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BUTTERFLIES OF THE MYRISTICA SWAMP FORESTS OF SHENDURNEY WILDLIFE SANCTUARY IN THE SOUTHERN WESTERN GHATS, KERALA, INDIA

Prabhakaran Chandrika Sujitha¹ , Gopal Prasad²  & Kalesh Sadasivan³ 

^{1,2} Department of Zoology, University of Kerala, Kariavattom Campus, Thiruvananthapuram, Kerala 695581, India.

³ Travancore Nature History Society, MBRR 65, Jyothis, Mathrubhumi Road, Vanchiyoor, Thiruvananthapuram, Kerala 695035, India.

¹ sujeespc@gmail.com, ² probios1@gmail.com, ³ kaleshs2002in@gmail.com (corresponding author)

Abstract: Myristica swamps are unique freshwater swamp forests characterised by predominance of tree species of the Myristicaceae family. There have been few published works on the flora and fauna of myristica swamps but studies on butterflies have been scanty. This work was done in the myristica swamps of Kattilapara in Shendurney Wildlife Sanctuary, Kollam district, Kerala, located in the northern aspect of the Agasthyamalai Hills of the southern Western Ghats. Data on the butterflies were collected over a period of two years supplemented with data from previous visits using Transect method. Butterflies were identified based on field photographs and relevant literature. We recorded 206 species of butterflies belonging to 6 families from the myristica swamps. This included 17 species of Papilionidae, 20 species of Pieridae, 65 species of Nymphalidae, 56 species of Lycaenidae, two species of Riodinidae and 46 species of Hesperidae. Of the total, 19 species of butterflies were Western Ghat endemics. A checklist of butterflies of the myristica swamp, larval hostplants, status with respect to IUCN criteria, endemism, and classification as per Indian Wildlife Protection Act (WPA) of 1972 are also provided. Eighty-two species of plants were listed as butterfly larval hosts in the myristica swamp ecosystem, with 27 species being new host records for Western Ghats. None of the butterflies recorded were using plants of Myristicaceae family as larval hosts. A simple index—the percentage occurrence—is proposed to delineate the habitat affinity of species.

Keywords: Agasthyamalai Hills, larval host plants, habitat affinity.

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Author Details: P.C. SUJITHA is a PhD scholar basically interested in ecology of aquatic and terrestrial ecosystems. G. PRASAD, Professor in Zoology, has his interests in aquatic biology, invertebrate studies and man-animal conflicts in Western Ghats. KALESH, S. is a microvascular surgeon interested in ecology, taxonomy and biogeography of invertebrates of Western Ghats especially ants, odonates and butterflies. He is a founding member of Travancore Nature History Society (TNHS) Trivandrum.

Author Contribution: KS conceived the concept of the work and the POC index, PCS and KS did the field work and writing the manuscript. Revisions and editing of the work was done by GP and KS.

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INTRODUCTION

Myristica swamps are tropical swamp forests first reported from Kulathupuzha Reserve Forests and adjoining regions of Anchal, Thenmalai and Shendurney Wildlife Sanctuary (WS) in Kollam and Thiruvananthapuram districts of Kerala (Krishnamoorthy 1960). Besides Kerala, they are also known to occur in Karnataka and Goa (Joyce et al. 2014). Myristica swamp forests are floristically lowland (180–200 m) edaphic variants of evergreen forests with canopy at 30–40 m, with pure patches of Myristicaceae trees in a freshwater swamp amidst tropical evergreen patches (Subramanian 1995). These are highly fragmented ecosystems with restricted distribution (Rodgers & Panwar 1988a,b). The dominance of the trees of Myristicaceae family in the swamps gives them their common name (Roby et al. 2014). The myristica swamps are classified as forest type 4c/FS1, under Champion & Seth (1968).

There have been a few studies on the flora and fauna of myristica swamps. Notable works on their basic ecological aspects are by Nair et al. (2007) from Kerala and Ramabhat & Kaveriappa (2009) from Uttara Kannada. Floristic works on this unique ecosystem can be seen in Varghese & Menon (1999), Roby et al. (2007, 2014), Subash et al. (2008), Sreejith et al. (2016) and Joyce et al. (2014). Floristic studies by Roby et al. (2014) had listed 79 species of trees, 93 species of herbs and shrubs, and 49 species of climbers in this ecosystem of which 49 are endemic and 18 are IUCN Red List species. There are only a few studies available on faunal diversity of myristica swamps. The insect diversity in these swamps were studied by Sinu & Sharma (2013); spiders by Joyce et al. (2007a); reptiles by Joyce (2007b,c). The general insect diversity of Shendurney WS was covered by Mathew et al. (2004) and the butterflies list can be seen in Anonymous (2012).

Butterfly fauna of myristica swamps were largely unknown and only a very few studies are available in this regard. Ali et al. (2008) worked on the myristica swamps of Uttara Kannada and recorded 57 species of butterflies in three families Papilionidae, Pieridae, and Nymphalidae. Joyce et al. (2015) identified 72 species in five families and 57 genera during the work in Anchal, Kulathupuzha, and Shendurney over three years. Thus, studies on lepidopteran fauna of myristica swamps have been very scanty. The present study documents of butterflies of myristica swamps of Shendurney WS (8.858°N & 77.210°E) in the northern aspect of the Agasthyamalai Hills of the southern Western Ghats in Kerala.

