993; SF (Fratello, 1993 and 1996a)

37. *Melanis* Hübner, [1819]

Melanis aegates (Hewitson, 1874)
ANNAI; April, 2012; AZ (Zheludev, 2013)

Melanis electron (Fabricius, 1793)
a. ANNAI; no data available (Hall, 1939c as *Lymnas ubia*)
b. QUONG; no data available (Hall, 1939c as *Lymnas jarbas* and *L. ubia*)

Melanis hillapana (Röber, 1904)
REWA; April, 2012; AZ (Zheludev, 2013)

Melanis melandra Hübner, [1819]
KAM RI; no data available (Hall, 1939c as *Lymnas melander*)

38. *Menander* Hemming, 1939
Menander coruscans (Buterl, 1867)
CUY RI; 29 November–6 December, 2000; SF *et al*. (Fratello, 2001a)

Menander hebrus (Cramer, 1775)
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. POT RI; no data available (Hall, 1939c as *Tharops hebrus*)

Menander menander (Stoll, 1780)
a. DEM RI; no data available (Hall, 1939c as *Tharops menander*)
b. POT RI; no data available (Hall, 1939c as *Tharops menander*)

39. *Mesene* Doubleday, 1847
Mesene bomilcar (Stoll, 1790)
BARTI; no data available (Hall, 1939c)

Mesene epaphus (Stoll, 1780)
a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
b. ATT JL; 11 February, 2017; DG (Geale, 2017)
c. ANNAI; no data available (Hall, 1939c as *Mesene epaphus* and *M. pyrrha*)

Mesene monostigma (Erichson, [1849])
No data available (Warren *et al*., 2013)

Mesene nola Herrich-Schäffer, [1853]
a. ANNAI; no data available (Hall, 1939c)
b. QUONG; no data available (Hall, 1939c)

Mesene phareus (Cramer, 1777)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. ACA MT; 4 October, 2000; SF (Prince *et al*., 2006)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

d. IWOKR; 10 February, 2017; DG (Geale, 2017)
e. ANNAI; no data available (Hall, 1939c)
f. BARTI; no data available (Hall, 1939c)
g. KAM RI; no data available (Hall, 1939c)
h. QUONG; no data available (Hall, 1939c)
i. UP COR; no data available (Hall, 1939c)
j. No data available (Beccaloni *et al*., 2008; Bourne, pers. obs.)

Mesene silaris Godman & Salvin, 1878
CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

40. *Mesosemia* Hübner, [1819]
Mesosemia araeostyla Stichel, 1915
No data available (Hall, 1939c; Warren *et al*., 2013)

Mesosemia cippus Hewitson, 1859
a. KAIET; 2001; SF (Kelloff, 2003)
b. ANNAI; no data available (Hall, 1939c as *Mesosemia sylvina*)
c. BARTI; no data available (Hall, 1939c)
d. DEMER; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. KAM RI; no data available (Hall, 1939c as *Mesosemia cippus* and *M. sylvina*)
g. MABAR; no data available (Hall, 1939c)

Mesosemia eumene (Cramer, 1776)
a. BARTI; no data available (Hall, 1939c)
b. DEMER; no data available (Hall, 1939c)
c. KAIET; no data available (Hall, 1939c)
d. KAM RI; no data available (Hall, 1939c)
e. MT ROR; no data available (Hall, 1939c)

Mesosemia gneris Westwood, 1851
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003 as *Mesosemia nina*; Kelloff, 2003)
b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003 as *Mesosemia nina*)
c. IWOKR; 8 February, 2017; DG (Geale, 2017)
d. KAM RI; no data available (Hall, 1939c as *Mesosemia nina*)

Mesosemia ibycus Hewitson, 1859
a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
c. BARTI; no data available (Hall, 1939c)
d. DEMER; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. KAM RI; no data available (Hall, 1939c)
g. MT ROR; no data available (Hall, 1939c)

h. PARIK; no data available (Hall, 1939c)
i. No data available (Kaye, 1940)

Mesosemia lacernata Stichel, 1909

SIP RV; 24 October–12 November, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)

Mesosemia machaera Hewitson, 1860

a. MT ROR; 25 October, 1973; MT (Prince *et al*., 2006)
b. KUIEW; 2–25 April, 1999; SF, RH, WP & RW (Prince *et al*., 2006; in CSBD collection, UG)
c. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
d. KAM RI; no data available (Hall, 1939c)
e. MABAR; no data available (Hall, 1939c)
f. MT ROR; no data available (Hall, 1939c)

Mesosemia magete Hewitson, 1860

a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. KAIET; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)
d. MT ROR; no data available (Hall, 1939c)

Mesosemia melaene Hewitson, 1859

a. KAM FB; 30 November–5 December, 2000; SF *et al*. (in CSBD collection, UG as *Mesosemia melaena*)
b. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
c. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
d. BARTI; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. KAM RI; no data available (Hall, 1939c as *Mesosemia pinguilenta*; Warren *et al*., 2013)

Mesosemia menoetes Hewitson, 1859

a. SURAM; April, 2012; AZ [CBr] (Zheludev, 2013)
b. ANNAI; no data available (Hall, 1939c)
c. MT ROR; no data available (Hall, 1939c)
d. QUONG; no data available (Hall, 1939c)

Mesosemia metope Hewitson, 1859

a. ANNAI; no data available (Hall, 1939c)
b. KAM RI; no data available (Hall, 1939c)
c. POT RI; no data available (Hall, 1939c)

Mesosemia naiadella Stichel, 1909

a. TAKUT; no data available (Hall, 1939c as *Mesosemia oreas*)
b. No data available (Warren *et al*., 2013)

Mesosemia nyctea (Hoffmannsegg, 1818)

a. KAIET; 2001; SF (Kelloff, 2003)
b. BERBI; no data available (Hall, 1939c as *Mesosemia coea*)
c. DEM RI; no data available (Hall, 1939c as *Mesosemia coea*)
d. MT ROR; no data available (Hall, 1939c as *Mesosemia coea*)
e. TAKUT; no data available (Hall, 1939c as *Mesosemia coea*)

Mesosemia nympharena Stichel, 1909

NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)

Mesosemia phace Godman, 1903

a. MT AY G; 30 March–27 April, 1999; RW (Fratello, 1999d)
b. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
c. DEM RI; no data available (Hall, 1939c)
d. KA GO B; date of collection/observation not available; SF (Fratello, 2004; Nakahara *et al*., 2014)
e. KAIET; date of collection/observation not available; SF (Fratello, 1999d; Nakahara *et al*., 2014)
f. MT AY E; date of collection/observation not available; RW (Fratello, 2004)
g. MT AY G; date of collection/observation not available; RH (Fratello, 2004)
h. MT ROR; no data available (Hall, 1939c; Warren *et al*., 2013)
i. QUONG; no data available (Hall, 1939c)

Mesosemia philocles (Linnaeus, 1758)

a. ANUND; January, 1928; GT (Huntington, 1933)
b. MAH CK; 22 November, 1992; SF (in CSBD collection, UG)
c. KAIET; April, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003)
e. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
f. IW CCK; 24–28 September, 2002; MG (Gillman, 2002)
g. IWOKR; 7 February, 2017; DG (Geale, 2017)
h. DEM RI; no data available (Hall, 1939c)
i. KAIET; no data available (Hall, 1939c)
j. MABAR; no data available (Hall, 1939c)
k. MT ROR; no data available (Hall, 1939c)
l. QUONG; no data available (Hall, 1939c)

Mesosemia sirenia Stichel, 1909

TAKUT; no data available (Hall, 1939c)

Mesosemia steli Hewitson, 1858

ANNAI; no data available (Hall, 1939c)

Mesosemia thymetus (Cramer, 1777)

a. REWA; April, 2012; AZ [CBr] (Zheludev, 2013)
b. ANNAI; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)

Mesosemia ulrica (Cramer, 1777)
KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)

41. *Metacharis* Butler, 1867
Metacharis lucius (Fabricius, 1793)
a. 2HTMD; 23–28 September, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)
b. ANNAI; no data available (Hall, 1939c)
c. DEM RI; no data available (Hall, 1939c)
d. KAM RI; no data available (Hall, 1939c)
e. MABAR; no data available (Hall, 1939c)

42. *Napaea* Hübner, [1819]
Napaea actoris (Cramer, 1776)
a. WINEP; February, 1971; QH (Emmel, 1972 as *Crema actoris*)
b. KAIET; 2001; SF (Kelloff, 2003)
c. KAM RI; no data available (Hall, 1939c as *Cremna actoris*)
d. MT ROR; no data available (Hall, 1939c as *Cremna actoris*)
e. QUONG; no data available (Hall, 1939c as *Cremna actoris*)

Napaea beltiana (Bates, 1867)
DEMER; no data available (Hall, 1939c)

Napaea eucharila (Bates, 1867)
a. DEMER; no data available (Hall, 1939c)
b. KAM RI; no data available (Hall, 1939c)

Napaea fratelloi Hall & Harvey, 2005
a. KA GO C; date of collection/observation not available; SF (Nakahara *et al*., 2014)
b. KAIET; date of collection/observation not available; SF (Nakahara *et al*., 2014)
c. MT AY F; no data available (Costa *et al*., 2013; Warren *et al*., 2013)

Napaea heteroea (Bates, 1867)
KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006 & in CSBD collection, UG as *Cremna heteroea*)

Napaea sylva (Möschler, 1877)
POT RI; date of collection/observation not available; WK (Hall, 1939c as *Napea sylva*)

43. *Notheme* Westwood, 1851
Notheme erota (Cramer, 1780)

OMAI; no data available (Hall, 1939c as *Notheme eumeus*)

44. *Nymphidium* Fabricius, 1807

Nymphidium acherois (Boisduval, 1836)

a. KAIET; 2001; SF (Kelloff, 2003)
b. IW CCK; 19, 20 & 26 September, 2002; MG (Gillman, 2002)
c. ANNAI; no data available (Hall, 1939c)
d. BARTI; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. KAM RI; no data available (Hall, 1939c)
g. TAKUT; no data available (Hall, 1939c)

Nymphidium aurum Callaghan, 1985

TUR MT; 20–26 March, 2001; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)

Nymphidium azanoides Butler, 1867

a. WINEP; February, 1971; QH (Emmel, 1972)
b. ARROW; April, 2012; AZ (Zheludev, 2013)
c. ANNAI; no data available (Hall, 1939c)
d. KAIET; no data available (Hall, 1939c)
e. KAM RI; no data available (Hall, 1939c)

Nymphidium baeotia Hewitson, [1853]

a. ANUND; January, 1928; GT (Huntington, 1933)
b. TUKEI; January, 1928; GT (Huntington, 1933)
c. TROP B; 31 January–12 February, 2001; SF *et al*. (in CSBD collection, UG as *Nymphidium minuta*)
d. KAIET; 2001; SF (Kelloff, 2003)
e. REWA; April, 2012; AZ (Zheludev, 2013)
f. ANNAI; no data available (Hall, 1939c)
g. DEMER; no data available (Hall, 1939c)
h. KAIET; no data available (Hall, 1939c)
i. KAM RI; no data available (Hall, 1939c)
j. MABAR; no data available (Hall, 1939c)
k. PARIK; date of collection/observation not available; AH (Hall, 1939c; Hall, 1939d as *Nymphidium minuta*)
l. TIMEH; no data available (Hall *et al*., 2004)

Nymphidium cachrus (Fabricius, 1787)

a. ANUND; January, 1928; GT (Huntington, 1933)
b. TIMEH; 9 August, 1972; MT (Prince *et al*., 2006)
c. MT ROR; 23 October, 1972; MT (Prince *et al*., 2006)
d. KAIET; March, 1993; SF (Kelloff, 2003; Prince *et al*., 2006)
e. ENA CK; October, 1993; SF (Prince *et al*., 2006)

f. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
g. TIMEH; date of collection/observation not available; JMa (Hall *et al*., 2004)
h. No data available (Hall, 1939c; Beccaloni *et al*., 2008)

Nymphidium caricae (Linnaeus, 1758)
a. BIR CK; 9 October, 1991; SF (Prince *et al*., 2006; in CSBD collection, UG)
b. POT RI; November, 1993; SF (Prince *et al*., 2006)
c. KAIET; 2001; SF (Kelloff, 2003)
d. IW CCK; 2 October, 2002; MG (Gillman, 2002)
e. SURAM; April, 2012; AZ (Zheludev, 2013)
f. IWOKR; 6 February, 2017; DG (Geale, 2017)
g. No data available (Hall, 1939c)

Nymphidium derufata Callaghan, 1985
a. KAIET; 19 November, 1992; SF (Kelloff, 2003; Prince *et al*., 2006; in CSBD collection, UG)
b. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)

Nymphidium fulminans Bates, 1868
No data available (Hall, 1939c)

Nymphidium lisimon (Stoll, 1790)
a. ENA CK; October, 1993; SF (Prince *et al*., 2006)
b. SUR CK; November, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. KA MT B; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
d. KAIET; 2001; SF (Kelloff, 2003)
e. BARTI; no data available (Hall, 1939c)
f. KAIET; no data available (Hall, 1939c)
g. MABAR; no data available (Hall, 1939c)

Nymphidium mantus (Cramer, 1775)
a. NAP CK; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
c. HALCO; 2006; collector/observer name/names not available (EMC, 2006)
d. REWA; April, 2012; AZ (Zheludev, 2013)
e. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
f. IWOKR; 8 February, 2017; DG (Geale, 2017)
g. ANNAI; no data available (Hall, 1939c)
h. KAM RI; no data available (Hall, 1939c)
i. QUONG; no data available (Hall, 1939c)
j. No data available (Warren *et al*., 2013)

Nymphidium menalcus (Stoll, 1782)

a. WINEP; February, 1971; QH (Emmel, 1972)
b. 2HTMB; 21–28 September, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)
c. KAIET; 2001; SF (Kelloff, 2003)
d. KAIET; no data available (Hall, 1939c)
e. MABAR; no data available (Hall, 1939c)

Nymphidium onaeum Hewitson, 1869

CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

45. *Ourocnemis* Bethune-Baker, 1887

Ourocnemis axiochus (Hewitson, 1867)

KING F; date of collection/observation not available; GH (Hall, 1939c)

46. *Pachythone* Bates, 1868

Pachythone lateritia Bates, 1868

ANNAI; no data available (Hall, 1939c)

Pachythone thaumaria Stichel, 1911

No data available (Warren *et al*., 2013)

47. *Panara* Doubleday, 1847

Panara phereclus (Linnaeus, 1758)

a. ANNAI; no data available (Hall, 1939c)
b. MT ROR; no data available (Hall, 1939c)
c. QUONG; no data available (Hall, 1939c)

48. *Panaropsis* Hall, 2002

Panaropsis thyatira (Hewitson, [1853])

QUONG; no data available (Hall, 1939c as *Lymnas thyatira*)

49. *Pandemos* Hübner, [1819]

Pandemos pasiphae (Cramer, 1775)

a. ANNAI; no data available (Hall, 1939c)
b. DEMER; date of collection/observation not available; GR (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)
d. POT RI; no data available (Hall, 1939c)

50. *Perophthalma* Westwood, 1851

Perophthalma tullius (Fabricius, 1787)

a. KUIEW; 2–25 April, 1999; SF, RH, WP & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. KAIET; no data available (Hall, 1939c as *Peropthalma tullius*)
d. PARIK; no data available (Hall, 1939c as *Peropthalma tullius*)

51. *Phaenochitonia* Stichel, 1910

Phaenochitonia cingulus (Stoll, 1790)

a. ANNAI; no data available (Hall, 1939c as *Phaenochitonia aerope*)
b. KAM RI; no data available (Hall, 1939c)

Phaenochitonia pyrsodes (Bates, 1868)

KAMAK; no data available (Hall, 1939c)

52. *Pheles* Herrich-Schäffer, [1853]

Pheles heliconides Herrich-Schäffer, [1853]

a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. KAI GO/KA GO B/KA GO C; date of collection/observation not available; SF (Fratello, 2007)
c. KAM RI; no data available (Hall, 1939c)

53. *Pirascca* Hall & Willmott, 1996

Pirascca crocostigma (Bates, 1868)

TUR MT; 20–26 March, 2001; SF (Fratello, 2003)

Pirascca sagaris (Cramer, 1775)

a. KA MT A; 21 February–10 March, 1999; SF, RH, SH & RW (Prince *et al*., 2006; in CSBD collection, UG)
b. MT ROR; no data available (Hall, 1939c as *Phaenochitonia sagaris*)
c. POT RI; no data available (Hall, 1939c as *Phaenochitonia sagaris*)

54. *Protonymphidia* Hall, 2000

Protonymphidia senta (Hewitson, 1853)

KAM RI; April, 1993; SF (Prince *et al*., 2006)

55. *Rhetus* Swainson, [1829]

Rhetus arcius (Linnaeus, 1763)

KAIET; no data available (Hall, 1939c as *Diorhina arcius*)

Rhetus periander (Cramer, 1777)

a. KAIET; April, 1993; SF (Prince *et al*., 2006; in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. IW CCK; 20 & 26 September, 2002; MG (Gillman, 2002)
d. ANNAI; no data available (Hall, 1939c as *Diorhina periander*)
e. KAM RI; no data available (Hall, 1939c as *Diorhina periander*)
f. MT ROR; no data available (Hall, 1939c as *Diorhina periander*)
g. No data available [CBr] (in CSBD collection, UG)

56. *Riodina* Westwood, 1851

Riodina lysippus (Linnaeus, 1758)

a. SIP RV; 24 October–12 November, 2000; SF *et al*. (Fratello, 2003; Prince *et al*., 2006; in CSBD collection, UG)
b. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
c. REWA; April, 2012; AZ (Zheludev, 2013)
d. ANNAI; no data available (Hall, 1939c)
e. KAIET; no data available (Hall, 1939c)
f. MT ROR; no data available (Hall, 1939c)
g. TAKUT; no data available (Hall, 1939c)

57. *Sarota* Westwood, 1851

Sarota acanthoides (Herrich-Schäffer, [1853])
a. KAM RI; no data available (Hall, 1939c)
b. POT RI; no data available (Hall, 1998)

Sarota acantus (Stoll, 1781)
a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. SURAM; 13 February, 2017; DG (Geale, 2017)

Sarota chrysus (Stoll, 1781)
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. KAM RI; no data available (Hall, 1939c)

Sarota gyas (Cramer, 1775)
a. BARTI; no data available (Hall, 1998; Warren *et al*., 2013)
b. KAIET; no data available (Hall, 1939c)
c. KUTAR; no data available (Hall, 1939c)

58. *Semomesia* Westwood, 1851

Semomesia capanea (Cramer, 1779)
a. TROP B; 31 January–12 February, 2001; SF *et al*. (Fratello, 2003; in CSBD collection, UG)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. DEM RI; no data available (Hall, 1939c as *Mesosemia capaneus*)
d. GAR BG; no data available (Hall, 1939c as *Mesosemia capaneus*)
e. KAM RI; no data available (Hall, 1939c as *Mesosemia capaneus*)
f. KUTAR; no data available (Hall, 1939c as *Mesosemia capaneus*)

Semomesia croesus (Fabricius, 1777)
WINEP; February, 1971; QH (Emmel, 1972 as *Mesosemia croesus*)

59. *Setabis* Westwood, 1851

Setabis disparilis (Bates, 1868)
MT ROR; no data available (Hall, 1939c as *Aricoris salvini*)

Setabis epitus (Cramer, 1780)
a. COVER; March, 1939; AH (Hall, 1939d as *Aricoris epitus*)

b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
c. IW CCK; 27 September, 2002; MG (Gillman, 2002)

Setabis lagus (Cramer, 1777)
a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
b. TUR MT; 9 February, 2017; DG (Geale, 2017)
c. BARTI; no data available (Hall, 1939c as *Aricoris lagus*)
d. DEMER; no data available (Hall, 1939c as *Aricoris lagus*)
e. KAM RI; no data available (Hall, 1939c as *Aricoris lagus*)
f. MT ROR; no data available (Hall, 1939c as *Aricoris lagus*)
g. QUONG; no data available (Hall, 1939c as *Aricoris lagus*)

60. *Stalachtis* Hübner, 1818
Stalachtis calliope (Linnaeus, 1758)
a. POT RI; 26 March, 1905; CR (Kaye, 1907)
b. KAN MT; 20 February–10 March, 1999; RH (Fratello, 1999b and 1999d)
c. KAN MT; 21–28 September, 2000; SF (Prince *et al*., 2006)
d. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
e. TUR MT; 20–26 March, 2001; SF (Prince *et al*., 2006)
f. IW CCK; September–October, 2002; MG (Gillman, 2002)
g. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
h. BURRO; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
k. SS CON; 17 October–1 November, 2011 and 31 January–19 February, 2012; CC & HS (EMC, 2013)
l. REWA; April, 2012; AZ (Zheludev, 2013)
m. IWOKR; 10 February, 2017; DG (Geale, 2017)
n. ANNAI; no data available (Hall, 1939c)
o. KUTAR; no data available (Hall, 1939c)

Stalachtis euterpe (Linnaeus, 1758)
a. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
b. TUR MT; 20–26 March, 2001; SF *et al*. (Fratello, 2003; Prince *et al*., 2006; in CSBD collection, UG)
c. IW CCK; 16 September, 2002; MG (Gillman, 2002)
d. KWATA; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
e. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
f. TUR MT; 9 February, 2017; DG (Geale, 2017)
g. ANNAI; no data available (Hall, 1939c)
h. KAMAK; no data available (Hall, 1939c)
i. KUTAR; no data available (Hall, 1939c)

Stalachtis halloweeni Hall, 2006
a. MT AY C; 13–18 April, 1999; SF (Hall, 2006)
b. MT AY F; 12–16 October, 2002; RW (Hall, 2006; Costa *et al*., 2013)

Stalachtis phaedusa (Hübner, [1813])

a. WINEP; February, 1971; QH (Emmel, 1972)
b. ENA CK; 15 October, 1992; SF (Prince *et al*., 2006)
c. KAM RI; April, 1993; SF (Prince *et al*., 2006)
d. FO SIP; 29 October–12 November, 2000; SF *et al*. (in CSBD collection, UG)
e. KAIET; 3–12 March, 2001; SF (Fratello, 2003; Kelloff, 2003)
f. ACA MT; 29 December, 2001; SF (Prince *et al*., 2006)
g. OREAL; 1 January, 2009; JU & TI (Uehara & Inoue, 2014)
h. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
i. TUR MT; 2006–2009; DBPT (Darwin Butterfly Project, 2010)
j. BARTI; no data available (Hall, 1939c as *Stalachtis zephyritis*)
k. KAM RI; no data available (Hall, 1939c as *Stalachtis zephyritis*)
l. KAMAK; no data available (Hall, 1939c as *Stalachtis zephyritis*)
m. KUTAR; no data available (Hall, 1939c)
n. POT RD; no data available (Hall, 1939c)
o. No data available (Kaye, 1908b; Hall, 1939c as *Stalachtis duvali*)

Stalachtis phlegia (Cramer, 1779)

a. TIMEH; 12 August, 1973; MT (Prince *et al*., 2006)
b. TIMEH; 3 August, 1976; MT (Prince *et al*., 2006)
c. FAI VI; 2006–2009; DBPT (Darwin Butterfly Project, 2010)

61. *Symmachia* Hübner, [1819]

Symmachia accusatrix Westwood, 1851

BRA GY; date of collection/observation not available; MB (Hall, 1939d)

Symmachia estellina Gallard, 2008

ACB MT; 6–9 November, 2000; SF *et al*. [CBr] (Prince *et al*., 2006; in CSBD collection, UG)

Symmachia hippea Herrich-Schäffer, [1853]

a. KURUP; 26–29 December, 2008; JU & TI (Uehara & Inoue, 2014)
b. IWOKR; 7 February, 2017; DG (Geale, 2017)
c. DEM RI; no data available (Hall, 1939c as *Cricosoma hippea*)
d. KAIET; no data available (Hall, 1939c as *Cricosoma hippea*)
e. KAM RI; no data available (Hall, 1939c as *Cricosoma hippea*)
f. POT RD; no data available (Hall, 1939c as *Cricosoma hippea*)

Symmachia probetor (Stoll, 1782)

a. KAN MT; 21 February–10 March, 1999; SF (Prince *et al*., 2006)
b. IWO MT; 27 March–2 April, 2001; SF (Fratello, 2003)
c. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)

62. *Synargis* Hübner, [1819]

Synargis abaris (Cramer, 1776)

a. TROP A; 31 Janaury–12 February, 2001; SF *et al*. (Fratello, 2003)
b. KAIET; 2001; SF (Kelloff, 2003)
c. DEMER; no data available (Hall, 1939c as *Nymphidium abaris*)
d. KAM RI; no data available (Hall, 1939c as *Nymphidium abaris*)
e. POT RI; no data available (Hall, 1939c as *Nymphidium abaris*)
f. TAKUT; no data available (Hall, 1939c as *Nymphidium abaris*)

Synargis calyce (Felder & Felder, 1862)
POT RI; no data available (Hall, 1939c as *Nymphidium calyce*)

Synargis galena (Bates, 1868)
a. IRG GF; November, 1993; SF (Fratello, 1996b as *Thysanota galena*)
b. SURAM; 11 February, 2017; DG (Geale, 2017)

Synargis gela (Hewitson, [1853])
KAM RI; no data available (Hall, 1939c as *Nymphidium gela*)

Synargis pittheus (Hoffmannsegg, 1818)
DEMER; no data available (Hall, 1939c as *Nymphidium pelops*)

Synargis orestessa Hübner, [1819]
a. TROP A; 31 Janaury–12 February, 2001; SF *et al*. (Fratello, 2003)
b. TUR MT; 20–26 March, 2001; SF (Prince *et al*., 2006; in CSBD collection, UG)
c. DEM RI; no data available (Hall, 1939c as *Nymphidium orestes*)
d. KAM RI; no data available (Hall, 1939c as *Nymphidium orestes*)
e. MABAR; no data available (Hall, 1939c as *Nymphidium orestes*)
f. POT RI; no data available (Hall, 1939c as *Nymphidium orestes*)

Synargis regulus (Fabricius, 1793)
ANNAI; no data available (Hall, 1939c as *Nymphidium regulus*)

Synargis soranus (Stoll, 1781)
a. ACA MT; 31 October–12 November, 2000; SF (Prince *et al*., 2006)
b. TROP B; 31 January–12 February, 2001; SF *et al*. (in CSBD collection, UG)

Synargis tytia (Cramer, 1777)
a. ANNAI; April, 2012; AZ (Zheludev, 2013)
b. DEM RI; date of collection/observation not available; GR (Hall, 1939c as *Nymphidium tytia*)

63. *Syrmatia* Hübner, [1819]
Syrmatia nyx (Hübner, [1817])
ANNAI; no data available (Hall, 1939c as *Syrmatia dorilas*)

64. *Themone* Westwood, 1851
Themone pais (Hübner, [1820])

a. KAN MT; 18 December, 1935; JM (Hall, 1939c)
b. RO CON; 5–14 June and 21–31 October, 2009; MK (GSEC, 2010)
c. ANNAI; no data available (Hall, 1939c)
d. KA MT B; no data available (Hall, 1939c)
e. MT ROR; no data available (Hall, 1939c)

Themone poecila Bates, 1868
OR NRI; date of collection/observation not available; MB (Hall, 1939d)

65. *Theope* Doubleday, 1847
Theope brevignoni Hall & Willmott, 1996c
ANNAI; no data available (Hall & Willmott, 1996c)

Theope christiani Hall & Willmott, 1999
No data available (Warren *et al*., 2013)

Theope comosa Stichel, 1911
TUMAT; date of collection/observation not available; WK (Hall, 1939c)

Theope eudocia Westwood, 1851
a. CEIBA; 2004–2015; GB (Bourne, unpubl. data, pers. comm.)
b. ANNAI; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)
d. QUONG; no data available (Hall, 1939c)

Theope foliorum Bates, 1868
POT RI; date of collection/observation not available; WK (Hall, 1939c)

Theope leucanthe Bates, 1868
MARLI; no data available (Hall, 1939d)

Theope lycaenina Bates, 1868
a. TUR MT; 20–26 March, 2001; SF (Fratello, 2003)
b. ANNAI; no data available (Hall, 1939c)
c. KAM RI; no data available (Hall, 1939c)

Theope nycteis (Westwood, 1851)
KAIET; 2001; SF (Kelloff, 2003)

Theope pedias Herrich-Schäffer, [1853]
KAM RI; no data available (Hall, 1939c as *Theope hypoxantha*)

Theope philotes (Westwood, 1851)
a. ANNAI; no data available (Hall, 1939c as *Parnes philotes*)
b. KAM RI; no data available (Hall, 1939c as *Parnes philotes*)
c. MT ROR; no data available (Hall, 1939c as *Parnes philotes*)

d. QUONG; no data available (Hall, 1939c as *Parnes philotes*)

Theope sericea Bates, 1868

a. ANNAI; no data available (Hall, 1939c)
b. BARTI; no data available (NHMUK, 2014)
c. KAM RI; no data available (Hall, 1939c)

Theope thestias Hewitson, 1860

POT RI; date of collection/observation not available; CR (Hall, 1939c)

Theope thootes Hewitson, 1860

PARIK; no data available (Hall, 1939d)

66. *Thisbe* Hübner, [1819]

Thisbe irenea (Stoll, 1780)

a. SIP RV; 24 October–12 November, 2000; SF *et al*. (Prince *et al*., 2006; in CSBD collection, UG)
b. KAIET; 2001; SF (Kelloff, 2003)
c. ANNAI; no data available (Hall, 1939c as *Thisbe irenaea*)
d. MT ROR; no data available (Hall, 1939c as *Thisbe irenaea*)
e. QUONG; no data available (Hall, 1939c as *Thisbe irenaea*)
f. No data available (Penz & DeVries, 2001)

Thisbe molela (Hewitson, 1865)

No data available (Penz & DeVries, 2001)

67. *Xynias* Hewitson, 1874

Xynias lithosina (Bates, 1868)

a. TUMAT; July, 1907; CR (Kaye, 1919 as *Xynias potaronus*)
b. TIG CK; no data available (Warren *et al*., 2013)

68. *Zelotaea* Bates, 1868

Zelotaea phasma Bates, 1868

REWA; April, 2012; AZ (Zheludev, 2013)

2.5 Discussion

Even though the checklist was generated from work that covered the four natural regions as well as the ten administrative regions of Guyana, there is still room for additional research on species biology, behavioural ecology, seasonal and altitudinal variations and distributions, impacts of different land management practices, etc. Additionally, there has not been extensive work on butterflies within various habitat types in sampled regions (e.g., mangrove forests along the coastal belt). This checklist is therefore not conclusive.

There are records of butterflies that were collected in close proximity to Guyana's borders, as well as suggestions from the literature that species ranging throughout the Guianas would likely occur in Guyana (Neild 1996, Willmott 2003, Neild 2008). However, as there are no known collection records from Guyana for some of the species that occur in neighbouring countries, these have been listed in Table 2.4 (where identified by literature) and require investigation. This table is by no means a complete representation of all potential missing species from Guyana. While the species number of this list amounts to 1,205 in total, estimates of total butterfly numbers in neighbouring countries amount to more; for example, total species number ranges between 1,325 (Gernaat et al. 2012) to 1,500 (Briggs 2015) in Suriname. Additionally, experts from some neighbouring countries have identified much higher numbers of species from particular groups as points of comparison to what has been included/identified in this list (e.g., 237 and 127 Theclinae species in French Guiana (Faynel 2010) and Trinidad (Cock and Robbins 2016), respectively; whereas, this list has identified 107 species). It should be considered, however, that certain groups of butterflies might just not be as diverse as in neighbouring countries (e.g., Comstock 1914 reported seeing fewer butterflies in Guyana than in Trinidad within a shorter period of time). Further investigation is required to determine if the country differences in butterfly diversity is a case of limited research efforts or comparatively lower species diversity.

This checklist is the most up-to-date and comprehensive compilation of butterfly species records from Guyana, originating from various organisations/institutions and individuals both in and out of Guyana. It is hoped that it will serve as a base for adding other historical records (that were inadvertently omitted) as well as future records stemming from more extensive research efforts on Guyana's butterfly diversity.

Table 2.4. List of butterfly species that potentially occur in Guyana, based on their occurrence in neighbouring countries.

Family	**Subfamily**	**Genus**	**Species**	**Comments**
Hesperiidae	Eudaminae	*Astraptes* Hübner, [1819]	*aulestis* Stoll, 1780	Cock (1988) mentioned that this species occurs in the Guianas.
		Dyscophellus Godman & Salvin, 1893	*sebaldus* (Stoll, 1781)	de Jong (1983) mentioned that this species occurs in Sipaliwini, Suriname, which is near the south-eastern border of Guyana.
		Salatis Evans, 1952	*fulvius* (Plötz, 1882)	de Jong (1983) mentioned that this species occurs in Wonotobo, Suriname, which is near the eastern border of Guyana.
	Hesperiinae	*Eutocus* Godman, 1901	*paulo* Bell, 1932	Evans (1955) mentioned that this species occurs in Paulo, Brazil, near Mt. Roraima.
		Penicula Evans, 1955	*advena* (Draudt, 1923)	Evans (1955 as *Penicula criska*) mentioned that this species occurs in Boa Vista, Tapajos, Brazil, which is close to Guyana's southern border.
		Vehilius Godman, 1900	*seriatus* (Mabille, 1891)	de Jong (1983) mentioned that this

				species occurs in Coeroeni Eiland, Suriname, which is near the eastern border of Guyana.
		Vettius Godman, 1901	*fuldai* (Bell, 1930)	de Jong (1983) mentioned that this species (listed as *Vettius yalta*) occurs in Coeroeni Eiland, Suriname, which is near the eastern border of Guyana.
	Pyrginae	*Cycloglypha* Mabille, 1903	*caeruleonigra* Mabille, 1903	de Jong (1983) mentioned that this species occurs in Sipaliwini, Suriname, which is near the south-eastern border of Guyana.
		Gorgythion Godman & Salvin, 1896	*plautia* (Möschler, 1877)	Cock (1996) mentioned that the range of this species includes the Guianas.
		Nascus Watson, 1893	*broteas* (Cramer, 1780)	Cock (1990) mentioned that this species occurs in the Guianas.
		Pyrrhopyge Hübner, [1819]	*creusae* (Bell, 1931)	de Jong (1983) mentioned that this species occurs in Sipaliwini, Suriname, which is near the south-eastern border of Guyana.
		Pythonides Hübner, [1819]	*limaea* (Hewitson, 1868)	Cock (1996) mentioned that the range of this species includes the Guianas.
Nymphalidae	Biblidinae	*Antigonis* Hübner, [1819]	*pharsalia* (Hewitson, 1852)	Neild (1996) mentioned that the

				range of this species includes the Guianas.
		Callicore Hübner, [1819]	*cyllene* (Doubleday, [1847])	Neild (1996) mentioned that this species occurs in northern South America.
			pygas Brévignon, 1995	Attal (pers. comm.) mentioned that this species, which is present in French Guiana, potentially occurs in Guyana.
			texa (Hewitson, [1855])	Neild (1996) and Attal (pers. comm.) mentioned that this species occurs in northern South America.
		Eunica Hübner, [1819]	*mygdonia* (Godart, [1824])	Jenkins (1990) included the Guianas in this species' distribution. Neild (1996) also mentioned that the range of this species includes tropical South America.
			tatila (Herrich-Schäffer, [1855])	Neild (1996) mentioned that this species occurs in tropical South America.
		Mestra Hübner, [1825]	*hypermestra* Hübner, [1825]	Neild (1996) mentioned that this species occurs on the neotropical mainland of South America.
		Pyrrhogyra Hübner, [1819]	*amphiro* Bates, 1865	Neild (1996) mentioned that this species occurs in the Guianas.
	Charaxinae	*Memphis* Hübner, [1819]	*glaucone* (Felder & Felder, 1862)	Neild (1996) mentioned that this

				species occurs in the Guianas.
			halli (Fabricius, 1775)	Neild (1996) mentioned that this species occurs in the Guianas.
			paulus Orellana & Costa, 2014	Costa *et al*. (2014) mentioned that this species occurs in the Sierra de Lema, in the Bolivar state of Venezuela, which borders with western Guyana.
			oenomais (Boisduval, 1870)	Neild (1996) mentioned that this species occurs on the mainland neotropical region of South America.
			viloriae Pyrcz & Neild, 1996	Neild (1996) mentioned this species is possibly endemic to the Guiana Shield and is known only from the eastern Bolivar state of Venezuela, which borders with Guyana.
			xenocles (Westwood, 1850)	Neild (1996) mentioned that the range of this species includes the northern neotropical mainland of South America.
		Polygrapha Staudinger, [1887]	*xenocrates* (Westwood, 1850)	Neild (1996) mentioned that this species occurs in the Guianas.
		Prepona Boisduval, 1836	*eugenes* Bates, 1865	Neild (1996) mentioned that this species occurs in tropical South America.

			philipponi Le Moult, 1932	Neild (1996) mentioned that the range of this species includes the Guianas.
			pseudomphale Le Moult, 1932	Neild (1996) mentioned that the range of this species includes the Guianas.
	Cyrestinae	*Marpesia* Hübner, 1818	*crethon* (Fabricius, 1776)	Neild (1996) mentioned this the range of this species includes the Guianas.
	Danainae	*Danaus* Kluk, 1780	*gilippus* (Cramer, 1775)	Neild (pers. comm.) mentioned that this species occurs in Venezuela, in close proximity to the Guyana border.
		Dircenna Doubleday, 1847	*dero* (Hübner, 1823)	Neild (2008) mentioned that this species occurs in tropical South America.
		Episcada Godman & Salvin, 1879	*hymenaea* (Prittwitz, 1865)	Neild (2008) mentioned that the range of this species includes the Guianas.
			polita Weymer, 1899	Neild (2008) mentioned that this species occurs in the Guianan highlands.
		Melinaea Hübner, 1816	*maenius* (Hewitson, 1860)	Neild (2008) mentioned that this species occurs in the Guianas.
		Oleria Hübner, 1816	*flora* (Cramer, 1779)	Neild (2008) mentioned that this species occurs in the Guianas.
		Pteronymia Butler & Druce,	*alicia* Neild, 2008	Neild (2008) suggested that this

		1872		species might occur in western Guyana as there are records from Sierra de Lema in eastern Venezuela, which borders with western Guyana.
	Heliconiinae	*Actinote* Hübner, [1819]	*genitrix* D"Almeida, 1922	Neild (2008) mentioned that this species occurs in Sierra de Lema, which is the south-eastern border of Venezuela with Guyana.
		Eueides Hübner, 1816	*procula* Doubleday, [1847]	Brown Jr. & Yépez, (1984) and Neild (2008) mentioned that this species occurs in Sierra de Lema in the Bolivar state of Venezuela, which borders with western Guyana.
		Heliconius Kluk, 1780	*leucadia* Bates, 1862	Brown Jr. & Yépez, (1984) showed that this species occurs in Sierra de Lema in the Bolivar state of Venezuela, which borders with western Guyana.
	Limenitidinae	*Adelpha* Hübner, [1819]	*celerio* (Bates, 1864)	Neild (1996) mentioned that this species occurs in tropical South America.
			ethelda (Hewitson, 1867)	Willmott (2003) mentioned that there is a single disjunct subspecies in the Guianan highlands from Venezuela to French Guiana.

			heraclea (Felder & Felder, 1867)	Willmott (2003) suggested that the subspecies *A. h. heraclea* (Felder & Felder, 1867) possibly occurs in the Guianas.
			juruana (Butler, 1877)	Neild (1996) mentioned that this species occurs in the Guianas.
			lerna (Hewitson, 1847)	Neild (1996) mentioned that this species occurs in the Guianas.
			lycorias (Godart, [1824])	Neild (1996) mentioned that this species occurs on the neotropical mainland of South America.
			malea (Felder & Felder, 1861)	Neild (1996) and Willmott (2003) mentioned that this species is found in the Guianas.
			pseudococala Hall, 1933	Neild (1996) mentioned that this species occurs in the Guianas.
			radiata (Fruhstorfer, 1915)	Willmott (2003) suggested that the subspecies *A. r. gilletella* Brevignon, 1995 probably extends throughout the Guianas to northern Brazil.
			thoasa (Hewitson, 1850)	Willmott (2003) mentioned that the range of this species includes the Guianas.
	Nymphalinae	*Baeotus* Hemming, 1939	*amazonicus* (Riley, 1919)	Neild (1996) mentioned that the

				range of this species includes the Guianas.
			deucalion (Felder & Felder, 1860)	Neild (1996) mentioned that this species occurs in the Guianas.
		Castilia Higgins, 1981	*ofella* (Hewitson, [1864])	Neild (2008) mentioned that this species likely occurs in western Guyana.
		Eresia Boisduval, 1836	*carme* Doubleday, [1847]	Neild (2008) and Costa *et al.* (2013) mentioned that the subspecies *E. c. judithae* Neild 2008 occurs in Sierra de Lema, in the eastern Bolivar state of Venezuela, which borders with western Guyana.
		Hypanartia Hübner, [1821]	*lethe* (Fabricius, 1793)	Neild (2008) mentioned that the subspecies *H. l. rosamariae* Neild 2008 possibly occurs throughout the Guiana shield, including western Guyana.
		Metamorpha Hübner, [1819])	*elissa* Hübner, [1819]	Neild (2008) mentioned that the range of this species includes the Guianas.
		Napeocles Bates, 1864	*jucunda* (Hübner, [1808])	Neild (2008) mentioned that the range of this species includes the Guianas.
		Siproeta Hübner, [1823]	*epaphus* (Latreille, [1813])	Neild (2008) mentioned that this species likely occurs in Guyana as

				there are records of its presence just a few kilometres to the west of the Guyana-Venezuela border.
		Smyrna Hübner, [1823]	*blomfildia* (Fabricius, 1781)	Neild (1996) mentioned that this species is widespread throughout South America.
		Tegosa Higgins, 1981	*anieta* (Hewitson, 1864)	Neild (2008) mentioned that this species likely occurs in Guyana.
			claudina (Eschscholtz, 1821)	Neild (2008) mentioned that this species occurs in the Guianas.
	Satyrinae	*Eretris* Thieme, 1905	*agata* Pyrcz & Fratello, 2005	Neild (pers. comm.) mentioned that this species occurs in Sierra de Lema in the Bolivar state of Venezuela, which borders with western Guyana.
		Forsterinaria Gray, 1973	*hannieri* Zubek & Pyrcz, 2011	Neild (pers. comm.) mentioned that this species occurs in Sierra de Lema in the Bolivar state of Venezuela, which borders with western Guyana.
		Protopedaliodes Viloria & Pyrcz, 1994	*ridouti* Viloria & Pyrcz, 2000	Neild (pers. comm.) mentioned that this species occurs on the summit of Mt. Roraima on the Venezuelan side and is likely to occur on Guyana's side as well.
		Taygetina	*banghaasi* (Weymer,	Neild (pers. comm.)

		Forster, 1964	1910)	mentioned that this species occurs in Sierra de Lema, in the Bolivar state of Venezuela, which borders with western Guyana.
Pieridae	Coliadinae	*Phoebis* Hübner, [1819]	*neocypris* (Butler, 1870)	Brown (1932) reported that this species occurs at Arabapu, Mt. Roraima (Brazil), which is in close proximity of the Brazil-Guyana border.
	Dismorphiinae	*Lieinix* Gray, 1832	*nemesis* (Latreille, [1813])	Several specimens were collected from Sierra de Lema in Bolivar state of Venezuela, which borders with western Guyana (Neild, pers. comm.).
		Pseudopieris Godman & Salvin, [1890]	*viridula* (Felder & Felder, 1861)	Costa *et al.* (2013) mentioned that this species occurs in Sierra de Lema in Bolivar state of Venezuela, which borders with western Guyana.
	Pierinae	*Pereute* Herrich-Schäffer, 1867	*lindemannae* Reissinger, 1970	Costa *et al*. (2013) mentioned that this species occurs in Sierra de Lema in Bolivar state of Venezuela, which borders with western Guyana. It has also been observed close to the Venezuelan border with Guyana (Neild, pers.

				comm.).
Riodinidae	Riodininae	*Argyrogrammana* Strand, 1932	*occidentalis* (Godman & Salvin, [1886])	Hall & Willmott (1996a) mentioned that this species occurs in the Guianas.
			stilbe (Godart, [1824])	Hall & Willmott (1996a) mentioned that this species occurs in the Guianas.
		Dachetola Hall, 2001	*pione* (Bates, 1868)	Hall (2001) mentioned that this species occurs in the Guianas.
		Sarota Westwood, 1851	*gamelia* Godman & Salvin, 1886	Hall (1998) mentioned that the range of this species includes the Guianas.
			lasciva (Stichel, 1911)	Hall (1998) mentioned that the range of this species includes the Guianas.
			miranda Brévignon, 1998	Hall (1998) mentioned that this species occurs in the Guianas.
			psaros Godman & Salvin, 1886	Hall (1998) mentioned that the range of this species includes the Guianas.
		Theope Doubleday, 1847	*excelsa* Bates, 1868	Hall & Willmott (1996c) mentioned that this species occurs in the Guianas.

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CHAPTER 3: TROPICAL RAINFOREST AND HUMAN-MODIFIED LANDSCAPES SUPPORT UNIQUE BUTTERFLY COMMUNITIES THAT DIFFER IN ABUNDANCE AND DIVERSITY

3.1 Abstract

Tropical forests account for at least 50 percent of documented diversity, but anthropogenic activities are converting forests to agriculture and urban areas at an alarming rate, with potentially strong effects on insect abundance and diversity. However, the questions remain whether insect populations are uniformly affected by land conversion, and if insect conservation can occur in agricultural margins and urban gardens. I compare butterfly populations in tropical secondary forests to those found in sugarcane and urban areas in coastal Guyana and evaluate the potential for particular butterfly communities to inhabit human-modified landscapes.

Butterflies were sampled for one year using fruit-baited traps in three separated geographical locations on the coast. I used non-metric multidimensional scaling to assess differences in species assemblages and a generalised linear mixed model to evaluate abundance, species richness, evenness and diversity. The secondary forests in all three locations supported higher butterfly abundance and diversity than other human-modified areas, although the magnitude of this effect varied by season and location. However, each land use supported its own type of butterfly community, as species composition was different across the three land uses. Sugarcane field margins and urban gardens supported populations of butterflies rarely found in my tropical secondary forest sites. Land management practices that encourage forest conservation along with butterfly-friendly activities in human settlements and agricultural areas could improve butterfly conservation. To this end, butterfly conservation in Guyana and other

tropical landscapes would benefit from a shift from inadvertently to actively making the landscape attractive for butterflies.

Key words: Guyana; land use; sugarcane plantation; tropical butterflies; urban.

3.2 Introduction

Tropical countries have experienced extensive losses in forest cover in recent years (FAO 2016) and these have been largely attributed to corresponding increases in agricultural areas (Sodhi 2008, FAO 2016). In 2005, the Millennium Ecosystem Assessment (MEA) estimated that one quarter of the earth‟s terrestrial surface is covered by cultivation systems. Sugarcane (*Saccharum officinarum* L., 1753) cultivation generally results in declines in suitable food and habitat that support high biodiversity (Maes and Van Dyck 2001, Benton et al. 2003, Van Dyck et al. 2009). High nutrient inputs and the monoculture plantation style of sugarcane cultivation can also have significant negative impacts on soil health and its productive capabilities (Bell et al. 2007).

In addition to intensive agricultural practices, tropical countries experience the pressures of a growing human population, with an increase of 3.1 billion between 1950 and 2000 and a projected further increase of 2 billion before 2030 (UN 2004). Although the rate of natural forest loss has slowed, the tropics will likely continue to experience considerable declines in natural forest area (FAO 2016) as a result of the food, shelter and economic development needs of this growing human population, with perceived “luxuries” such as biodiversity conservation being overlooked (Sodhi 2008).

Given these changes, it is important to investigate how crop cultivation and expanding settlements are impacting landscapes as well as how these impacts are being managed

(McLaughlin 2011). The future of tropical biodiversity and human well-being depend – more than ever – on the effective management of human-modified landscapes (Francesconi et al. 2013), with a balance between human activities (e.g., intensive agriculture and expansion of settlements) and biodiversity conservation (Hodgson et al. 2010) as the desired outcome.

Biodiversity is frequently used as a proxy to evaluate the impacts of landscape changes on the health of the ecosystem (Meffe et al. 2006). Insects make up more than half of the documented global biodiversity (Fermon et al. 2000) and are commonly used to investigate disturbances in tropical forests (e.g., King et al. 1998, Rodríguez et al. 1998, Jones and Eggleton 2000, Arellano et al. 2005).

Numerous studies have identified butterflies as effective indicators of habitat degradation (e.g., Kremen 1992, Daily and Ehrlich 1995, Schulze et al. 2004, Bonebrake et al. 2010, Nyafwono et al. 2014). This is because they are sensitive to changes in habitat quality (Maes and Van Dyck 2001), are critical to the functioning of many ecosystems, and provide a wide range of ecosystem services including pollination of crops and selective herbivory of weeds (Summerville et al. 2004). Butterflies are also abundant, have a relatively quick generational turn over, and are easy to sample and identify (Brown Jr. 1997, Thomas 2005, Barlow et al. 2007).

Urbanisation, road construction and intensive agriculture were reported to be responsible for at least 30 percent loss of butterfly species in Belgium (Maes and Van Dyck 2001), and the tropics are facing similar but accelerating anthropogenic pressures (Laurance et al. 2009). Although approximately 90 percent of all documented butterflies are found in the tropics, little is known about their ecology compared to temperate species (Bonebrake et al. 2010, Basset et al. 2011, Basset et al. 2012, DeVries et al. 2012). Insufficient knowledge can be a rate-limiting obstacle to biodiversity conservation, particularly in tropical countries (Wilson et al. 2016), suggesting a need for the development and implementation of appropriate and effective management strategies for butterfly biodiversity conservation in tropical landscapes (Chazdon et al. 2009).

As human-modified landscapes are a prominent and expanding feature in many tropical countries, they must be included in any conservation effort, and biological conservation in these landscapes can be useful for improving species abundances (Brockerhoff et al. 2008, Chazdon et al. 2009, Tabarelli 2010, da Rocha et al. 2013, Ellis 2013, Melo et al. 2013, Warren-Thomas et al. 2015). I evaluated butterfly community abundance, richness, evenness, diversity and composition across three land uses: tropical secondary forest, agriculture with a focus on sugarcane cultivation, and urban, in coastal Guyana. Given the benefits of conserving tropical secondary forests for maintaining biodiversity (Chazdon et al. 2009), I hypothesised that butterfly abundance, richness, evenness and diversity would be highest in tropical secondary forests, as has been found elsewhere in tropical primary forests (Barlow et al. 2007). I also hypothesised that agricultural areas and human settlements would support unique communities comprising butterfly species that have become adapted to the conditions created within these landscapes. Furthermore, I hypothesised that butterfly abundances in agricultural areas and human settlements would be less affected by within-seasonal patterns, due to consistency of external inputs such as irrigation, fertilisers, etc., than in tropical secondary forests that depend on seasonal rainfall patterns. This is in contrast to established theory, that because agricultural systems are classified as highly disturbed and low species diversity, they should be characterised by low temporal stability (Tscharntke et al. 2005). In sum, evaluating variation in community composition and dynamics across the different land use types could ultimately inform biodiversity conservation in tropical landscapes.

3.3 Materials and methods

3.3.1 Study area

My study was conducted in Guyana, South America, along sections of the coastal belt during the calendar year 2015. The coastal belt stretches from the Corentyne River (bordering with Suriname) in the east to Shell Beach (bordering with Venezuela) in the west and is approximately 459 km in length and 25 km in width inland from the Atlantic Ocean. It supports approximately 80 percent of the human population, with the estimated total population being 751,223 (GBS 2013). The vegetation types along the coastal belt include natural and secondary forests, agricultural crops – ranging from large-scale monocrop plantations of rice and sugarcane to small- or subsistence-scale crops, remnant and replanted mangrove forests, urban vegetation (lawns, flower patches, etc.), and abandoned or unmanaged farm lands that have reverted to forests.

The coastal climate is tropical and equatorial with four distinct seasons, two dry and two wet. The dry seasons occur from February to April (average rainfall: 84 mm per month) and August to October (average rainfall: 60 mm per month) (Guyana Hydrometerological Department, unpublished data). The wet seasons are from November to January (average rainfall: 150−300 mm per month) and May to July (average rainfall: 250−450 mm per month). The average air temperature is between 25−27.5°C throughout the year (McSweeney et al. 2008).

Study sites were selected based on the following criteria:

(1) Accessibility to areas under the three selected land management practices: human settlement, agriculture and forest (secondary);

(2) Human population > 1,000 persons per 10 km^2 in urban areas;

(3) Sugarcane monocrop plantations > 10 km^2 in agricultural areas; and

(4) Forested (secondary) area > 10 km^2.

The use of secondary (at least 25 years or older), rather than primary forested areas was due to a lack of enough suitable, accessible primary forest sites in the region. The secondary forest sites used in the study were similar in many regards. They were mixed forests that experienced similar levels of disturbance (few trees removed to construct shacks/houses, with small-scale short-term subsistence agriculture in open gaps). They were between 10 and 13 m high and with a canopy cover between 65−80% at each trap. The soil is fluvial with varying levels of clay.

Based on these criteria, the following three localities were selected along the coastline.

(1) La Bonne Intention (LBI)

(2) Tain

(3) Skeldon

3.3.2 Sampling of butterflies

To investigate butterfly abundance and diversity, three 1 km transects were randomly placed – separated by 1-1.5 km – in each of the land use zones (human settlement, agriculture and secondary forest) along existing access trails and roads (Supp. Fig. S3.1). Transects began at least 100 m from the hard edge of the land use zone in order to avoid possible edge effects. Transects in the secondary forests were laid out to utilise existing trails in an effort to minimise habitat disturbance (construction of new trails) as well as disruptions to butterfly behavior and other forest users. Because these transects followed the existing trails, they only followed straight lines when possible (Supp. Fig. S3.1). Those in agricultural areas were established along access roads within sugarcane plantations in an effort to reduce the impact of the research on the farmers‟ crop and activities (e.g., cultivation, harvesting). In urban areas, transects were set out along secondary roads or streets. The established transects were visited every month for 12 months (starting from January 2015 and ending in December 2015), so as to account for seasonality.

Butterflies were captured using baited cylindrical traps made of a 30 cm diameter white acrylic disk, white mosquito netting at a height of 90 cm and white string – based on the designs and techniques of DeVries (1987), Sambhu (2009) and Aduse-Poku et al. (2012). Traps were placed 100 m apart along each transect, starting at the 0 m marker and ending at the 1 km marker, for a total of 11 traps per transect (Supp. Fig. S3.1). Each trap was labeled with a unique number and geo-referenced to assist in the development of species distribution maps. The traps were placed approximately 1.5 m above ground to ensure easy access and baited with approximately 100 g of a fruit substance, fermented overnight and consisting of pureed over-ripe bananas (*Musa* sp. L., 1753), 4.7 percent alcohol per volume of 275 mL beer and brown cane sugar (4.5 kg of banana + 4 beers + 1 kg of sugar; as in Sambhu 2009 and Nyafwono et al. 2014). They were checked daily between 0800 h and 1600 h over a three-day period every month to reduce the bias of daily temperature fluctuation, which influences the exothermic (flight) nature of butterfly (Sands and New 2002). Traps were re-baited on an as-needed basis during the three-day checking period.

The trapping method was not intended to capture all butterfly species present, as the stratification and ecological niches of the various species makes this difficult to achieve. However, fruit-baited traps are one of the most reliable and unbiased methods for sampling tropical fruit-feeding butterflies (Daily and Ehrlich 1995, Hughes et al. 1998). By focusing on a low strata single feeding guild (fruit-feeding), this method allowed for comparisons (Francesconi et al. 2013) among the three contrasting land management practices under investigation. The issue of stratification within the three habitats (secondary forests with tree canopy, sugarcane plantations with no canopy and urban sites with varying presence/level of canopy) was reduced, as canopy butterfly species are often distinct from ground level species and were therefore unlikely to be collected in my traps (Dumbrell and Hill 2005, Aduse-Poku et al. 2012). However, some canopy-dwelling butterflies are not exclusive to canopies (Aduse-Poku et al. 2012) and the presence of fruit bait at ground level can attract them, so this trapping method also does not completely exclude canopy-dwelling butterflies.

Each collected butterfly was placed in an individual envelope and information pertaining to the locality, transect number, trap number, date, name of collector, weather condition, unique identification number, sex and species (if known) were recorded on the envelope and in a field notebook at the trap site. Envelopes were stored in plastic containers and transported to the Centre for the Study of Biological Diversity (CSBD) at the University of Guyana for identification.

Butterflies were identified with the aid of reference publications (D'Abrera 1984, DeVries 1987, Neild 1996, DeVries 1997, Darwin Initiative Butterfly Project Team - Guyana 2007, Neild 2008), the reference collection at the CSBD and the expertise of Drs. Blanca Huertas and Bernard Hermier. Butterflies were kept in cold storage (approximately 10°C) during the identification process to prevent decay or attack from predators. All of the collected butterflies were deposited at the CSBD (national repository) following identification.

3.3.3 Data analyses

I investigated differences in species composition using non-metric multidimensional scaling (NMDS) ordination, based on a Bray-Curtis dissimilarity matrix and Ward clustering. Winfree *et al*. (2011) discussed the importance of examining species composition in identifying possible generalist/specialist species tradeoffs in anthropogenic habitats. Before conducting NMDS ordination, the densities of each butterfly species were summed across the different traps and dates for a given land use, locality and season (comprising two wet and two dry seasons). The (x, y) coordinates of each land use, locality and season were then generated to identify species responsible for each cluster on the NMDS plot, and I evaluated differences in the resulting clusters through analysis of similarities (ANOSIM). These analyses were undertaken using the *Vegan* package (Oksanen et al. 2016) in *R*, *v 3.2.3* (R Core Team 2015).

The habitat specificity index (*Sm*) was calculated for butterfly species collected, where *Sm* is the number of individuals in the preferred habitat/ total number of individuals. Each species was placed in one of the following categories: (a) habitat specialist or species that had a single habitat supporting majority of its population: species with $Sm > 0.9$; (b) species with preference for a particular habitat but not necessarily a specialist of that habitat: species with $0.5 < Sm < 0.9$; and (c) habitat generalist or species that had no single habitat supporting majority of its population: species with $Sm < 0.5$. Only species populations with five or more individuals were used in this calculation as *Sm* is sensitive to sample size (Brito et al. 2014).

Rank abundance plots were also generated in *R*, *v. 3.2.3* for each land use type within each month as a display of relative species abundances or species abundance distributions. This was done so as to increase our understanding of the degree of biotic homogenisation within the different land use types, which could impact on their conservation likelihood.

In addition to multivariate analyses, I evaluated four univariate variables for each season, land use and locality: (1) abundance (total number of individuals in a particular subset); (2) species richness (S = total number of species in a particular subset); (3) diversity (Simpson's reciprocal index (D) = $1/\Sigma(n/N)^2$, where n = total number of individuals of a particular species and N = total number of individuals in a particular subset); and (4) evenness (relative abundance of the different species in a particular subset: Simpson's index (E) = (D/S). Migratory species, singletons and doubletons were included in my analyses as it is unclear if there were any unknown factors that were affecting the presence of some butterflies during this particular sampling period (DeVries and Walla 2001), or if the observed species numbers were as a result of any one of several reasons, including methodological limitations that inadvertently exclude individuals, genuinely small populations and/or low individual numbers across narrow scales (Novotný and Basset 2000). Plots were created and univariate values computed in *R*, *v. 3.2.3*; Simpson's diversity index was calculated using the *BiodiversityR* package (Kindt 2016).

A generalised linear mixed model (GLMM) with negative binomial distribution and a log-link function was used to analyse butterfly abundance and species richness across season and land use (fixed effects), with transect as a random effect. The negative binomial distribution accounts for the discrete, heteroscedastic nature of the count data. Locality was included in the model both as an independent factor (to test for an interaction with season) and as a nested factor of land use. This nested nature accounts for the possibility that each land use can vary among regions, and in particular, the nature of secondary forests may depend on the locality. A Toeplitz covariance structure was used to account for the temporal autocorrelation that was created by collecting butterflies from the same transects in different seasons. To improve parsimony, the months were grouped into greater seasons (wet, dry, wet, dry) for analyses. Species evenness and diversity were analysed with the model structure as described above, but with a Gaussian distribution to account for the continuous rather than the discrete nature of the metrics. Differences were considered to be significant when $P < 0.05$. These analyses were undertaken using the *Glimmix* procedure in *SAS* ® software version 9.04 (SAS Institute Inc. 2015).

3.4 Results

3.4.1 Species composition

A total of 14,184 individuals belonging to 77 species within five families were captured over the 12-month study period. Sixty-three species (11,894 individuals) were captured in secondary forested areas, forty-three (1,403 individuals) from sugarcane plantations and thirty-three (887 individuals) from urban areas. Twenty-four species were common across the three land uses. Of the three localities sampled across all habitats, Tain and Skeldon both had sixty-four species (6,502 and 4,229 individuals, respectively) and LBI had fifty-three species (3,453 individuals). Forty-six species were common across all three localities. Additionally, higher numbers of individuals and species were caught in the dry seasons (8,530 individuals within seventy species) than in the wet seasons (5,654 individuals within sixty-five species), with forty-seven species common in both the wet and dry seasons (Supp. Table S3.1). The Bray-Curtis dissimilarity matrix for NMDS ordination revealed three distinct groups that signified variations in species composition (ANOSIM; R = 0.8085, $P = 0.0010$, Fig. 3.1). As expected, each group aligned with a defined land use and species fit neatly into these groups across localities and seasons, with one exception – sugarcane plantation species in LBI in the second wet season were more similar to urban areas in species composition.

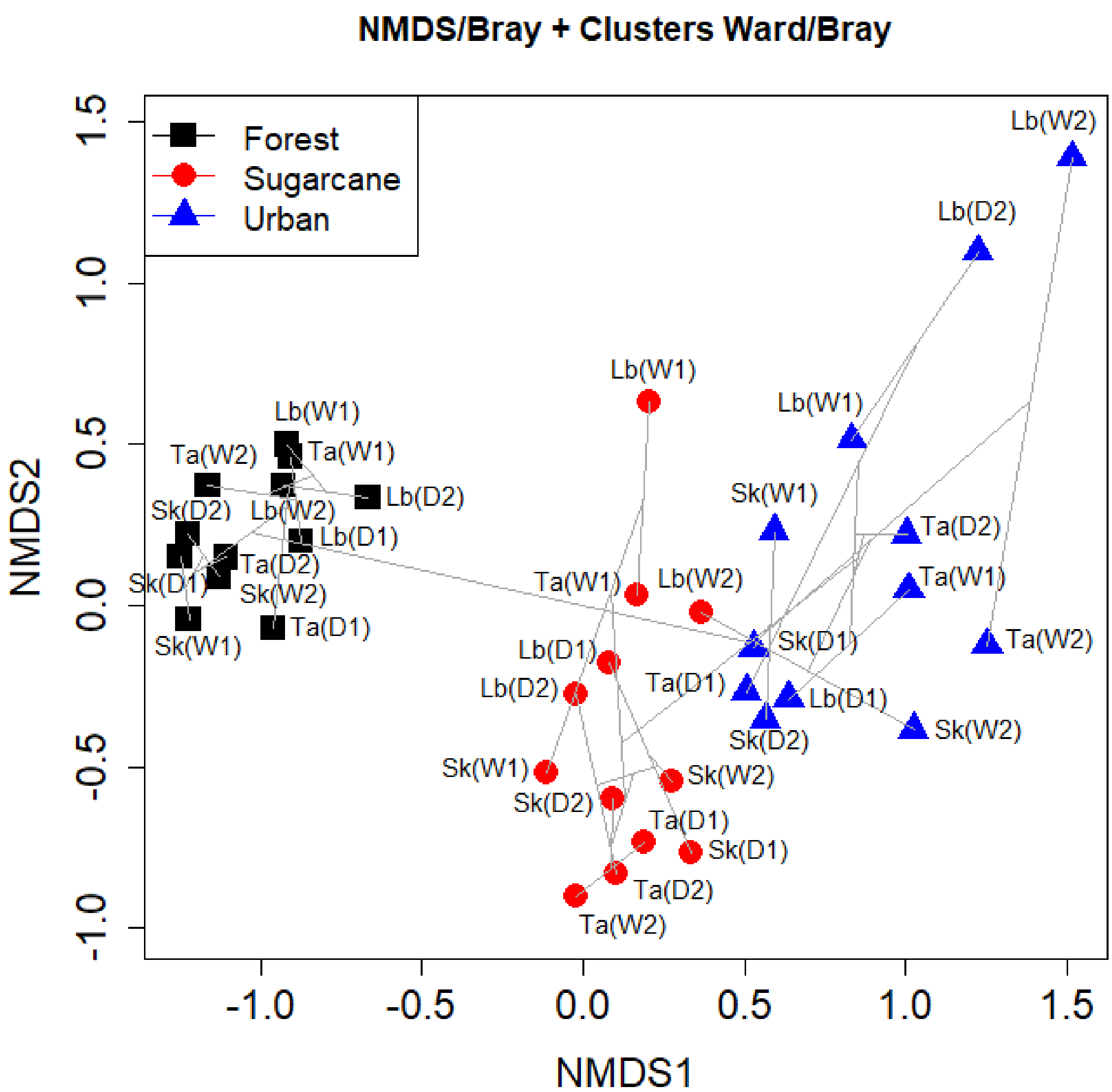

Fig. 3.1. NMDS with Bray distance matrix and Ward's clustering of land uses, localities (Sk = Skeldon, Ta = Tain, Lb = LBI) and seasons (D1 = first dry season, W1 = first wet season, D2 = second dry season, W2 = second wet season). Different shapes and colors represent different land uses, and lines represent clustering identified from the analysis. Each locality consisted of three transects within each land use, with 11 traps in each transect, and these were each sampled monthly. Data presented are summed across all transects in each locality within a season. Cluster analysis: R = 0.8085, P = 0.001.

3.4.2 Species richness and abundance

Average butterfly abundance was generally higher in the secondary forest across all localities than in the sugarcane plantation (8.5 times more collected across the year) and urban area (13.4 times more collected across the year) [Table 3.1 (land use main effect); Fig. 3.2 A–C], but variations were evident throughout the year in all land uses. For example, a decrease in average abundance was observed at the beginning of the second dry season (August) in the secondary forest at Skeldon and LBI, with a simultaneous increase in abundance in the sugarcane plantations and urban areas of Skeldon. Additionally, butterfly abundance and richness declined during the second wet season (December) in Skeldon and Tain secondary forests. These variations in patterns of abundance throughout the year and across the different land uses led to a significant interaction among land use and season and locality and season – indicating that the differences in butterfly abundance across the three land use types and between localities varied seasonally (Table 3.1). In general, however, butterfly abundances differed by land use , locality and season.

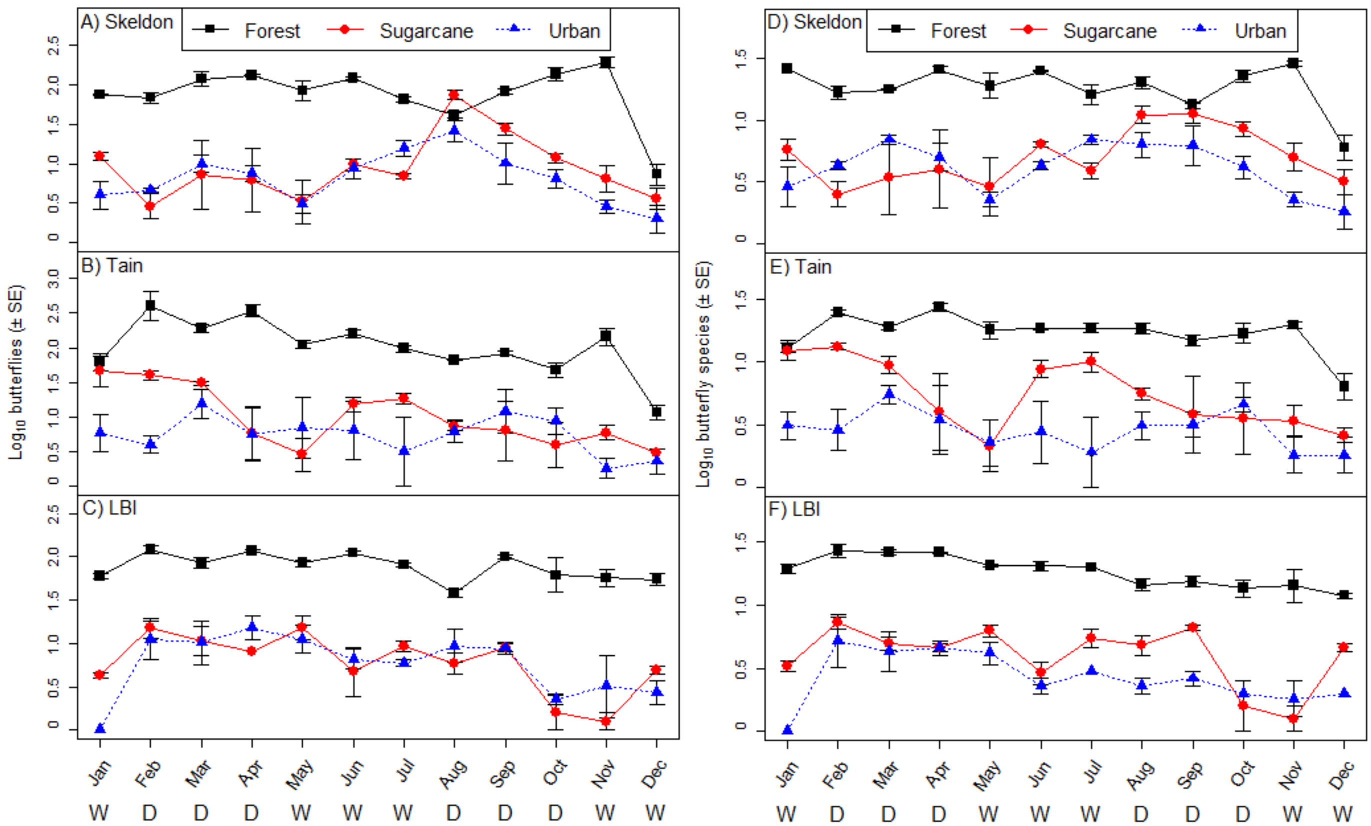

Fig. 3.2. A–C and D–F represent mean (± SE) number of butterflies collected and species richness, respectively, per land use, locality and season. Each locality consisted of three transects within each land use, with 11 traps in each transect, and these were each sampled monthly. Number of individuals and number of species across the traps within a transect were summed on a monthly basis. Data are $\log_{10}(x + 1)$ transformed to show patterns of abundance and richness for sugarcane and urban areas, and to match the log-link function in the negative binomial generalised linear mixed model.

Table 3.1. Results of the generalised linear mixed model analyses for each of the four response variables in my monthly surveys across three different localities (locality effect) over four seasons (2 wet seasons and 2 dry seasons; season effect), and three land uses (secondary forest,

sugarcane plantation, human settlement; land use effect). I also used locality as a nested factor of land use and transect as a random effect. Additionally, a Toeplitz covariance structure was used to account for the temporal autocorrelation that was created by collecting butterflies from the same transects in different seasons.

Type III Tests of Fixed Effects			Abundance		Richness		Evenness		Diversity	
Effect	Num DF	Den DF	F	Pr > F	F	Pr > F	F	Pr > F	F	Pr > F
Locality	2	18	4.43	0.0272	9.46	0.0016	2.74	0.0912	0.78	0.4738
Land use	6	18	58.70	< 0.0001	61.54	< 0.0001	18.54	< 0.0001	32.83	< 0.0001
Season	3	53	23.61	< 0.0001	19.78	< 0.0001	1.07	0.3707	2.70	0.0548
Locality × season	6	53	11.66	< 0.0001	6.96	< 0.0001	2.12	0.0663	1.84	0.1092
Land use × season	18	53	6.19	< 0.0001	3.76	<0.0001	2.21	0.0134	3.35	0.0003

Results show higher butterfly species richness in the secondary forest than in sugarcane plantations and urban areas (but the magnitude of this difference depended on season Table 3.1; Fig. 3.2 D–F). Similarly, species numbers varied significantly across localities, but this effect depended on season (Table 3.1).

The rank abundance plots (Fig. 3.3) show that the urban areas were mostly dominated by a single species compared to the other land uses, except in August when sugarcane plantations were dominated by *Historis acheronta* (F, 1775). A consistent pattern of species dominance was observed in the urban areas throughout the year, with *Opsiphanes cassina* (Felder and Felder, 1862) being the most dominant species in this land use – except in October when *Glutophrissa* *drusilla* (Cramer, 1777) was dominant. In sugarcane plantations, *Mnasilus allubita* (Butler, 1877) was dominant for the first four months of collection (January to April), after which other species were present in higher numbers for shorter periods of time. The secondary forest was dominated by *Morpho helenor* (Cramer, 1776) for eight months of the study period.

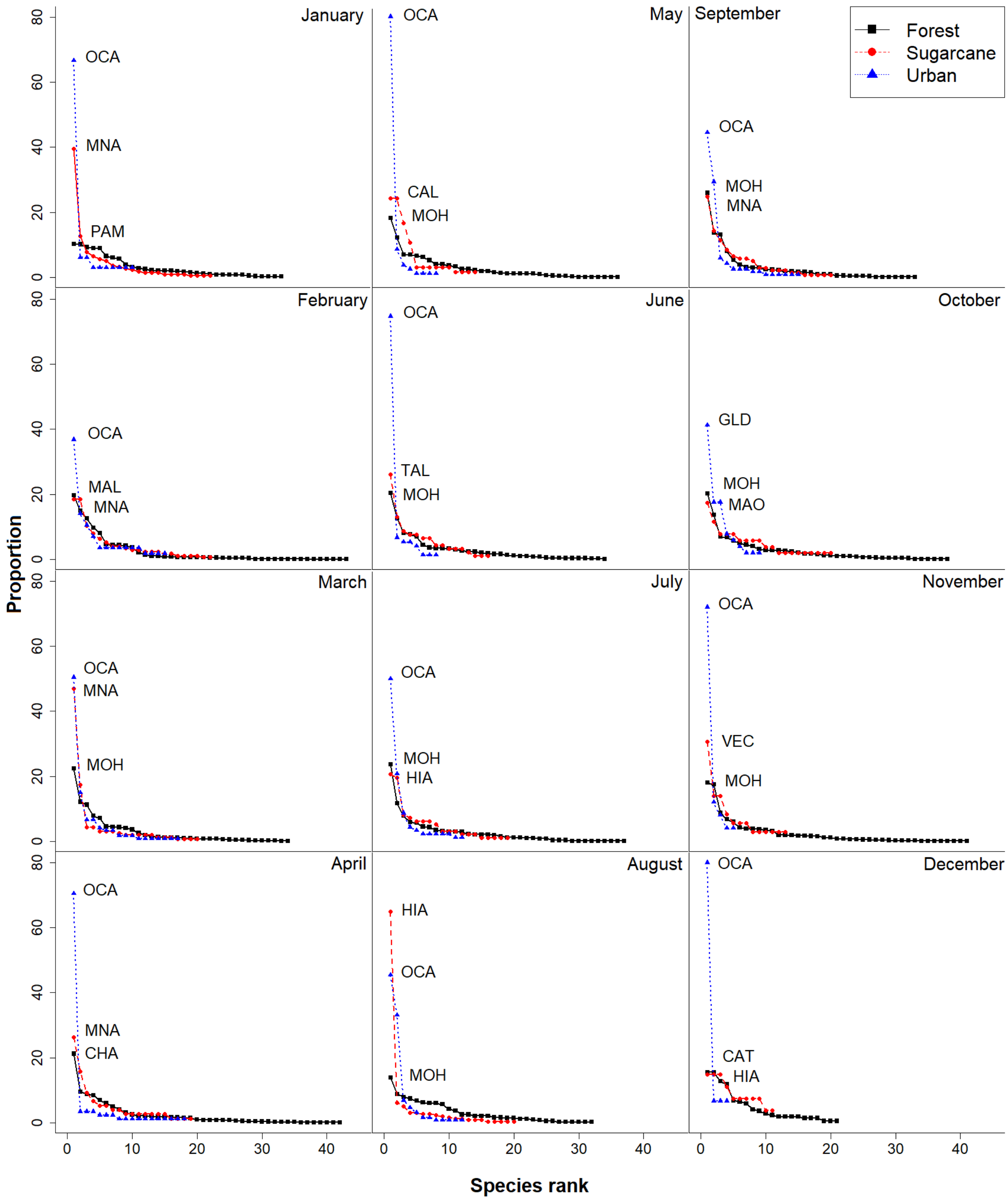

Fig. 3.3. Whittaker plots of each land use by month, in which species were ranked according to their individual abundances and scaled using proportional abundance (number of individuals of a particular species / total number of individuals). Each locality consisted of three transects within each land use, with 11 traps in each transect, and these were each sampled monthly. Data presented are summed across all transects and localities within a month. Acronyms represent particularly dominant species at a particular time and locality and include *Opsiphanes cassina* (OCA), *Mnasilus allubita* (MNA), *Morpho helenor* (MOH), *Pareuptychia metaleuca* (PAM), *Caligo illioneus* (CAL), *Magneuptychia libye* (MAL), *Taygetis laches* (TAL), *Glutophrissa drusilla* (GLD), *Magneuptychia ocypete* (MAO), *Historis acheronta* (HIA), *Vehilius celeus* (VEC), *Chloreuptychia agatha* (CHA) and *Caligo teucer* (CAT).

3.4.3 Patterns of evenness and diversity

When evaluated over a three-month season, sugarcane plantations had the highest overall evenness compared with the secondary forests and urban areas (Table 3.1; Fig. 3.4 A–C). Evenness did not vary significantly across seasons (nor localities), but the magnitude of differences among the three land uses was considerable enough to result in a significant interaction between land use and season.

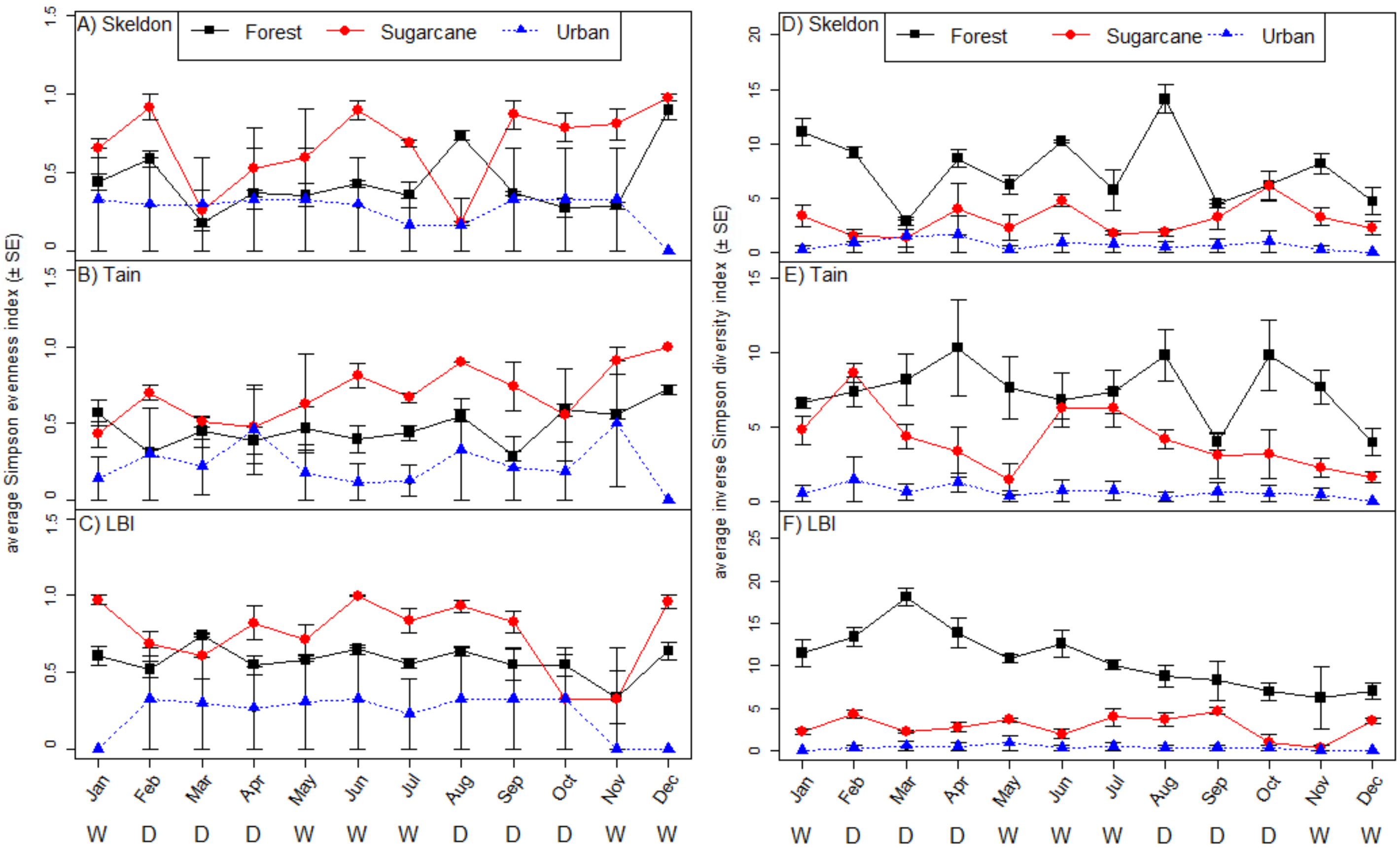

Fig. 3.4. A–C and D–F represent mean (± SE) Simpson indices of evenness and diversity, respectively, across land use, locality and season. Each locality consisted of three transects within each land use, with 11 traps in each transect, and these were each sampled monthly. Data presented are summed across all traps within a transect in each locality on a monthly basis.

Like abundance and species richness, the secondary forests had the highest overall diversity than the other land uses (Table 3.1; Fig. 3.4 D–F). Similar to the results obtained for evenness and despite apparent variations across seasons, however, the land use effect did not depend on season (nor locality) and drove the interaction between land use and season.

3.5 Discussion

Intensified agroecosystems (Harvey et al. 2006, Chazdon et al. 2009, Wilcove and Koh 2010) and human settlements (Koh and Sodhi 2004) often support few species compared to forest habitats, and are often dominated by the few species adapted to conditions specific to those systems (Root 1973, Alberti 2005, McKinney 2006). In my study, secondary forests supported a different assemblage of species from the sugarcane plantations and urban areas (Fig. 3.1). Forest species, and in particular the understory species my sampling focused on, rely on the presence of a closed canopy for feeding and ovipositing (Koh and Sodhi 2004). This closed canopy environment is generally absent from agricultural or urban landscapes, which may have influenced butterfly habitat suitability. Furthermore, these results (Figs. 3.2 and 3.4) support findings from a range of studies suggesting that land use intensification reduces species abundance and diversity (Tscharntke et al. 2005, Melo et al. 2013, Gossner et al. 2016). However, my results suggest that improving host availability in the more intensified landscapes (agriculture and urban areas) may help conserve species adapted for those environments. For example, the deliberate planting of coconut (*Cocos nucifera* L., 1753) plants in urban areas contributed to the change in butterfly species (*O. cassina*) composition of the area. Furthermore, maintaining uncultivated plants in field margins may support an array of butterfly species that are able to inhabit sugarcane agroecosystems. For example, the common occurrence of *Desmodium incanum* (DC, 1825) likely increases the abundance of *Urbanus dorantes* Stoll, 1790 (Cock 2015; see below for other examples).

Urban areas comprise of a mixture of open and closed canopies (Koh and Sodhi 2004), due to variation in personal preference for gardening and landscaping vegetation types. Additionally, the intensity of synthetic chemical (e.g., pesticides, fertilisers) usage tends to be lower in these areas when compared to agricultural areas (Brown Jr. and Freitas 2002). The differences in conditions between sugarcane plantation and urban area settings therefore may drive differences in butterfly species composition between the two land uses.

Sugarcane plantations supported over 50 percent of the collected species, of which 14 species (18 percent of the species collected) (*Agraulis vanillae* L., 1758; *Aphrissa statira* Cramer, 1777; *Atalopedes campestris* Boisduval, 1852; *Calpodes ethlius* Stoll, 1782; *Dryadula phaetusa* L., 1758; *Euptoieta hegesia* Cramer, 1779; *Hemiargus ceraunus* F., 1793; *Historis acheronta*; *Mnasilus allubita*; *Phoebis argante* F., 1775; *P. sennae* L., 1758; *Urbanus dorantes*; *Urbanus procne* Plötz, 1881; and *Vehilius celeus* Mabille, 1891) showed a strong habitat preference for this land use. Species such as *U. procne*, *E. hegesia* and *A. campestris* had ample presence of suitable host plants [*Cynodon dactylon* (L., 1753; Kendall 1966), *Turner ulmifolia* (L., 1753; Schappert and Shore 1998) and weed grasses (Crozier 2004), respectively] for larval development. Others [*P. sennae* (Srygley 2001), *P. argante*, *A. statira* and *H. acheronta* (Srygley and Dudley 2008)] were known migratory species with resident populations that made use of resources within the study locations, which were also part of the migration path of *H. acheronta* as suggested by its high numbers during the first wet season and the second dry season (17.4 percent and 77.2 percent, respectively, of total *H. acheronta* collected in sugarcane areas; Supp. Table S3.1; Fig. 3.3). Sugarcane plantations generally had more even butterfly communities (Fig. 3.4 A–C) compared to secondary forests and urban areas. This occurred because sugarcane plantations had fewer species than the other land use types that occurred in low relative abundance. Tropical forests often support diverse insect communities that include a number of rare species feeding on similarly rare plants species (Novotný and Basset 2000), and the conservation of rare species can sometimes be associated with either no change in evenness or even reduced evenness compared to communities with lower species richness (Smith and Wilson 1996, Crowder et al. 2012).

The secondary forest contained 30 specialists within the following subfamilies: Biblidinae (3), Charaxinae (4), Morphinae (10), Nymphalinae (2) and Satyrinae (10), with *Morpho helenor* being the dominant species for eight of the 12 surveyed months. It was interesting to note that none of the strong flyers, such as *Morpho* and *Archaeoprepona* (Fruhstorfer, 1915) species, ventured into the other land use types, as Brito et al. (2014) suggested that strong flyers would explore different habitats that experienced different levels of disturbance. The dominance of *M. helenor* in secondary forests can be attributed to the ability of this species to exploit microhabitat conditions (e.g., sunlight patches with contrasting shade for basking and display) and nutritional resources (e.g., *Inga* sp. trees as larval host) within different seasons.

Urban areas supported lower species richness than the other land use types (39 percent and 14.3 percent lower than forested and urban areas, respectively), with only three species (*Anartia jatrophae* L., 1763; *Glutophrissa drusilla*, *Opsiphanes cassina*) having higher individual counts than in secondary forests (88.64, 44.35 and 61.43 lower percentages, respectively; Supp. Table S3.1) and sugarcane plantations (90.91, 22.61 and 73.91 lower percentages, respectively; Supp. Table S3.1). *A. jatrophae,* classed as an urban specialist, occurred mostly during the first wet and second dry season, with the adult obtaining nectar from plants such as *Bidens pilosa* (L., 1753) and *Lantana camara* (L., 1753; Fernández-Hernández 2007) and the larvae feeding on species of *Ruellia* (L., 1753) and *Lippia* (L., 1753; Knerl and Bowers 2013), all of which are common weeds within the urban landscape. *G. drusilla* was seen to be dominant only in October when one of its nectar plants (*Antigonon leptopus* Hook and Arn,

1838) was in full bloom. Alternatively, *O. cassina* was dominant throughout most of the year in urban areas (Fig. 3.3) having the constant presence of available larval host plants (palm trees) (Vasquez et al. 2008) to support it. Coconut palms are prevalent throughout coastal Guyana as an important multiple use crop (e.g., food, oil, animal stockfeed, household cleaning agent, cultural decorations) to many homesteads, so these are used as the larval host plant by *O. cassina*. It is interesting to note that *O. cassiae* (L., 1758) was classified as a forest specialist, while *O. cassina* showed a strong preference for the urban habitat. The habitat association by these two similar species, along with that of *Taygetis echo* (Cramer, 1775; a forest specialist) and *T. laches* (F., 1793; not a specialist, but showed a preference for the forest), does not support the proposition that subfamily composition comparison is adequate in understanding species natural history (Francesconi et al. 2013).

I found lower variation in butterfly abundance and richness in the human-modified areas compared to secondary forests, potentially due to the consistency of external inputs such as irrigation and fertilisation in such landscapes. In contrast, natural areas exhibit larger fluctuations in water availability, with increased production of plant foliage biomass during wet seasons promoting growth and survival of larval stages (Aide 1992). However, this simplistic pattern is not always adhered to because of unpredictable weather variations that alter the timing and manner in which plants modify their foliage, so spillovers can occur where there are delays in ovipositing and/or adults eclosing (Nobre et al. 2012). Where the decreases in butterfly abundance were evident in my study (e.g., at the beginning of the second dry season/August in Skeldon and LBI secondary forests), it is likely that conditions were not suitable for the adult forms so catch numbers were low. It is unclear why this decrease did not occur in the Tain region. Declines that also occurred during the second wet season (December) in Skeldon and

Tain forests for both abundance and species richness can be attributed to the fruiting of forest plant species (such as *Attalea butyracea* L., 1781) and therefore the availability of alternative food resources for fruit-feeding butterflies. This may have reduced fruit-baited trap attractiveness during this period (Barlow et al. 2007), potentially lowering my traps focused on the fruit-feeding butterflies. Some trap bias is a common occurrence in trap-based studies (e.g., Biro and Stamps 2008).

Other factors can interact with seasonality in human-modified areas to alter butterfly abundance and richness. For example, in Guyana, sugarcane is harvested during the dry season by sectional burning and slashing, which can cause damage to host plants. As sugarcane is harvested only during the dry seasons, these landscape changes add to the seasonality effect on butterflies. Similarly, in urban areas in Guyana, most households do landscaping (including gardening) primarily during the dry seasons when conditions are favorable for such outdoor activities. This seasonal effect of human disturbance during the dry season in these two human-modified areas adds to the seasonality effect on butterflies in such areas, thus reducing support for my second hypothesis that butterfly abundance would be less affected by seasonality in human-modified areas.

Although butterfly abundance and species richness were lower in human-modified landscapes, some human activities may help to support viable populations and habitat specialists that are not found in forested landscapes. In my study areas, these activities included people inadvertently fostering a healthy butterfly community in their quest to beautify their environs (e.g., planting of *Ixora* spp. which flowers throughout the year, thus providing a food source all year) and also through the maintenance of permanent irrigation systems and inefficient weed management practices within agricultural lands as well as residential areas. Irrigation of sugarcane in Guyana is not done actively via a mechanised system but instead through irrigation canals (along the eastern side of the cultivation plot) within which high water levels are permanently maintained and drainage canals (on the western side of the plots). Additionally, while weeds within cultivation plots are stringently managed, those along access roads to the plots are not controlled/eradicated as to do so would be costly to the industry, and these uncultivated areas may benefit butterflies (Miller et al. 2011). Butterfly diversity can be further enhanced by the planting of shelter, host and nectar plants along the banks of drainage canals (along the access roads), so as to act as a corridor of host plants and/or post-harvest windbreaks within which butterflies can traverse or possibly become established. These corridors, which will not impede on any of the sugarcane cultivation and harvesting operations, could possibly allow some of the forested species, especially the strong fliers, to explore more habitats (Haddad and Tewksbury 2005, Tscharntke et al. 2005).

While human-modified areas can be seen as having largely negative impacts on biodiversity and conservation efforts on several species, they still provide critical space and resources for other species. This supports my hypothesis that human-modified landscapes can support viable populations of certain species, and has important implications for the inclusion of these landscapes in the design and implementation of area-specific biodiversity management policies in the tropics. It is increasingly difficult to maintain pristine forest conditions in the tropics (Bruner et al. 2004, Melo et al. 2013), both from an economic standpoint and with the pressures of human population growth. While, for good reason, I stress the need for the continuous protection of old-growth/natural forests, it would also be sensible to deliberately enhance human-modified landscapes so as to encourage more butterfly-friendly spaces as well as to improve the likelihood of long-term persistence of butterfly species and biodiversity in general.

3.6 Conclusion

Butterfly abundance, richness and diversity were higher in secondary forests in coastal Guyana than in nearby agricultural and urban areas. However, species composition of the three land uses was significantly different, with human-modified areas (*i.e.*, sugarcane plantations and urban areas) comprising species (both habitat specialists and those with preference for the respective human-modified areas) that have adapted to more open canopy conditions and have modified their host and nectar plant preferences. As each land use is supportive of its own type of butterfly community, human-modified areas do not universally represent a threat to biological diversity. Thus, biodiversity conservation planners and land managers should facilitate the conservation of forested areas and simultaneously encourage more gardening in homesteads in human settlements as well as conservation of field margins within agricultural areas. Given that the human settlements in Guyana and across the tropics will continue to expand with housing developments and accompanying agricultural production systems, it is essential for land managers and conservationists to consider the human-modified areas as a source/sink area for biodiversity (butterflies, in particular). Improving conservation efforts in these areas modified by human behavior may be an important component for maintaining populations of the butterfly species that inhabit these areas.

3.7 Acknowledgements

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3.8 Supporting information

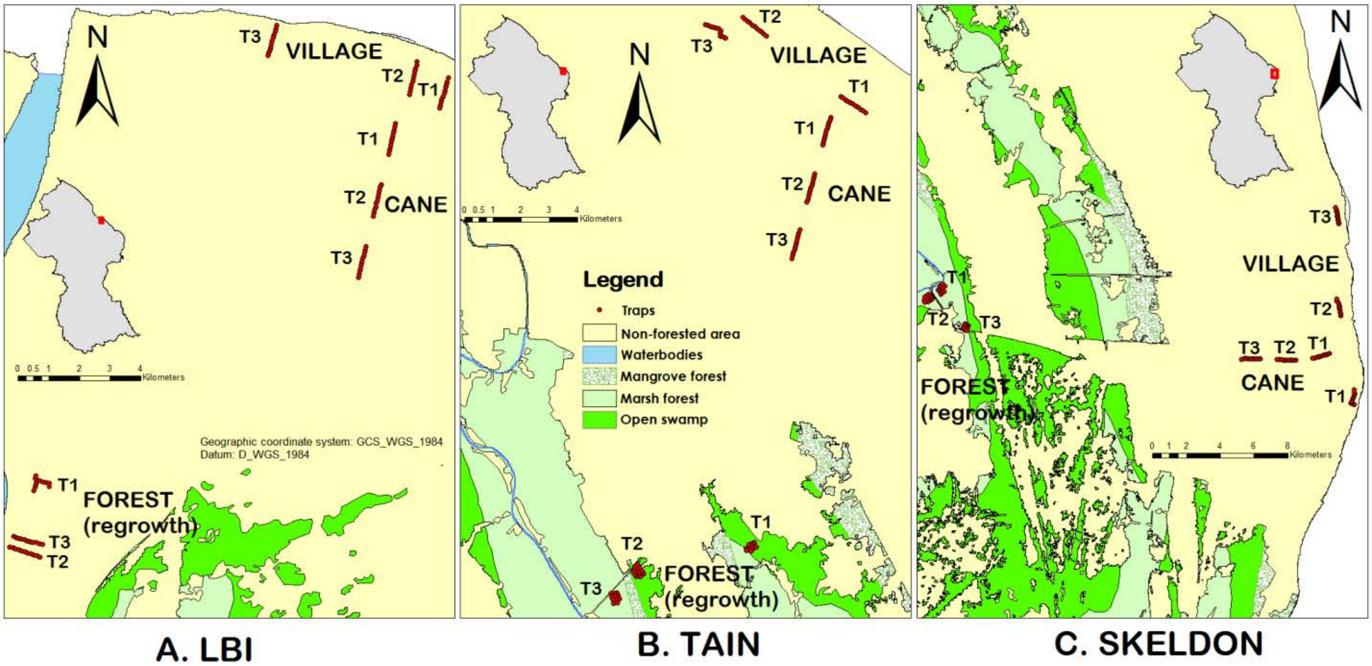

Fig. S3.1. Layout of transects (T1-T3) and butterfly traps within each land use and location. Each transect included 11 fruit-baited traps that were monitored monthly from January 2015 through December 2015.

Table S3.1. Species presence in each land use and season (D1 = first dry season, W1 = first wet season, D2 = second dry season, W2 = second wet season). Habitat specialists are identified based on the number of asterisks placed at the end of species names, with one asterisk representing forest specialists, two asterisks representing sugarcane plantation specialists and three asterisks representing urban area specialists.

Family	**Species**	**Sp. code**	**Forest**				**Cane**				**Urban**			
			D1	**W1**	**D2**	**W2**	**D1**	**W1**	**D2**	**W2**	**D1**	**W1**	**D2**	**W2**
Nymphalidae	*Adelpha plesaure* Hübner, 1823	ADP	2											
Nymphalidae	*Agraulis vanillae* (L., 1758)	AGV					3	1	4		1	2	1	1
Nymphalidae	*Anartia jatrophae* (L., 1763) ***	ANJ			2				1		7	13	19	2
Nymphalidae	*Antirrhea philoctetes* (L., 1758)	ANT	3											
Pieridae	*Aphrissa statira* (Cramer, 1777)	APS		6			8	8	1		1	3	1	
Nymphalidae	*Archaeoprepona demophon* (L., 1758) *	ARD	6	6	5	2								
Hesperiidae	*Atalopedes campestris* (Boisduval, 1852)	ATC	14				25	3	2	12	3			1
Nymphalidae	*Bia actorion* (L., 1763)*	BIA	43	60	29	28								
Nymphalidae	*Brassolis sophorae* (L., 1758) *	BRS	9	10	3	2								
Nymphalidae	*Caligo euphorbus* (Felder & Felder, 1862)	CAS	1											
Nymphalidae	*Caligo eurilochus* (Cramer, 1775)	CEU		1										
Nymphalidae	*Caligo idomeneus* (L., 1758) *	CAI	15	4	9	12								
Nymphalidae	*Caligo illioneus* (Cramer, 1775)	CAL	233	182	107	153	14	34	12	10	4	6	3	
Nymphalidae	*Caligo teucer* (L., 1758) *	CAT	175	109	112	120	2		1		1			
Hesperiidae	*Calpodes ethlius* (Stoll, 1782)	CAE	1		1	1	2		2	2				

Lycaenidae	*Calycopis caulonia* (Hewitson, 1877)	CAC	1											
Nymphalidae	*Catoblepia berecynthia* (Cramer, 1777) *	CBE	64	62	41	29								
Nymphalidae	*Catonephele acontius* (L., 1771) *	CAA	17			2								
Nymphalidae	*Chloreuptychia agatha* (Butler, 1867) *	CHA	776	335	248	272					1			
Nymphalidae	*Cissia penelope* (F., 1775) *	CIP	486	112	31	86	1		1		1			
Nymphalidae	*Colobura dirce* (L., 1758) *	COD	218	126	92	66								
Hesperiidae	*Corticea* sp. Evans, 1955	COR									1			
Nymphalidae	*Danaus eresimus* (Cramer, 1777)	DAE		1				1						
Nymphalidae	*Dryadula phaetusa* (L., 1758)	DRP		1			2	5	14	1		1	2	
Nymphalidae	*Eryphanis automedon* (Cramer, 1775) *	ERA	19	19	23	7								
Nymphalidae	*Eryphanis reevesii* (Doubleday, [1849]) *	ERR	46	43	6	11				1				
Nymphalidae	*Eunica bechina* (Hewitson, 1852)	EUB							1					
Nymphalidae	*Eunica orphise* (Cramer, 1775)	EUO	1											
Nymphalidae	*Euptoieta hegesia* (Cramer, 1779)	EUH	2	1			12	8	2	3			1	
Pieridae	*Glutophrissa drusilla* (Cramer, 1777)	GLD	12	1			13	1	13	11	4		58	2
Nymphalidae	*Haetera piera* (L., 1758)	HAP	16	15	12	3								
Nymphalidae	*Hamadryas amphinome* (L., 1767)	HAA			2									
Nymphalidae	*Hamadryas feronia* (L., 1758)	HAF	62	56	39	35	9	8	18	8	12	4	13	
Riodinidae	*Helicopis cupido* (L., 1758)	HCU							1					
Hesperiidae	*Heliopetes arsalte* (L., 1758)	HEA							2			1		2
Lycaenidae	*Hemiargus ceraunus* (F., 1793)	HEC	1				17		4	6	4	1	1	
Nymphalidae	*Historis acheronta* (F., 1775)	HIA		2		1	3	38	169	9	5	26	43	1

Nymphalidae	*Historis odius* (F., 1775)	HIO	49	30	11	22	5	7	9	3	14	9	8	2
Nymphalidae	*Hypolimnas misippus* (L., 1764)	HYM								1				1
Nymphalidae	*Junonia evarete* (Cramer, 1779)	JUE								1				
Nymphalidae	*Magneuptychia libye* (L., 1767) *	MAL	565	77	50	101	8		3	5	2			
Nymphalidae	*Magneuptchia ocypete* (F., 1776) *	MAO	415	192	128	128	10	9	19	9	2	2		
Nymphalidae	*Memphis laertes* (Cramer, 1775) *	MEL	19	4	5	7								
Hesperiidae	*Mnasilus allubita* (Butler, 1877)	MNA	18		6	2	128	29	54	92	17	2	5	1
Nymphalidae	*Morpho helenor* (Cramer, 1776) *	MOH	496	564	421	292								
Nymphalidae	*Morpho menelaus* (L., 1758) *	MOM	7	27	4	8								
Nymphalidae	*Morpho rhetenor* (Cramer, 1775)	MOR			1	1								
Nymphalidae	*Nessaea obrinus* (L., 1758) *	NEO	76	66	42	20	1							
Nymphalidae	*Opsiphanes cassiae* (L., 1758) *	OPC	65	74	72	44		1					2	
Nymphalidae	*Opsiphanes cassina* Felder & Felder, 1862	OCA	29	14	46	16	9	10	5	4	144	167	121	52
Nymphalidae	*Pareuptychia metaleuca* (Boisduval, 1870) *	PAM	472	96	47	106								
Nymphalidae	*Paryphthimoides argulus* (Godart, [1824]) *	PAA	27	2	21	54	3		1	4				
Hesperiidae	*Perichares philetes* (Gmelin, [1790])	PEP				2	1		1					
Pieridae	*Phoebis argante* (F., 1775)	PHA	3	1		1	7	8	4	6	6	1	4	
Pieridae	*Phoebis philea* (L., 1763)	PHP						1	3		3		2	

Pieridae	*Phoebis sennae* (L., 1758)	PHS	2	1			8	10	5	6	7	2	7	5
Nymphalidae	*Pierella lamia* (Sulzer, 1776) *	PIL		6	1									
Nymphalidae	*Posttaygetis penelea* (Cramer, 1777) *	POP	5	6	8	10								
Nymphalidae	*Prepona laertes* (Hübner, [1811]) *	PRL	6	5	9	10								
Nymphalidae	*Prepona pheridamas* (Cramer, 1777)	PRP	3											
Nymphalidae	*Prepona pylene* Hewitson, [1854]	PPY	2		1	1								
Lycaenidae	*Pseudolycaena damo* (Druce, 1875)	PSD								1				
Lycaenidae	*Pseudolycaena marsyas* (L., 1758)	PSM					2							
Pieridae	*Pyrisitia venusta* (Boisduval, 1836)	PYV					2	1	2		1	1	2	
Nymphalidae	*Pyrrhogyra neaerea* (L., 1758) *	PYN	33	28	29	19	2							
Lycaenidae	*Rekoa palegon* (Cramer, 1780)	REP									1			
Nymphalidae	*Taygetis echo* (Cramer, 1775) *	TAE	109	57	65	73								
Nymphalidae	*Taygetis laches* F., 1793	TAL	227	207	186	195	21	46	29	34	1			1
Nymphalidae	*Taygetis virgilia* (Cramer, 1776) *	TAV	70	36	33	33			1					
Nymphalidae	*Temenis laothoe* (Cramer, 1777) *	TEL	114	58	28	36								
Nymphalidae	*Tigridia acesta* (L., 1758) *	TIA	5	9	5	5								
Hesperiidae	*Urbanus dorantes* (Stoll, 1790) **	URD	3				17	5	15	18	1		1	
Hesperiidae	*Urbanus procne* (Plötz, 1881)	URP	3	4	2		12	18	23	9	3	7	4	1
Hesperiidae	*Urbanus proteus* (L., 1758)	UPR				2								
Hesperiidae	*Vehilius celeus* (Mabille, 1891)	VEC	12		3		64	3	8	25	26		1	1
Hesperiidae	*Xeniades chalestra* (Hewitson, 1866)	XEC				1								
Nymphalidae	*Zaretis isidora* (Cramer, 1779) *	ZAI	44	32	14	29								

Chapter 4: Trade-offs for Butterfly Alpha and Beta Diversity in Human-modified Landscapes and Tropical Rainforests

4.1 Abstract

The accelerating expansion of human populations and associated economic activity across the globe have made maintaining large, intact natural areas increasingly challenging. However, this often remains the most common strategy for securing biodiversity conservation. The difficulty of preserving large intact landscapes in the presence of growing human populations has led to a growing emphasis on landscape approaches to biodiversity conservation with a complementary strategy focused on improving conservation in human-modified landscapes. This, in turn, is leading to intense debate about the effectiveness of biodiversity conservation in human-modified landscapes and approaches to better support biodiversity in those landscapes. Here, I compared butterfly abundance, alpha richness, and beta diversity in human-modified landscapes [urban, sugarcane] and natural, forested areas to assess the conservation value of human-modified landscapes within the Wet Tropics bioregion of Australia. I used fruit-baited traps to sample butterflies and analysed abundance and species richness in respective land uses over a one-year period. I also evaluated turnover and spatial variance components of beta diversity to determine the extent of change in temporal and spatial variation in community composition. Forest supported the largest numbers of butterflies, but was lowest in each, alpha species richness, beta turnover and the spatial beta diversity. Sugarcane supported higher species richness, demonstrating the potential for conservation at local scales in human-modified landscapes. In contrast, beta diversity was highest in urban areas, likely driven by spatial and temporal variation in plant composition within the urban landscapes. Thus, while improving conservation on human-modified landscapes may improve local alpha richness, conserving variation in natural vegetation is critical for maintaining high beta diversity.

Key words: sugarcane cultivation; urban green spaces; land management practices; landscape approaches to biodiversity conservation; butterfly conservation; Wet Tropics.

4.2 Introduction

In response to a growing and expanding human population, natural habitats and the landscape as a whole are increasingly being shaped by human activities (Venter et al. 2016). McGill et al. (2015) identified five major ways that human activities impact biodiversity: land-cover change, chemical release, overharvesting, climate change and species transport/invasion. These transformative activities are multi-dimensional and are often conducted for economic and social gains. One of the main drivers of land-cover change is the clearing of lands for agriculture and urbanisation (DeFries et al. 2010, Kissinger et al. 2012), and these are projected to continue expanding in the coming years (Seto et al. 2011, Schmitz et al. 2014). Up to 92% of densely forested areas are reportedly suitable for agriculture (Zabel et al. 2014) and urbanisation is projected to increase in all habitat types (Seto et al. 2012, McDonald et al. 2013). There will therefore be continued pressure on natural spaces to give way for food production and housing.

It is evident that these activities result in declines in biodiversity. Johnson et al. (2017) highlight some of the trends in extinction across different animal groups and landscapes. They note that this loss in biodiversity affects the functioning of natural ecosystems and the environmental services they provide and, in so doing, also threatens human wellbeing. So, the quest to increase agricultural land and urban living space may also be seen as a Catch-22, as there is a wealth of knowledge that suggests that human wellbeing depends on functioning environmental services and is closely linked to access to nature (biodiversity and green spaces) (Maller et al. 2005, Sandifer et al. 2015, Kilpatrick et al. 2017).

However, that same activity (human development) has the potential to degrade the same natural ecosystem.

The primary method to safeguard nature by governments, non-governmental organisations (NGOs) and individuals has been to increase the number and size of conservation areas and green spaces in human-modified landscapes. However, these strategies are not without their problems, as there are issues of financing the operations involved and securing conservation land spaces in the ever-expanding world of urbanisation and agriculture. There is also the ever-present question of the effectiveness of these strategies for conservation relative to improving conservation within human-modified areas (Watson et al. 2014, Gray et al. 2016).

Conversion to agriculture and urbanization can greatly reduce local species richness and abundance, although the impacts also depend on the intensification of these factors (Newbold et al., 2015). In addition to local changes in biodiversity, intensified land use can degrade beta diversity, particularly over large scales (Flohre et al., 2011; Karp et al., 2012; Gossner et al., 2016). For example, Karp et al. (2012) found that bird beta diversity, measured as the turnover in bird communities over large spaces was lower in intensified agriculture than forest or low-intensity agriculture. Similarly, Flohre et al. (2011) found that agricultural intensification reduced beta diversity (measured as spatial variation in community composition) at the farm and region scale of plants, birds and carabid beetles, while effects on local diversity were often insignificant. Thus, the effects of land use change on beta diversity may be even greater at the local scale due to landscape homogeneity.

Generally, governments, NGOs and individuals agree that there is still a great need for conservation spaces in this era (Gill et al. 2007, Virtudes 2016, Ekkel and de Vries 2017). Several have been created across the globe - one such space is the Wet Tropics bioregion in Australia, which extends over 500 km south along Queensland's north-eastern coast from Cooktown to Townsville, and up to 50 km inland (Bohnet and Smith 2007). Occupying less than 1% of the State of Queensland, this bioregion has the highest level of biodiversity in Australia and is an internationally recognised biodiversity hotspot (Stork et al. 2011), with approximately 48% of its rainforests having World Heritage status since 1988 (Bohnet and Smith 2007, Stork et al. 2008).

The Wet Tropics bioregion is a multiple use area, with urban settlements and agricultural lands interspersed among strictly protected forested areas. Sugarcane (*Saccharum officinarum* L., 1753) is the major agricultural crop in the Wet Tropics (Kroon et al. 2016), with its cultivation perceived by many as a threat to surrounding ecosystems. Several studies (Haynes et al. 2000a, Haynes et al. 2000b, Brodie and Mitchell 2005, Mitchell et al. 2005, Armour et al. 2009, Lewis et al. 2009, Tsatsaros et al. 2013, Kroon et al. 2016) have shown either direct impacts or threats of pesticide, nutrient and sediment runoff from sugarcane cultivation on different components of nearby coastal and marine systems. Additionally, monoculture plantations are known to be highly dissimilar from natural habitats in both composition and structure (Anand et al. 2010). However, field margins within this landscape may help to support butterflies (Sambhu et al. 2017), as has been found in other agricultural landscapes (Feber et al. 1996, Hodgson et al. 2010, Fahrig et al. 2015, Sybertz et al. 2017). I was interested in the conservation implications of the Wet Tropics management system, which allows for both ecosystem protection and landscape modification for livelihood and/or economic gains.

Given that it is difficult to study all biodiversity, indicator groups or species are routinely used to gain an understanding of the status of the environment. Butterflies are a suitable and popular group for biodiversity studies as their relatively well-known taxonomy, geographic distribution, status and sensitivity to environmental conditions make them ideal biological indicators (Blair, 1999; Padhye et al. 2012). Butterfly diversity often decreases with greater urbanization (e.g., Blair, 1999) and agricultural intensification (e.g., Rundlöf and Smith, 2006; Hodgson et al., 2010), but can benefit from weedy margins within agricultural landscapes (Koh, 2008; Hodgson et al., 2010). Here, I investigated butterfly abundance, richness, evenness and diversity in the Wet Tropics bioregion, in three different land uses: one natural (forested) areas and two human-modified (urban and agricultural) areas. I expected that forests would serve as the best environment for butterfly populations. However, given the ability of farm margins to support butterfly populations in tropical habitats (e.g., Koh, 2008), I also hypothesized that agricultural areas may host a diverse group of butterflies. I expected these populations to be lower in beta diversity than forests and urban areas, given the low variation in plant composition in sugarcane farms, including the weedy field margins that support butterflies. Given that sugarcane is generally irrigated year-round and mowed regularly in the study region, I also expected to find little temporal variation in species richness and abundance or little turnover in that landscape.

4.3 Methods

4.3.1 Study area

My study was conducted in the coastal lowlands of the northern half of the Wet Tropics bioregion of Far North Queensland, from Daintree in the north to Wooroonooran in the south (Fig. S4.1). The vegetation types consist of predominantly rainforest, along with sclerophyll forests and woodlands, sclerophyll and sclerophyll rainforest transitions, mangrove forests, shrubs and heathlands, vegetation complex and mosaics, non-woody vegetation, and unvegetated/cleared land (WTMA 2012a). The urban landscapes of the bioregion are a mosaic of low-, medium- and high-density settlements with a high degree of tree cover in close proximity to extensive natural forested areas (Turton, 2016). European settlement began in the 1870s, notwithstanding 50,000 years of Indigenous habitation of the bioregion (Turton, 2008). Many industries were established in the study area, all with differing consequences for the environment. These included the mining and dairy industries, sugarcane farming and other tropical crops. Thus, land use types in the region generally include conservation, forestry, grazing, dairy, horticulture, cropping and urban (Terrain 2016). The climate consists of one wet season between November and March (temperature 30–35 ºC, average rainfall 1,800–2,400 mm), and one dry season between April and October (temperature 17–29 ºC, average rainfall 600–1,200 mm) (Australian Government 2015, Bureau of Meteorology 2017). However, heavy rain can occur even during the dry season due to orographic uplift of prevailing southeast trade winds during that time of year.

Study sites were selected in areas with both natural (forested area > 10 km^2) and human-modified landscapes (cropping, specifically sugarcane monocrop plantations > 10 km^2 and urban settlements with human population > 1,000 persons per 10 km^2). Sugarcane farming has persisted in the area since the late 1800s (Griggs, 2000), and the farms I sampled from were well-established farms that had been farmed for multiple decades. They were grouped broadly as i) Gordonvale, ii) Smithfield and iii) Mossman, with the land uses located as follows:

1. Wooroonoran National Park (forest), Gordonvale (sugarcane), Edmonton and Bentley Park (urban);
2. Smithfield Conservation Park (forest), Freshwater and Redlynch (sugarcane), Kewarra Beach, Trinity Beach and Redlynch (urban);
3. Daintree National Park (forest), Lower Daintree (sugarcane), Mossman and Port Douglas (urban).

Areas sampled included mainly mesophyll rainforests in the Daintree National Park, a mixture of notophyll rainforests and eucalyptus forests in the Smithfield Conservation Park, and notophyll rainforests in the Wooroonooran National Park (WTMA 2012b). Of these forest types, mesophyll rainforests are the most developed or oldest (WTMA 2012c). Canopy height for all of the surveyed forests are above 20 m, with canopy coverage greater than 70%.

In forested areas, I worked with local rangers to avoid areas of Indigenous cultural significance, or high traffic (e.g., mountain bike trails), and non-randomly selected the remaining trails to place the transects. To select the locations of sugarcane transects, I worked with sugarcane growers to place transects non-randomly along field margins. Urban transects were selected non-randomly within the identified region, in accordance with permission from land owners.

4.3.2 Sampling of butterflies

Three 1 km transects were placed 1–1.5 km apart in each of the land use zones and beginning at least 100 m from the hard edge of each zone (Fig. S4.1). Those in the forests were laid out along existing trails (and followed straight lines when possible) so as to minimise disturbances to butterfly behaviour and other forest users. Those in sugarcane plantations were established along headlands/field margins in an effort to reduce the impact of the research on the farmers‟ crop and activities (e.g., cultivation and harvesting), while those in urban areas were established in green open spaces or in grassy areas surrounding homes. Each transect was visited monthly for 12 months (starting from June, 2016 and ending in May, 2017).

A total of 11 butterfly traps were placed 100 m apart in each transect, starting at the 0 m marker and ending at the 1 km marker, and each was labelled with a unique number and geo-referenced. The traps were placed approximately 1.5 m above ground to ensure easy access and baited with approximately 100 g of a fermented mixture of bananas (*Musa* sp. L., 1753), 4.7 percent alcohol per volume of 275 mL beer and brown sugarcane sugar (4.5 kg of banana + 4 beers + 1 kg of sugar) (Sambhu 2009, Nyafwono et al. 2014, Sambhu et al. 2017). They were checked daily between 0800 h and 1600 h over a three-day period every month to reduce the bias of daily temperature fluctuation

(Sands and New 2002). Traps were re-baited on an as-needed basis during the three-day checking period.

The stratification and ecological niches of various butterfly species makes it difficult to capture all species present. However, fruit-baited traps are one of the most reliable and unbiased methods for sampling tropical fruit-feeding butterflies (Daily and Ehrlich 1995, Hughes et al. 1998). Sampling at this level allowed for comparisons (Francesconi et al. 2013) among the three contrasting land uses under investigation. Canopy butterfly species are often distinct from ground level species (Dumbrell and Hill 2005, Aduse-Poku et al. 2012) and were unlikely to be collected in my traps, so the issue of stratification (forests with tree canopy, sugarcane plantations with no canopy and urban sites with varying presence/level of canopy) was reduced. However, some primarily canopy-dwelling butterflies are not exclusive to canopies (Aduse-Poku et al. 2012) and are attracted to ground-level fruit baits, so this trapping method also does not completely exclude canopy-dwelling butterflies.

A catch-and-release method was used to sample butterfly diversity, with identifications done at the trap sites. When this was not possible, photographs were taken to assist with identification at a later time. Butterflies were identified with the aid of field guides covering the study region (Braby 2004, 2016).

4.3.3 Data analyses

Migratory species, singletons and doubletons were included in my analyses to account for the possibility of unknown factors affecting the presence of some butterflies during the sampling period (DeVries and Walla 2001), as well as any methodological limitations that inadvertently exclude individuals, genuinely small populations and/or low individual numbers across narrow scales (Novotný and Basset 2000).

To evaluate patterns in abundance and location, across the different land use types and locations, I used generalised linear mixed models with fixed effects of land use, location, and an interaction between land use and location. These analyses were undertaken using the 'lme4' package in R *v. 3.4* (R Core Team 2017). Traps within transects were combined within a transect for analysis, such that transect was the experimental unit. I also included a random effect of month, and a random effect of transect to account for the fact that each transect was resampled multiple times. Preliminary analyses suggested there was no difference between wet and dry seasons, and including season in the model reduced model fit (delta AIC = 2), so this was not included. For the model describing abundance, I $\log_{10}(x + 1)$ transformed the data and assumed a Gaussian distribution. This is due to over dispersion relative to a Poisson distribution, and convergence problems with a negative binomial distribution. Residual plots showed no heteroscedasticity and that the normal distribution fit well after data transformation. I assumed the richness data followed a Poisson distribution. Likelihood ratio tests were used to evaluate effects of removing each fixed effect. Differences were considered to be significant when $P < 0.05$.

In addition to measurements of alpha diversity, I computed beta diversity across the respective land uses and localities to ascertain the extent of change in community composition or species identities. There is a wide range of statistical approaches used to evaluate beta diversity, mainly focusing on species turnover, and spatial variance in community composition (Anderson et al., 2011; Jost et al., 2011). Here, I evaluated both types of beta diversity: turnover measured the mean community dissimilarity between different sample months within the same transect, the mean community dissimilarity between different transects (summed across months) within a region and land use type, and the dispersion in transects within a region. As a measure of community dissimilarity I used Horn‟s index, which is based on Shannon‟s entropy (for review see Jost et al., 2011). I square-root-transformed the data before evaluation to reduce the effects of particularly abundant species (Anderson et al., 2006;

Anderson et al., 2011). Distance indices were calculated using the *vegdist* function in the *vegan* package (Oksanen et al., 2018) in *R* version 3.5.0 (R Core Development Team, 2018).

To evaluate turnover, I first plotted similarity values (1 – dissimilarity) of two community samples against the difference in months between the two samples, which often follows a negative exponential decay (Anderson et al., 2011). However, I did not find evidence of any decay in similarity in my plot, except for some weak evidence of seasonality in the forest and sugarcane transects (Fig. S4.2). Therefore, to maintain the transect as the experimental unit, I took the mean difference in time for each transect. I then used this as a measure of turnover for each transect. To evaluate spatial community variance I calculated community dissimilarity indices between the sampled communities (densities summed across all sample dates) for each transect within each land use and region. The Horn community dissimilarity indices are bounded between 0 and 1, and thus to evaluate the effects of land use and region on each, turnover and spatial beta diversity, I used a generalized linear model to evaluate variation in mean Horn distance within a region and land use type, assuming a beta distribution. These analyses were conducted in the *betareg* package (Cribari-Neto and Zeileis, 2010) in *R* (R Core Development Team, 2018). I then used Tukey‟s type contrasts to evaluate the difference between land use types using the *multcomp* package (Hothorn et al., 2008) in *R* (R Core Development Team, 2018).

In addition to measuring beta diversity, I investigated differences in species composition using NMDS ordination, based on a Horn dissimilarity matrix and Ward clustering. Before conducting NMDS ordination, the densities of each butterfly species were summed across the different traps and dates for a given land use, locality and season (comprising two wet and two dry seasons), and square-root transformed to reduce the impact of particularly abundant species. The (x, y) coordinates of each land use, locality and season were then generated to identify species responsible for each cluster on the

NMDS plot. These analyses were undertaken using the *vegan* package (Oksanen et al. 2018) in *R*, *v 3.2.3* (R Core Development Team, 2018).

I calculated the habitat specificity index (*Sm*) for butterfly species collected, which is the number of individuals in the preferred habitat / total number of individuals (Brito et al. 2014). Three categories were developed: (i) species that had a single habitat supporting the majority of its population: species with $Sm > 0.9$ (habitat specialist); (ii) species with preference for a particular habitat but not necessarily a specialist of that habitat: species with $0.5 < Sm < 0.9$; and (iii) species that had no single habitat supporting majority of its population: species with $Sm < 0.5$ (habitat generalist). As *Sm* is sensitive to sample size (Brito et al. 2014), I used species with an individual count of five or more individuals in their population.

4.4 Results

4.4.1 Patterns of abundance and richness

The 12-month survey yielded a total of 49 butterfly species and 10,460 individuals within four families across both seasons and the three localities and land uses. Each land use had a particular species dominating throughout the year. Abundances differed significantly among the three land uses (likelihood ratio test: $\chi^2 = 36.57$, df = 2, $P < 0.0001$), with the highest abundances being found in forests, and respective localities (likelihood ratio test: $\chi^2 = 11.63$, df = 2, $P = 0.0030$), with the highest abundances being found in Mossman. However, there was also a significant interaction between locality and habitat (likelihood ratio test: $\chi^2 = 30.56$, df = 4, $P < 0.0001$). The abundances of forest and sugarcane butterflies in Gordonvale interchanged throughout the survey (Fig. 4.1A), while forest butterfly communities in Smithfield were clearly and consistently higher in number when compared to sugarcane and urban butterflies (Fig. 4.1C). In Mossman, however, sugarcane butterflies were highest in numbers throughout most of the survey (Fig. 4.1D).

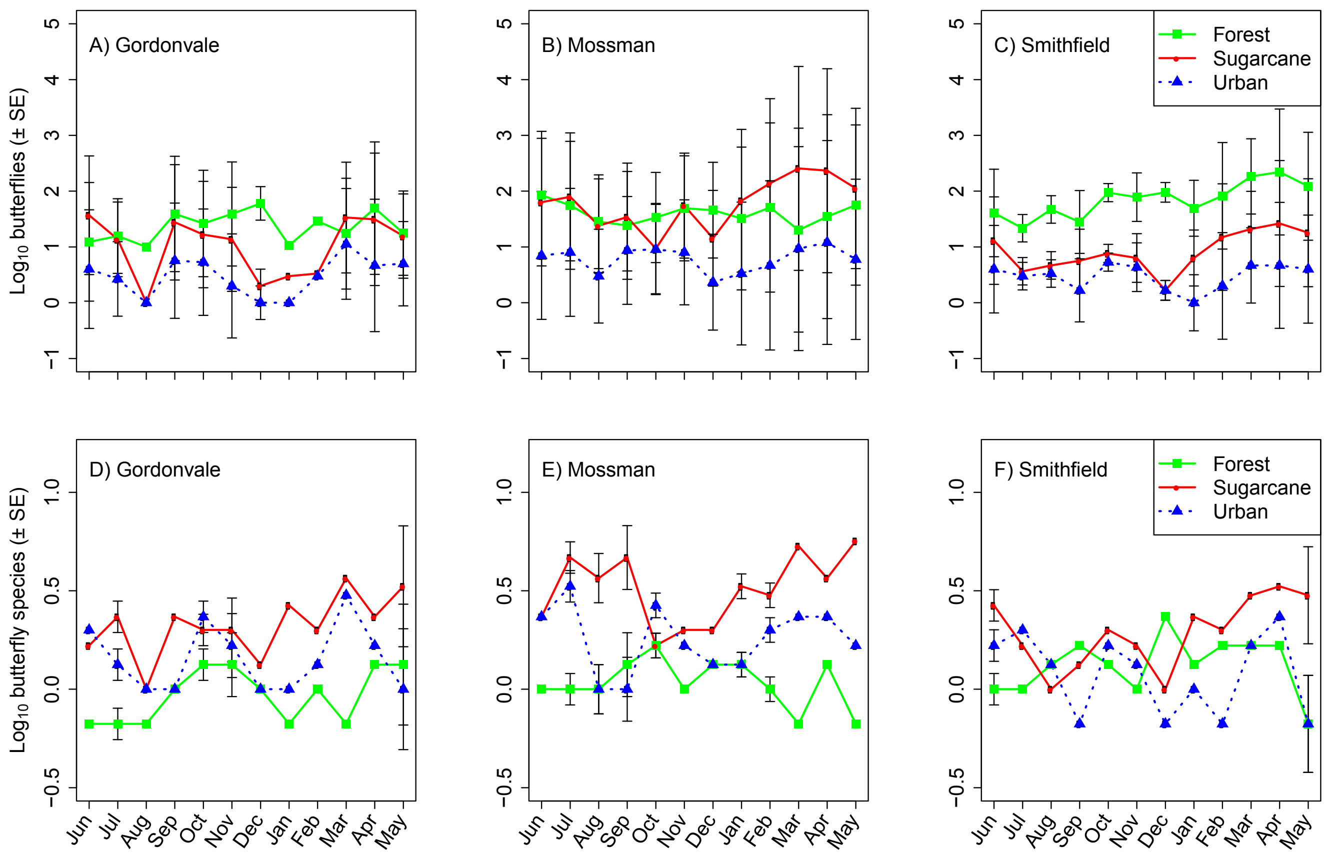

Fig. 4.1. Mean (± SE) number of butterflies collected (A, B, C) and species richness (D, E, F), respectively, per land use, locality and season. Each locality consisted of three transects within each land use, with 11 traps in each transect, and these were each sampled monthly. Number of individuals and number of species across the traps within a transect were summed on a monthly basis. Data are $\log_{10}(x + 1)$ transformed to better illustrate patterns of abundance and richness on a consistent scale, and to match the mixed model analysis.

Species richness was significantly different among land use types (likelihood ratio test: χ^2 = 23.89, df = 2, $P < 0.0001$), with sugarcane areas supporting the most species through most of the survey period and forests supporting the least (Fig. 4.1 D, E and F). However, the magnitude of the differences depended on the locality (likelihood ratio test: χ^2 = 21.04, df = 4, P = 0.0031), which also influenced species richness directly (likelihood ratio test: χ^2 = 8.849, df = 2, P = 0.0120).

4.4.2 Beta diversity

Beta diversity measured as turnover (the variation in species composition within a transect over time) was significantly different among the three land use types (beta regression Wald test: χ^2 = 99.86, *df* = 2, P < 0.0001). The highest turnover was observed in urban environments, followed by sugarcane, and then forests (Fig. 4.2A). Post hoc Tukey‟s – type tests showed that all pairwise comparisons were significant (Forest versus Sugarcane: P = 0.0167; Forest versus Urban: P < 0.0001; Sugarcane versus Urban: P = 0.0002). There was no significant effect of region on turnover (beta regression Wald test: χ^2 = 5.88, *df* = 2, P = 0.0529).

Beta diversity measured as spatial variation (the variation in species composition between transects, summed over time, within the same land use type and region) was significantly different among the three land use types (beta regression Wald test: χ^2 = 39.30, *df* = 2, P < 0.0001). The highest turnover was observed in urban environments, followed by sugarcane, and then forests (Fig. 4.2B). Post hoc Tukey‟s – type tests showed that all pairwise comparisons were significant (Forest versus Sugarcane: P = 0.0167; Forest versus Urban: P < 0.0001; Sugarcane versus Urban: P = 0.0002). There was no significant effect of region on turnover (beta regression Wald test: $\chi^2 = 0.62$, $df = 2$, $P = 0.7326$).

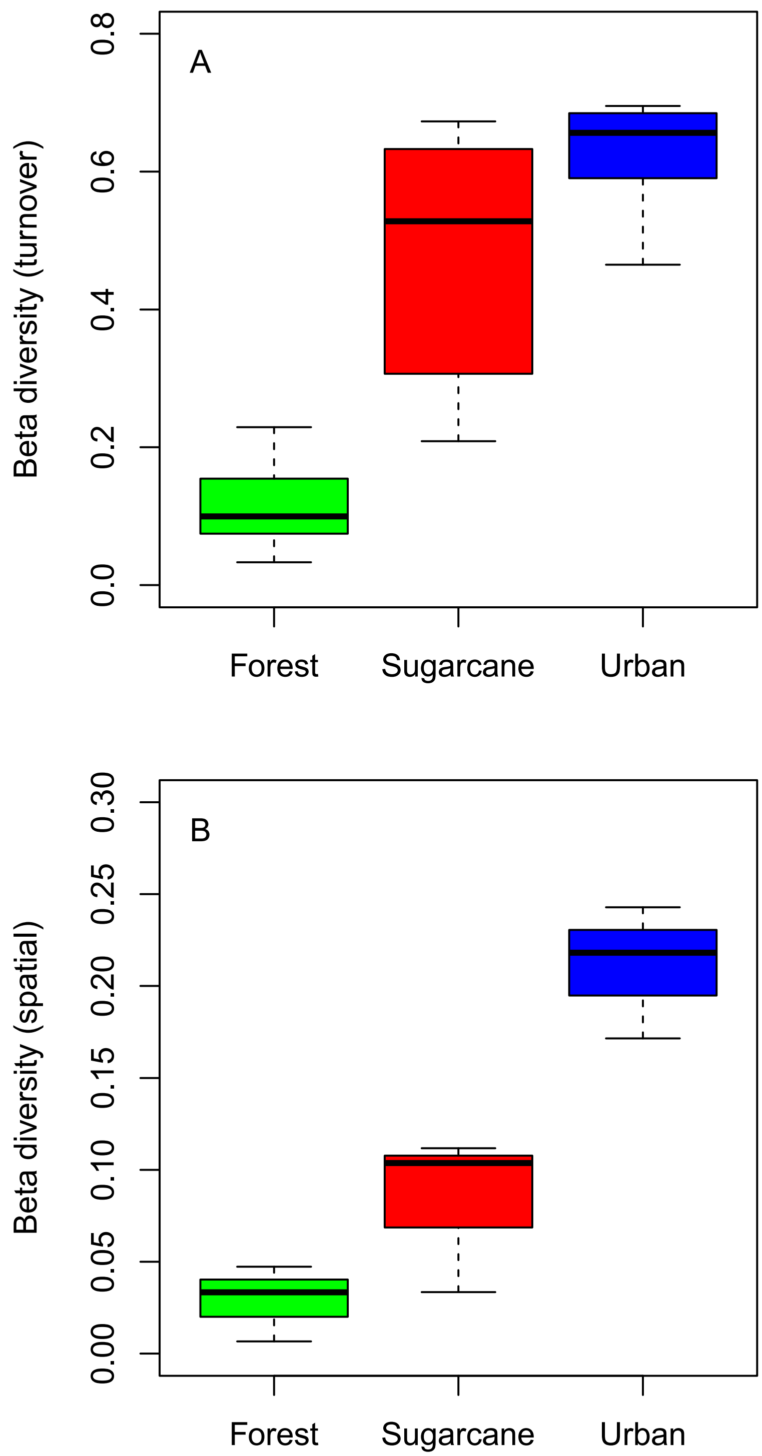

Fig. 4.2. Beta diversity measured as mean Horn distance between (A) sample dates within the same transect as a measure of temporal turnover, or (B) transects within the same land use and region. There was no clear pattern in spatial turnover decay, so to evaluate turnover I present mean differences across time as a measure of change over time for a given sampled butterfly community.

4.4.3 Habitat specificity

Nonmetric Multi-Dimensional Scaling suggested that forest butterfly communities differed greatly from the two human modified land-use types, but that they (sugarcane and urban) also differed in their butterfly community composition (Fig. 4.3). The habitat specificity index (*Sm*) calculations placed species into two of the three categories (habitat specialist [$Sm > 0.9$], species with habitat preference [$0.5 < Sm > 0.9$], and habitat generalist [$Sm < 0.5$]), with no species found to be a generalist. There was a total of 17 specialists across the three land uses: 12 in sugarcane, four in forest and one in urban. Additionally, a total of nine species showed habitat preference: five in sugarcane, three in urban and one in forest (Table S4.1).

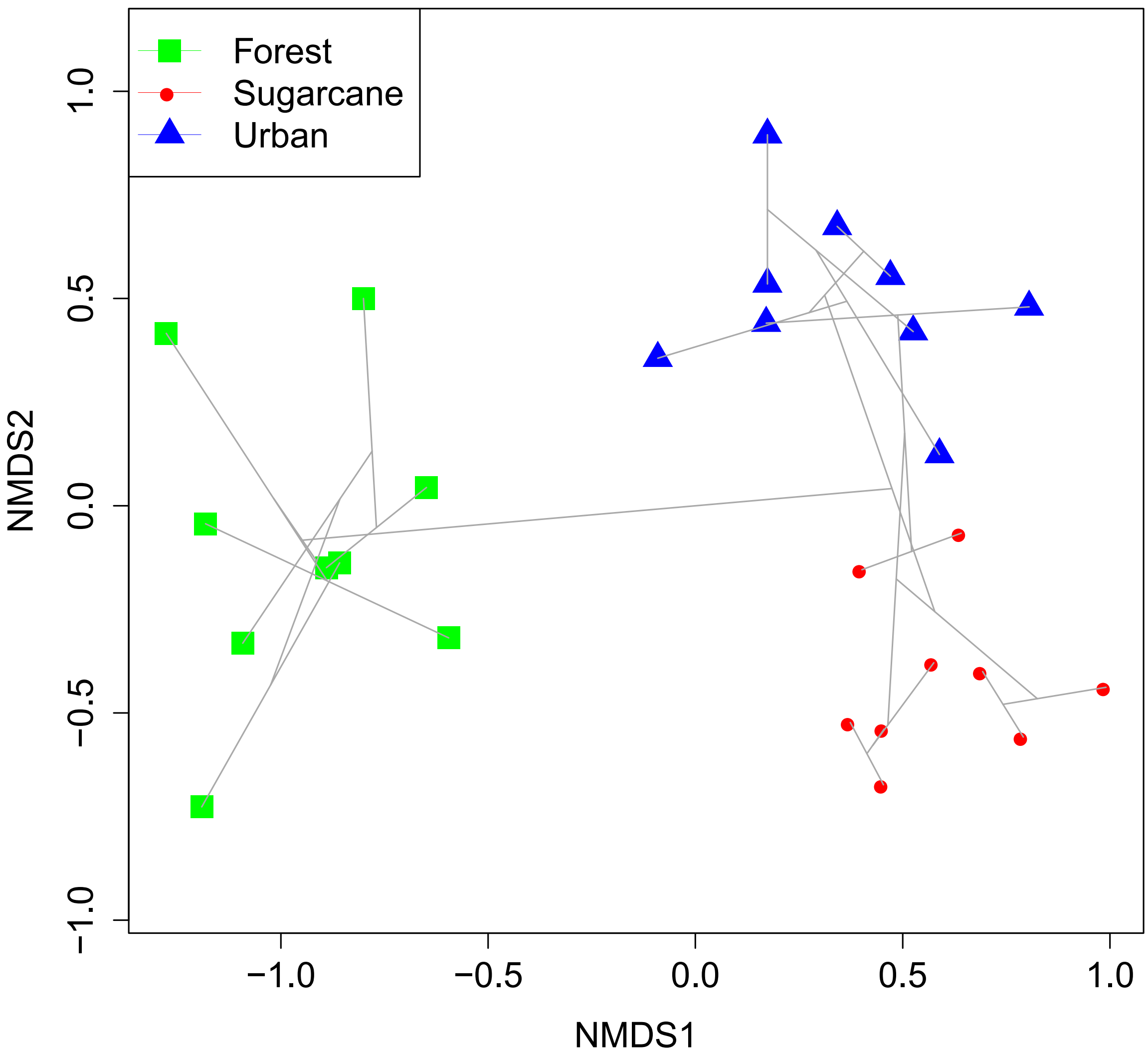

Fig. 4.3. Nonmetric Multi-Dimensional Scaling (NMDS) describing butterfly community structure (densities summed over one year of sampling), using Horn distance index. Separation in space for similar shapes represent spatial variance in a particular land use type (forest, sugarcane, and urban), and distances between different shapes represent differences in community structure for samples in different land use types.

4.5 Discussion

Human-modified areas often decrease biodiversity, and increase abundance of a selected few species that are able to exploit modified habitats (Solar et al. 2015). In contrast, my results suggest that the effect of landscape modification may depend on the type of diversity considered. As expected, the forests in my study had highest species abundances overall when compared to human-modified areas, but the human-modified areas actually had higher species richness than the forests. While this finding is not consistent with those of other studies (e.g., Solar et al., 2015), it could be because of the management practices employed within the different landscapes in the Wet Tropics bioregion. Other research suggests that increasing the prevalence of weedy areas improves butterfly diversity conservation (Koh, 2008), and another study concluded that the optimal strategy for balancing butterfly conservation may include low-intensity agriculture and preservation of field margins (Hodgson et al., 2010). Sugarcane farmers in the bioregion generally have a fallow schedule of 10–25% of their plantation every harvesting period/year (C. Reynolds and M. Savina, pers. comm.). Therefore, these areas may act as havens or breeding grounds for butterflies (Pywell et al. 2004), in part due to the rapid growth of species colonising these areas. These areas are also generally mowed regularly, potentially promoting rapid regrowth of uncultivated plants (once per month or once per 6–8 weeks – depending on the weed load; C. Reynolds and M. Savina, pers. comm.).

Sugarcane farmers also tend to maintain riparian vegetation along creeks and other waterways that run through or around their plantation. This vegetation could act as a corridor, as seen in other cultivation systems such as pine plantations (Haddad and Tewksbury 2005) and ryegrass swards (Cole et al. 2015), allowing butterflies to move from one block to the next, or from forest to block and vice versa, thus preventing population isolation through habitat fragmentation. These high-density populations can also act as source populations to allow for the re-colonisation of neighbouring habitats thus reducing localised or even local extinction. Additionally, the waterways act as refuges for butterflies, especially during drier months when they seek out moist conditions of the drying creek beds (Braby 2004, 2016, Cabette et al. 2017).

The urban areas in my study exhibited the highest beta diversity, as measured by both temporal species turnover and spatial variation, likely due to variation in natural green areas and residents‟ choice of location and landscaping preferences. Some of the cultivated plants serve as butterfly hosts flower throughout the year (e.g., *Ixora* sp.), while others have shorter flowering periods (e.g., *Callistemon* sp.). These nectar-producing plants in the urban setting benefit from residents‟ irrigation, fertilizer application and other typical gardening and landscaping activities, and may create an environment where numerous species of butterflies are able to utilize constant and multiple sources of nectar throughout the year. For example one habitat specialist found mainly in urban areas– *Theclinesthes onycha* feeds primarily on *Cycas* sp., which was readily available due to many residents planting it as an ornamental plant in their gardens.

Additionally, three species showed preference for the urban landscape (Table S4.1), with many of their host plants being found either as weeds or ornamental plants in urban areas (see Braby 2004, 2016 for list of host plants). The presence of these plants provides the necessary conditions suitable for supporting several generations and in relatively high numbers when compared to the two other land management practices that were investigated.

While the sugarcane-producing areas in my study supported the highest species richness, it produced lower beta diversity than the urban areas. Thus, while my data highlight the potential for agriculture to support high species richness, even in comparison to natural areas (Gonthier et al., 2014), agricultural landscapes have often undergone some degree of biological homogenization brought about by homogenization of resources within the physical environment (McKinney, 2006; Solar et al., 2015). As a result, the degree of community dissimilarity in human-modified areas is often reduced when compared to forests and other natural areas (Tscharntke et al., 2012; Solar et al., 2015; Gossner et al., 2016; Socolar et al., 2016). Here, I found that although sugarcane beta diversity was lower than in urban areas, it was higher than the forests. It is unclear why beta diversity was lower in forest habitats, but it may be related to the fact that I focused on variation within an eco-region, rather than among eco-regions. In an evaluation of bird diversity, Karp et al. (2012) found that beta diversity was higher in intensely managed agricultural areas than forests when comparisons were made within the same eco-region, but these differences were reversed when beta diversity was estimated across biomes, due to greater variation in forest vegetation at larger scales. Thus, it is possible that the variation in forest vegetation within my study sites of the Wet Tropics eco-region of Australia was not great enough to support high beta diversity.

Forest habitats had the highest abundance, but lower alpha and beta diversity than sugarcane and urban areas, respectively. Nonetheless, the forest habitats supported butterfly populations that differed greatly from those found in sugarcane and urban areas according to NMDS analyses. These forests are very old (Turton, 2016) and, as such, have established species adapted to the rainforest. Three species were identified as forest habitat specialists (Table S4.1), while one species (*Melanitis leda*) showed a preference for forest habitat despite it being the most dominant species in urban areas throughout most of the survey period. This is because numbers of *M. leda* were highest in urban areas relative to other urban species, but forests supported the highest overall abundance of this species. This species has been identified elsewhere as commonly occurring in parks and gardens, and larvae can feed on a range of grasses (e.g., Orr and Kitching, 2010). The common occurrence of *M. leda* in urban areas indicates that conditions in urban areas can reflect those found in forests, potentially through spill-over into urban areas and the presence of forest plants in green areas. It is also interesting to note that I classified *M. terminus* as a forest specialist while two other *Mycalesis* species (*M. perseus* and *M. sirius*) are mainly found in sugarcane plantations. This evidence, which has also been found for other sister species in Guyana by Sambhu et al. (2017), is contrary to the notion that similar species behave or live in similar areas (Francesconi et al. 2013). Nonetheless, the unique compositions of forest habitats suggest that conservation of these habitats may target different species than conservation of human-modified habitats.

Here, my study focuses primarily on fruit-feeding butterflies, and it is worth considering how other species respond to landscape modification, since different taxonomic groups often respond differently to tropical forest disturbance (Alroy et al., 2017). However, butterflies have been proposed as important indicators, because they can easily be evaluated and their response can closely resemble vertebrate animals (Blair, 1999). Elsewhere, butterflies have been used to optimize land-sharing or land-sparing strategies to balance conservation and agricultural production (Hodgson et al., 2010). Thus, my findings may also be applied to general theory. For example, it is likely that while alpha diversity can be improved in agricultural communities, the potential for improving beta diversity may be more limited, due to low variation in vegetation composition between farms.

4.6 Conclusions

Maintaining intact natural areas remains of great importance for biodiversity conservation. However, landscapes experience different management practices which can, in turn, support different facets of biodiversity as is evident from my results. For example, urban green spaces are encouraged and maintained in many instances in my study area along with the environmentally-friendly practices of many sugarcane farmers (such as maintaining riparian and headland vegetation that support some butterfly species and other associated species). Given that the landscape is a mosaic of different land uses, it is important to consider what aspect of biodiversity conservation needs to be achieved in particular locations. Land managers and conservation practitioners need to include all the different stakeholders that are involved in respective land uses in order to achieve landscape level conservation outcomes, thus preventing fragmentation and/or isolation that can be brought about through different land uses.

4.7 Acknowledgements

I thank the sugarcane farmers (Clint Reynolds, Mark Savina, William Thomas and George Wah Day), residents from the study areas, rangers from the respective national parks and the Daintree Discovery Centre for facilitating my sampling from June, 2016 to May, 2017. I am also grateful to the Wet Tropics Management Authority (WTMA/2017/945) and David Cassells (personal donation) for their funding support towards my field activities. David Cassells also provided helpful comments on an earlier version of the manuscript.

4.8 Supporting information

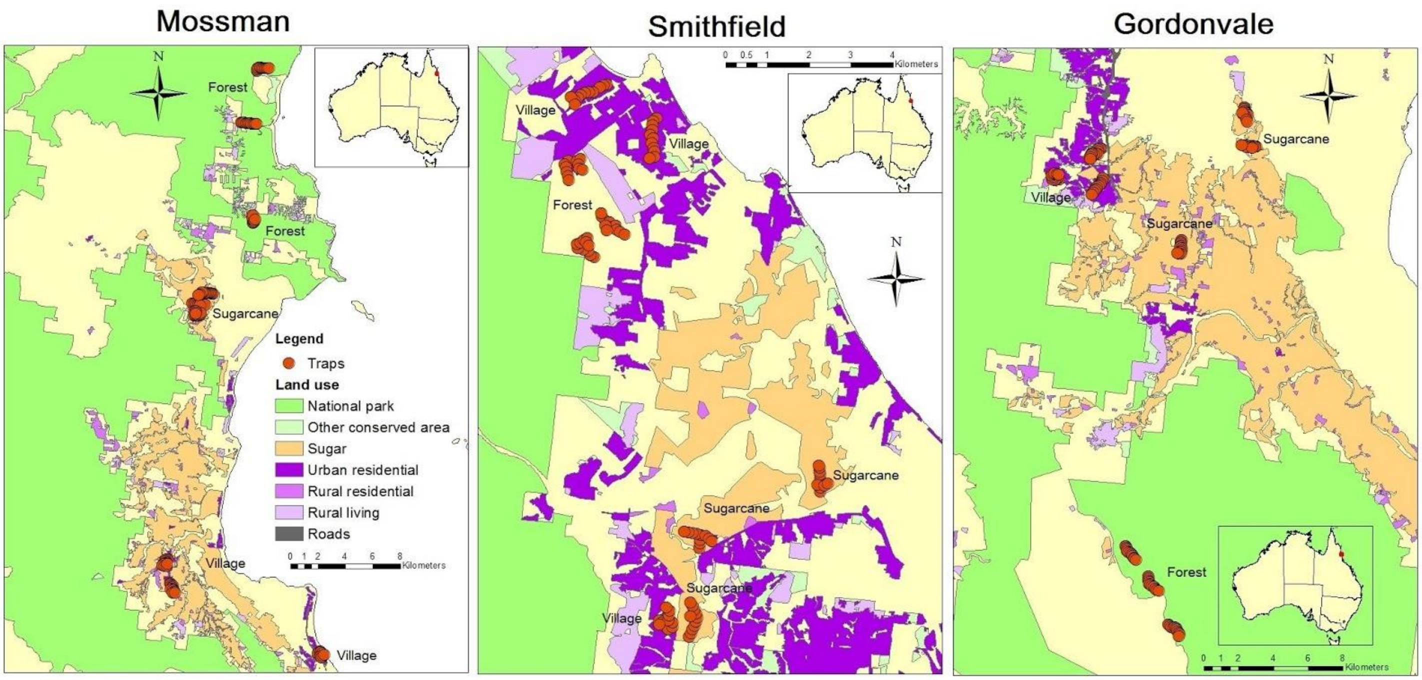

Fig. S4.1. Map showing the three localities sampled in the Wet Tropics bioregion of Queensland, Australia, and position of each transect and/or land use within. Each dot represents a separate trap. Groups of dots represent transects used in the study, which were summed across for analyses.

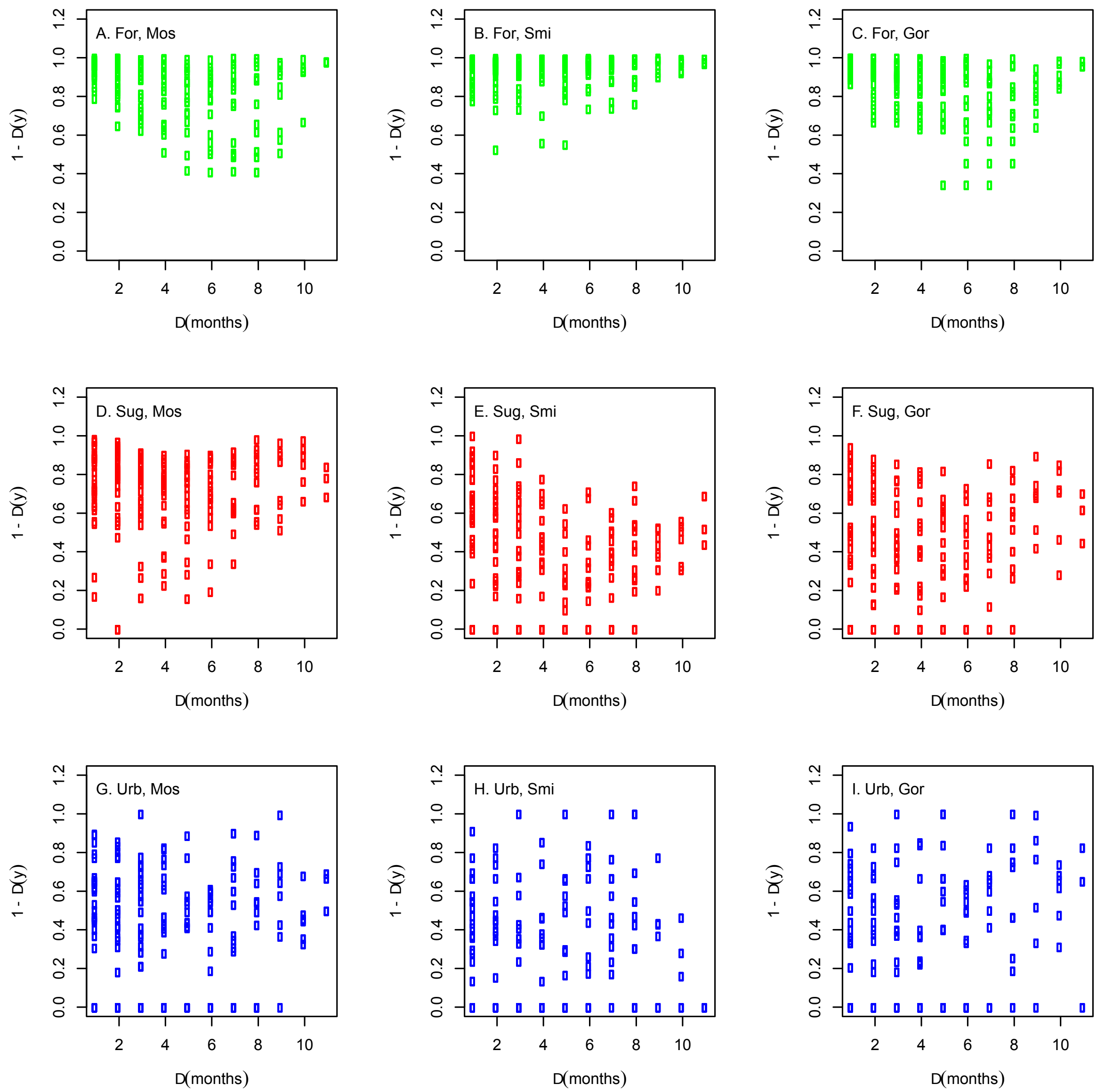

Figure S4.2. Seasonal beta turnover, describing similarity between the same transect, plotted against the number of months between sample dates. Similarity is described as 1 - the Horn community dissimilary index on square root-transformed counts. The counts were square-root transformed to reduce the impact of any particularly abundant species. Because I did not find a clear degredation in similarity across time, I focused on the mean similarity (or dissimilarity) across time within a particular transect. Data collected from forest (A-C), sugarcane (D - F), or urban (G - I) habitats in the Mossman (A, D, G), Smithfield (B, E, H), or Gordonvale (C, F, I) region.

Table S4.1. Habitat specificity index (*Sm*) of species in the three different land uses (S = sugarcane, F = forest and U = urban). The index was calculated for each species by dividing the total number of individuals collected per land use by the total number of individuals collected in total across the three land uses. Only species that had five or more individuals in total were used in this calculation. Species are listed either as a habitat specialist (**) or as having a habitat preference (*). *Sm* values > 0.9 are classified as specialists, while those that are 0.5 < *Sm* < 0.9 have habitat preferences.

Family	**Species**	***Sm***	**Land use**
Hesperiidae	Ocybadistes ardea **	0.93	S
	Pelopidas lyelli **	0.96	S
	Suniana lascivia **	1.00	S
	Arrhenes dschilus *	0.87	S
Lycaenidae	Euchrysops cnejus **	0.93	S
	Famegana alsulus **	0.92	S
	Lampides boeticus **	1.00	S
	Theclinesthes onycha **	1.00	U
	Jamides phaseli *	0.60	S
	Zizula hylax *	0.67	S
	Zizina labradus *	0.66	S
Nymphalidae	Acraea terpsicore **	1.00	S
	Junonia villida **	1.00	S
	Mycalesis perseus **	0.96	S
	Mycalesis sirius **	0.99	S
	Doleschallia bisaltide **	0.91	F
	Mycalesis terminus **	0.94	F
	Neptis praslini **	1.00	F
	Tisiphone helena **	1.00	F
	Hypolimnas bolina *	0.75	S
	Charaxes sempronius *	0.75	U
	Junonia hedonia *	0.71	U
	Phaedyma shepherdi *	0.60	U

	Melanitis leda *	0.56	F
Pieridae	Eurema alitha **	1.00	S
	Eurema hecabe **	0.92	S

CHAPTER 5: PERCEPTIONS OF BUTTERFLIES IN AN URBAN SETTING: IMPLICATIONS FOR BIODIVERSITY CONSERVATION

5.1 Abstract

With urbanisation comes a growing disconnect between people and nature. However, local residents exhibit great influence on landscape change and can have considerable impact on natural spaces and the species that inhabit them. I compared residents" willingness to contribute to butterfly conservation in Guyana (n = 96) and Australia (n = 81) using semi-structured interviews. A classification tree model was generated to describe residents" willingness to contribute to butterfly conservation, using a combination of social and ecological independent variables. The large majority of respondents were willing to contribute in at least one way (81%) and three independent variables influenced their willingness to contribute: willingness to learn more about butterflies, local butterfly abundance, and knowledge of butterfly benefits to the community. I therefore emphasise the need for educational activities to enhance residents' interest and knowledge to improve conservation efficiency and sustainability.

Key words: Australia, community conservation, Guyana, tropical, willingness to contribute to conservation.

5.2 Introduction

Knowledge of and reliance on wildlife for subsistence can positively influence people's inclination to assist with conservation (Wilson and Tisdell 2005, Alves 2012). People who sustainably use wildlife for subsistence often develop a great knowledge base that is passed down several generations that allows for the conservation of these vital resources (Demps et al. 2012, Milupi et al. 2017). In many regions, eco-centric peoples use management systems that restrict hunting in certain locations or for particular seasons or species. For example, local fishermen in rural Guyana communities follow established size and number quota guidelines to sustainably harvest arapaima (*Arapaima gigas*) (Berkes 2007). Such systems usually occur in rural areas where there is a higher dependence on wildlife resources (Wilshusen et al. 2002, Racevskis and Lupi 2006). But as people move from rural to urban areas, there can be an abandonment of traditional use practices and, as such, change the ways people view natural resources or landscapes from which resources are harvested (Reyes-García et al. 2013, Schwartz et al. 2014).

According to the UN (2012) more than half of the world's population is residing in urban areas, in which wildlife/wild spaces tend to be valued more as entertainment rather than for their ecological functions (Miller and Hobbs 2002) and the motivation to support conservation efforts is frequently lost (Miller 2005).

While wildlife conservation traditionally occurs in remote, natural areas (Miller and Hobbs 2002, McCance et al. 2017), recent efforts are focusing on the potential for urban green spaces to improve conservation efforts (Dearborn and Kark 2009, Goddard et al. 2009, Lepczyk et al. 2017). The efficacy of these efforts depends on the willingness of local residents to support and maintain conservation efforts through financial donations (Mattijssen et al. 2017), legislation and adhering to rules (Mattijssen et al. 2017), and even creating wildlife friendly spaces (e.g. planting plants) on their private land (Niemelä 2014).

Here, I evaluate the drivers of urban residents' willingness to contribute towards conservation. I used butterflies as an indicator of biodiversity due to their ability to predict species richness of other species (eg birds) (Fleishman et al 2005), strong association with plants during various stages of their life cycle, habitat specificity and identification ease (Braby 2004) and social relevance (Fleishman and Murphy 2009). In addition to the social surveys, I conducted ecological surveys to evaluate local butterfly abundance and richness. I then compared patterns of butterfly conservation views to local butterfly abundance and richness.

My survey included two tropical locations: coastal Guyana and the Wet Tropics bioregion in Australia. Apart from sharing a similar climate, both regions have strong agricultural industries, and sugarcane is one of the main crops produced in each region. However, these countries differ greatly in their economic development (GDP per capita in 2016 = US$4,529 and US$49,927 for Guyana and Australia, respectively, The World Bank Group 2017) and the profitability of their respective tourism industries. For example, in Australia iconic butterflies are often used in advertising ecotourism activities, while this is not common in coastal Guyana. Thus, these regions provide an excellent opportunity to evaluate people's willingness to contribute to conservation in tropical countries.

5.3 Methods

5.3.1 Study area

My study was conducted in urban areas along a section of Guyana's coastline (between 6.81°N, 58.11°W and 5.88°N, 57.14°W) and in the Wet Tropics bioregion of Queensland, Australia (between 16.92°S, 145.69°E and 16.45°S, 145.37°E). Both locations are tropical in nature, with average annual temperature and precipitation of 24–30 °C and 2296 mm (Gaj and Madramootoo 2017), respectively, along Guyana's coastline and 21–29 °C and 1992 mm (Bureau of Meteorology 2018), respectively, in the Wet Tropics bioregion.

Urban study sites in Guyana were located in Skeldon, Number 70 Village, Number 63 Village, Tain, Nigg and High Reef within the East Berbice-Corentyne region (Region 6), and Mon Repos, La Bonn Intention and Cummings Lodge within the Demerara-Mahaica region (Region 4). In Australia, residents were surveyed in Queensland suburbs of Mossman, Port Douglas, Kewarra Beach, Trinity Beach, Freshwater, Redlynch, Bentley Park and Edmonton.

5.3.2 Social surveys

I established a 1 km transect within each urban locality to sample butterfly abundance and richness. Semi-structured interviews were conducted with residents 18 years or older that lived on or adjacent to the property containing a trap. The 1-km long ecological transect consisted of 11 traps, which were spaced out by 100 m apart in an effort to capture the butterfly diversity of the area. As such on average 11 interviews were conducted along that transect, within that urban area. It should be noted that the transects were visited every month for 12 months in each country to collect ecological data, so the interviewers and interviewees were familiar and comfortable with each other, thus allowing for a conducive interview session. The total numbers of people interviewed were 96 and 81 in Guyana and Australia, respectively, ranging widely in age and education level (Table 5.1). Interviews were conducted following James Cook University's Human Ethics Guidelines (approval number H6450).

Table 5.1. Basic demographic characteristics of sample populations.

Variable	**Guyana**	**Australia**
Sex	Females = 63 Males = 33	Females = 46 Males = 35

Age	18−83 years old	19−85 years old
Education	Did not go to school = 11 Primary = 29 Secondary = 47 Tertiary = 9	Did not go to school = 11 Primary = 3 Secondary = 31 Tertiary = 44

A list of questions (Table SOM 5.01) was used to guide the interview process, but interviewees were allowed to share any information that they thought was relevant. Interviewees were questioned about their observations of butterfly abundance (numbers), richness (different types of species), seasonal trends and any butterfly-plant interaction with plants (that they planted or that were naturally occurring) in their environ in an effort to understand what persons were observing in their environ, as community observation of nature can influence conservation (New 2010, Sands and New 2003). They were also asked about their fondness and (perceived) benefits of butterflies to the community, as how people perceive nature can impact on conservation efforts. Finally they were asked if they would be willing to learn more about butterflies, thus assessing their interest in learning and connecting with nature (Standish et al 2013). The questions were designed primarily to gather data on people's perceptions and knowledge of butterflies. Interviews were conducted between June 2015 to June 2016 in Guyana and between June 2016 and June 2017 in Australia. Sessions lasted between 15–45 minutes, depending on how much information the participants shared.

5.3.3 Ecological surveys

Butterfly abundance from the ecological survey was summed across the 12 months to compare with information collected from the social surveys. Please see section 3.3.2 and 3.3.4, and 4.3.2 and 4.3.3 for details on sampling techniques and analysis in the respective countries.

5.3.4 Data analyses

To evaluate patterns in people's willingness to contribute to butterfly conservation, I built a classification tree model using the Classification and Regression Trees function of IBM SPSS 20 (Brieman et al. 1984). This model was used, because it performs variable screening, did not rely on linear data, and is easy to understand and explain (De'Ath and Fabricius 2000). This non-parametric method uses the Gini impurity measure to repeatedly partition responses into homogenous groups to separate the data and provide a hierarchical structure thus highlighting the first-to-last preference in responses. Variation was explained in a single dependent response variable – "willingness to contribute to butterfly conservation", using several independent variables (table SOM 5.01). As the dependent variable was ordinal, a classification tree was generated. I initially generated individual models for Guyana (resubstitution risk estimate (rre) = 0.427) and Australia (rre = 0.420); however, model robustness increased considerably when the two countries were combined (rre = 0.356). I also included „country" as a categorical variable in the final model to ensure that other variables had a stronger influence on the dependent variable than location.

5.4 Results

I found that 81% of respondents would be willing to contribute to butterfly conservation in at least one way. The model suggests the most important factor increasing willingness to contribute to butterfly conservation was the respondents" willingness to learn more about butterflies (importance (*I*) 0.050; Fig. 5.1). I found that most of the people (96%) who expressed an interest in learning more about butterflies (> 2.5 on the Likert scale of 1–10) were more inclined to contribute to butterfly conservation in at least one way (Figure 5.1). For the people less keen on learning (≤ 2.5 on the Likert scale of 1–10), the decision to contribute was lower in areas with high butterfly abundance (*I* 0.028; Fig. 5.1) and knowledge of butterfly benefits to the community (*I* 0.017; Fig. 5.1).

In areas with low butterfly abundance (less than 1.5), 92% of respondents indicated that they would be willing to contribute in at least one way (Fig. 5.1). In contrast, in areas where abundance was greater than 1.5, 54% of respondents said they would not be willing to contribute (Fig. 5.1). However, in the areas with high butterfly abundance, their willingness was further improved by their knowledge of butterfly benefits (*I* 0.017; Fig. 5.1).

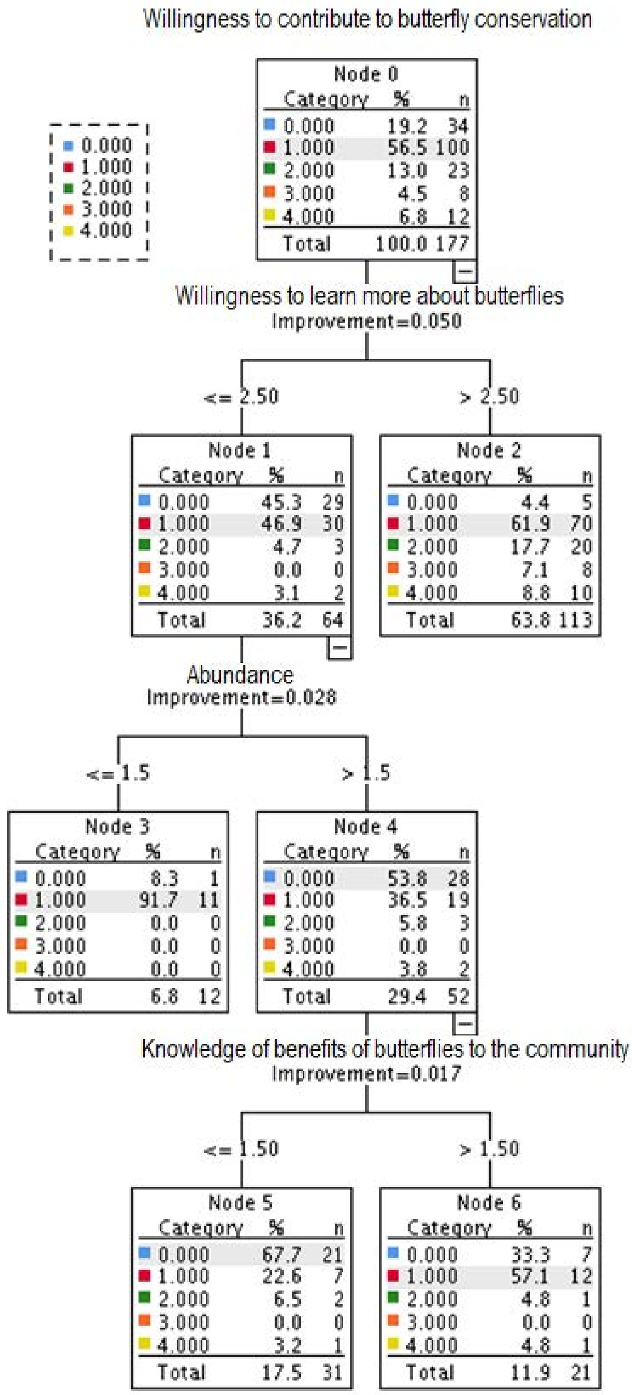

Fig. 5.1. A classification tree model showing the influence of willingness to learn, local butterfly abundance and knowledge of butterfly benefits to the community on people's willingness to contribute to butterfly conservation in Guyana and Australia.

5.5 Discussion and conclusion

Local residents' support of conservation programs is critical for their successful implementation (Cowling et al. 2008, Ban et al. 2013). Turpie (2003) found a positive correlation between interest in nature and people's willingness to pay for biodiversity conservation. Southon et al (2017) also found that income and employment status impacted on people's willingness to contribute to conservation. However, income and employment status, even though very influential, should not be the only variables to consider when evaluating support of conservation efforts.

In my study, I did not collect income and employment status due to ethical concerns, so I was not able to examine these variables. However, based on a general comparsion of the country specific Gross Domestic Product, it could be assumed that the Australian interviewees were more economically sound. Additionally, there were more tertiary level educated people in the interviewed population from Australia (49%) than there were in Guyana (9%). However, I did not find any significant difference when comparing the two countries demographics. When both country data were combined the model increased in robustness (rre = 0.356) and I found that local residents' willingness to contribute to butterfly conservation was influenced by a willingness to learn about butterflies. Therefore, the results appear to be robust across the wide array of social and economic differences between the two countries. Some respondents were not interested in learning about butterflies, but were still supportive of conservation efforts especially if they knew that 1) the butterfly population was depauperate in the area, or 2) butterflies were beneficial to the residents of the community.

Butterfly abundance data was derived from ecological surveys conducted concurrently, but separately from the social surveys, and therefore serves as an important independent model variable. Here, butterfly conservation support is linked to butterfly abundance, such that low abundance increases people's inclination to contribute to conservation. This suggests community support can be garnered for the protection of habitats that support species of low abundance once the low abundance is highlighted.

For areas with high butterfly abundance, people's willingness to conserve butterflies was higher if they perceived butterflies to be beneficial to the community. Conservation therefore depends on the perceived usefulness of the target species. Therefore, it is important to identify what urban residents perceive to be benefical in their environment to ensure conservation success (Schwartz et al. 2014). Studies by Turpie (2003), Wilson and Tisdell (2005) and Cortés-Avizanda et al. (2017) found people's perceptions of threats to biodiversity influences their support for conservation activities, and they are more inclined to engage in conservation of species they perceive as being threatened. This highlights the importance of public education, especially concerning the status and threats to target species to garner support for conservation activities. Some of the more recent approaches adopted by conservationists include increasing public environmental education and awareness. These programs are formal (e.g., through school curricula), non-formal (e.g., through outreach programs), informal (e.g., raising awareness via billboards and social media), moral confrontation (e.g., through civil disobedience), and communication (e.g., through published articles) (Salafsky et al. 2002), so there are a number of tools that can be used to achieve desired conservation outcomes.

To initiate an effective community conservation program, there is a need to identify groups of organisms that capture public interest. My social survey was correlative in nature, and further research is needed to evaluate causation. However, my study suggests that interest is a key precursor of willingness to contribute to conservation. Understanding people's priorities can enable conservationists to better identify ways to secure people's support. People would then need to be informed about the scope, nature, relevance and purpose of conservation activities, and to be continuously engaged (New 2010). Where interest is not sufficient for initial engagement, factors such as population status and people's perception of species can be used to further discussions on conservation. It is also important for conservation biologists to recognise various forms of contribution, such as people volunteering their time to assist with conservation programs, planting butterfly-attracting plants or shopping at butterfly conservation centered shops/events, as these can also assist in the conservation efforts of the species.

5.6 Acknowledgements

I am grateful to the residents who participated in the surveys. Thanks are also extended to Meshach Pierre for his assistance with data collection in Guyana.

5.7 Supporting information

Table SOM 5.01. Survey questions, variables derived for analyses and scales of measurement.

Variable	**Question(s) asked / data recorded**	**Scale of measurement**
Dependent variable		
Willingness to contribute to butterfly conservation	Would you be willing to contribute to butterfly conservation. If yes, how would you contribute (would you donate money, volunteer time to work with a conservation group, plant individual or community butterfly-friendly garden, and/or shop at butterfly conservation centered shops or events?)? * Other responses were accepted if they were seen as a contribution.	<u>Ordinal</u> No contribution 1 contribution 2 contributions 3 contributions 4 or more contributions
Independent variables		
1. Country	Guyana or Australia	Categorical
2. Sex	Male or female	Categorical
3. Age	What is your age?	Numerical

4. Education	What is the highest level of education achieved?	Ordinal Did not go to school Primary Secondary Tertiary
5. Reason(s) for planting plants	Do you plant plants in your yard/garden?	Binary No Yes
6. Observation of butterfly-plant relationships	Have you noticed a particular butterfly visiting a particular plant in your yard/garden?	Binary No Yes
7. Observation of seasonality	Have you noticed any butterflies in your yard/garden? Do you see them year round or during a particular season?	Binary Year round/no season; Species seasonality
8. Observation of butterfly numbers	Have you noticed any butterflies in your yard/garden? How many?	Ordinal Counted none $n < 5$ $5 < n < 10$ $n > 10$
9. Willingness to learn more about butterflies	Would you be willing to learn more about butterflies? If yes, please rank your interest on a scale from 1–10.	Likert scale From 1–10, with 1 being low interest in learning more about butterflies and 10 being the highest
10. Knowledge of butterfly benefits to the community	Do you think that the community benefits from having butterflies around. If yes, please rank on a scale of 1–10 how much you think butterflies are beneficial to the community.	Likert scale From 1–10, with 1 being little or no benefit and 10 being very beneficial
11. Fondness of butterflies	Do you like butterflies? If yes, please rank on a scale of 1–10 how much you like butterflies.	Likert scale From 1–10 with 1 being not very fond of butterflies and 10 being very

		fond
12. Butterfly abundance	Derived from ecological sampling of butterflies within the urban areas.	Numerical Total yearly number of butterfly individuals per trap
13. Butterfly species richness	Derived from ecological sampling of butterflies within the urban areas.	Numerical Total yearly number of butterfly species per trap

CHAPTER 6: SYNTHESIS

6.1 Background

As the human population grows, there is greater pressure on natural spaces to house and feed people (DeFries et al. 2010, Laurance et al. 2014). Natural landscapes are being replaced by human-modified landscapes often at the expense of biodiversity, an occurrence that is even more evident in the tropics (Laurance et al. 2014). This is concerning as the tropics contain the majority of the world's documented terrestrial biodiversity (Gardner et al. 2009, Laurance et al. 2014), yet it is believed that tropical countries will have to meet much of an increased global demand for agricultural products in the future (Gibbs et al. 2010). Therefore, of increasing importance to conservationists is the understanding of how human-modified landscapes impact on biodiversity, as well as how the divide between people and nature can be addressed in order to garner their support for effective conservation efforts.

This doctoral thesis investigated butterfly abundance, richness, evenness and diversity in two human-modified landscapes (urban areas and sugarcane plantations) in sections of tropical Guyana and Australia, and compared these measures with those of forested areas so as to gain a better understanding of how this insect group is progressing in different landscapes. Additionally, it explored what variables influence urban residents' willingness to contribute to conservation, as more than 50% of the global population lives in urban spaces (UN 2012). This chapter aims to synthesise the main findings of this thesis and discuss avenues for future research.

6.2 Addressing a knowledge gap on butterfly diversity in Guyana

The ecological survey that I conducted on butterfly occurrence in different land management practices in Guyana necessitated background information on which species had previously been collected and where. I therefore set out to compile a checklist of butterfly species that had been observed or collected from different locations within Guyana and from as far back as available records went. This tedious but much needed task involved searching through records dating back to 1864, searching published records, corresponding with authors of checklists for neighbouring countries, and compiling records from my own research. I also documented butterflies that had been collected in neighbouring countries right along the border and that may also exist in Guyana. Prior to my checklist, the most recent comprehensive checklist of butterflies of Guyana was generated by Hall in 1939. Thus, there was need for a more taxonomically up-to-date list.

My examination of the available literature generated a total of 1,205 species of butterflies from 457 genera, 22 subfamilies and six families that had been recorded in Guyana. This contrasts with Hall's (1939) list of 814 species from 272 genera, 10 subfamilies and 10 families. Additionally, from since the time of Hall's publication, there have been numerous changes in the systematics of species and re-classifications. My checklist has also added numerous new localities to the distribution of many species. However, as I mention in Chapter 2, there is still scope for additional research in different habitat types, elevations, gradients (north/south, disturbance, seasonal, etc) and localities across the country.

6.3 Butterflies in human-modified and forested landscapes in Guyana and Australia

The ecological surveys conducted over 12-month periods in Guyana and Australia were designed to investigate variations in butterfly community composition and dynamics across three different land management types: urban, agriculture and forest. As sugarcane is an important agricultural crop in both Guyana and Australia, I focused on sugarcane monoculture as the agriculture land use. However, secondary forests (at least 25 years or older) were used in Guyana rather than primary forests due to a lack of enough suitable, accessible primary forest sites along the coastal belt where the survey was conducted. There are more accessible primary forests moving from Guyana's coastal belt (with fluvial soil) toward interior locations (with hilly sand area), but commercial sugarcane farms and the desired urban settlements (>1000 people per km^2) are absent from these locations. Focusing on secondary forests along the coastal belt allowed for access to areas with the three selected land management types. In addition to this difference in forested sites between Guyana and Australia sites, sugarcane cultivation also differed in the production and management system used. The highly mechanised and privatised system in Australia is characterised by green harvesting and trash blanketing, whereas the corporate system in Guyana relies primarily on manual labour to implement a burnt harvesting technique. Because of differences in the production system, there are also differences in weed management, chemical (pesticides and fertilisers) usage, and fallow routines.

Conservationists are increasingly recognizing the potential incremental role of modified landscapes in biodiversity conservation (Brockerhoff et al. 2008, Chazdon et al. 2009, Ellis 2013, Ives et al. 2015), particularly in the tropics where such high levels of human modification are making it increasingly challenging to maintain large protected blocks of pristine forests (Melo et al. 2013). As such, while I hypothesised that the forest sites in both countries in my study would have higher butterfly abundance, richness, evenness and diversity than the urban and agricultural sites, I believed that these modified landscapes would have some conservation value that is worth investigating in two highly contrasting tropical settings.

In Guyana, the forest sites supported higher butterfly abundance, richness and Simpson's diversity than urban and sugarcane areas. However, these modified landscapes were still supportive of butterfly communities comprising species rarely found in forests. The forests supported the majority of specialist species. For example, specialist species such as members of the subfamily, Morphinae, favour the understory habitats of closed canopy forests so there is limited potential for modified landscapes to support this group (Francesconi et al. 2013). This was also evident in my study as species of *Morpho* were not found in either of the modified landscapes throughout the survey period. The modified landscapes, however, had higher populations of other species, emphasising their potential role as sources/sinks for some groups of biodiversity. Thus, in addition to making continuous efforts to protect natural forests, conservationists should also encourage activities in modified landscapes that can assist with biodiversity enhancement. In Guyana's context and as it relates to butterflies, this might include encouraging the planting of host and nectar plants in urban settlements and maintaining grassy strips along field margins or uncultivated lands in agricultural production systems.

Results from the survey in Australia differed from those in Guyana, but with similar management implications. Sugarcane and urban areas had both higher species richness and evenness when compared to the forests. I attribute this to the specific management practices employed in sugarcane production systems (such as the harvesting and fallow schedules, mowing regime, high nutrient input and maintenance of riparian vegetation) and urban settlements (such as the presence of various host and nectar plants). Thus, there is potential for conservation at local scales in modified landscapes. Over time, as Guyana develops, it may follow the Australian path for sugar production and the residents' tendency to maintain green spaces in the urban setting with implications for biodiversity. Beta diversity, on the other hand, was highest in forest or urban areas, depending on the metric used. Whittaker's beta diversity was highest for forest sites while Jost's beta diversity was highest for urban sites. This is likely due to variations in plant composition across these two habitat types. As in Guyana's case, findings from the Australian survey suggest that it is possible to conserve butterflies in modified landscapes such as sugarcane farms. In addition to emphasising the importance of conserving forests, the Australian survey also demonstrates the value of maintaining remnant green spaces in urban areas.

These findings raise questions about what drives community dissimilarities across and within the different land use types and locations evaluated. Thus, there is additional research needed on all factors influencing turnover within and between the various habitats across different landscapes and countries. One important factor that could be investigated further is the butterfly host plant association in both countries. This information is especially needed in the Guyana context, and could possibly assist in the understanding of the community dissimilarities/turnover. It is imperative that these interchanges be monitored, as they could have positive or negative effects on the habitats and environmental services that are garnered from the species and the landscapes within which they exist. This in turn can influence the success of conservation programs.

6.4 The role of people's perceptions in conservation

The ecological surveys highlighted the importance of conserving butterflies in human-modified landscapes, including in urban areas. Therefore, I surveyed the local residents in the areas corresponding to my ecological surveys to evaluate the factors influencing conservation support. By surveying residents in the same areas as my ecological surveys, I was able to compare the social data with the ecological data to compare trends in butterfly populations with the views of local residents. As with the ecological surveys, I conducted these social surveys over the respective 12-month periods in Guyana and Australia. I evaluated the two countries together, as the analyses provided more reliable results when they were combined, suggesting there are no significant differences between the two countries. There is increasing support for this approach in biodiversity management and conservation, as it not only augments ecological data but also fosters a sense of inclusion and involvement in communities (Gilchrist et al. 2005, Brook and McLachlan 2008).

I used several independent variables derived from both the social and ecological surveys to assess people's willingness to contribute to butterfly conservation and found that the majority were willing to contribute in at least one way (either by donating money, volunteering time, shopping at butterfly-centred shops or events, or creating a butterfly-friendly space through the planting of nectar or host plants). Additionally, residents' likelihood of contributing increased if 1) they were keen on learning more about butterflies, 2) local butterfly abundance is low, and 3) they thought that butterflies benefitted the community in some way. As such, I emphasise the need for education activities or programs that can strategically enhance people's perceptions of biodiversity and the environment.

For an educational initiative to be effective, it should be meaningful and relevant to people. This can be achieved by providing information that people can understand and use. According to McKinney (2002), providing ecological information can considerably improve social support for conservation especially in an urban setting. People who are keen on learning more about butterflies can be provided with information that is jargon-free, engaging and easily accessible through various media (websites, television advertisements/broadcasts, billboards, or even community meetings/social gatherings). Many respondents from the surveys wanted to know what types of plants they can plant to encourage butterflies in their neighbourhood, so if this information is provided to them they are likely to help create a butterfly-friendly space and, in so doing, help with the conservation of butterflies. Similarly, people who thought that butterflies benefitted the community in some way can be encouraged to create more butterfly-friendly spaces in their environs to increase local butterfly populations.

6.5 Implications and future research

The three major types of landscapes (forest, sugarcane, and urban) surveyed in this thesis research can play a role in butterfly conservation. From an ecological perspective, they each can provide suitable conditions for the persistence of different groups of butterflies. From a social side, these landscapes provide some opportunity for people to interact with nature and, as such, are crucial for the understanding of biodiversity within the environment in which people live. Additionally, conservation could benefit from the inclusion and engagement of multiple actors in the community since more emphasis needs to be placed on enhancing modified landscapes so as to maintain or attract native biodiversity, while simultaneously maintaining forested areas.

In the context of Guyana, this thesis investigation has helped to fill a knowledge gap. However, as noted in Chapter 2, knowledge of Guyana butterflies would be greatly enhanced by additional research on species biology, behavioural ecology, seasonal and altitudinal variations and distributions, impacts of different land management practices, and so on. Also given that most of the agricultural and urban development is occuring or has occured on the coastline, there is need to evaluate butterfly distributions along the coastal to inland gradient for possible distributional impacts/effects. However, such research should consider the various environmental covariates (vegetation, habitat, human population, climate, soil composition, etc.) along this gradient. There is also the need to involve and educate the general public of butterfly population status, especially threatened species, and their benefits to the community.

Such research will hopefully yield records of butterflies that are believed to occur in Guyana based on their occurrences at the borders of neighbouring countries, which may also help to satisfy estimates proposed by regional butterfly experts that are based on total butterfly numbers in neighbouring countries. Continuous research of this nature can considerably improve the quality and accuracy of a checklist, and also enable conservationists to identify and address threats to species (Smith and Wolfson 2004) and established community driven monitoring programs.

The findings of the ecological surveys can assist the sugarcane industry in both countries in their efforts to be more environmentally sustainable, especially in Guyana where the system of green labelling is relatively undeveloped compared to Australia. These findings can also help with the development of more urban green spaces as well as the maintenance of remnant ones. However, more research is still needed within modified (sugarcane and urban) and forested landscapes as species distribution can be impacted greatly along the landscape gradient. There is also global phenomena such as climate change effects that needed to be taken into consideration. Additionally, there are other factors that can affect the rate of land conversion such as global market pricing, which helps to inform an individual, organisation, or country's decision to convert natural lands.

The findings of the social surveys can be used to help people reconnect with nature by allowing them to be able to identify and interact with butterflies in their environment and, in so doing, help people to gain more appreciation for them and understand their role in the environment. At the same time, there is still need to investigate the most appropriate methods to reach different actors and values in different social settings, the role of socioeconomic standing (such as income and employment status) on people's mindset towards conservation, and how people can be engaged in monitoring their environment to help provide up-to-date information to decision-makers.

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