MATERIALS AND METHODS

Study Area

The myristica swamps at Mankuthu and Onnam-Mile in Kattilapara region of Shendurney WS were studied (Fig. 1). The Mankuthu myristica swamp lies about 1.5km behind the Kattilapara base camp and is at the edge of the sanctuary, while the Onnam-Mile myristica swamp lies about 2.5km inside the sanctuary on the right of the road leading to Kallar. Anthropogenic factors do not seem to play any significant influence on the swamp ecosystem as both are inside the protected area of the sanctuary.

Two myristica swamps were studied in the Kattilapara region of the Shendurney WS (Image 1). Data on butterflies for POC scores (see below) were collected over a period of two years for every two weeks from May 2016–May 2018 using transect method. Permanent line transects covering 500m over 30 minutes were taken in the morning (8–9 am) and evening (3–4 pm) to study the butterfly diversity of the myristica swamp and the adjoining evergreen forest patch. The transects were such that it covered 500m of swamp and 500m of the adjoining evergreen forests. This intensive two-year work was supplemented with additional data from previous visits to this area using the same 500m/30 min transect method, taken once a month, spanning over the last 10 years (2008–2018), for butterfly diversity and hostplant records. For delineating species that are myristica swamp dependent, we compared the butterfly occurrences in the myristica transect with another 500m control transect laid in the adjacent evergreen forest. Butterflies that were recorded in more than 50% of transects in myristica swamps in comparison to the adjacent control transect was taken as myristica swamp species (MSS). This included species with 50–75 % occurrence in the swamp, treated as myristica swamp associates (MSA), and those with occurrence of more than or equal to 75% of transects classified as myristica swamp dependents (MSD).

$$MSS = MSA + MSD$$

Those species which were seen <50% were classified as stragglers and were present more outside the swamp than in it. This treatment was supplemented with host plant and early stage data for these butterflies from our observations. Species with their known hostplant distribution restricted to myristica swamps were also considered as myristica swamp dependents (MSD).

To ascertain the habitat affinity and distribution among habitats, we propose here a very simple index — the percentage of occurrence (POC). The total number

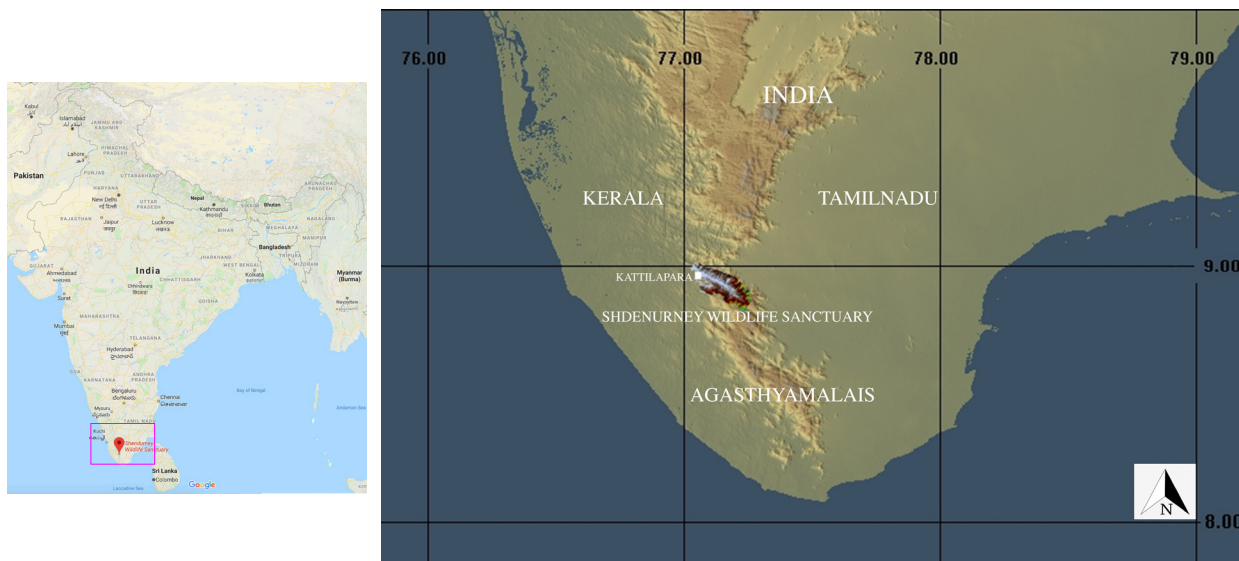


Figure 1. Study area in Shendurney Wildlife Sanctuary, Kerala.

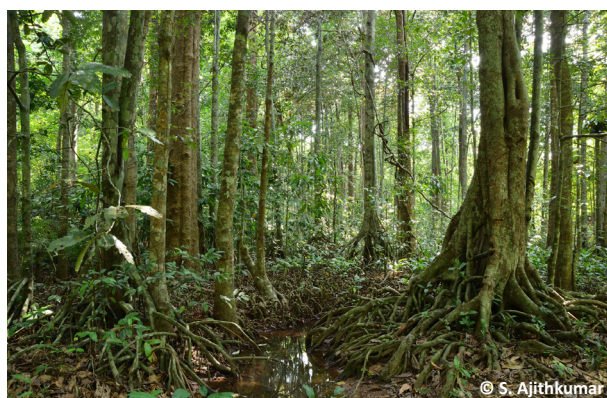


Image 1. Myristica swamp forest.

of individuals of a species is taken and the proportion of them seen in the particular habitat is calculated. For example, in the case of the swamp, we calculated the POC score as per the following equation:

$$\text{Percentage of Occurrence (POC) in Swamp} = \frac{n(\text{Swamp}) \times 100}{n(\text{Swamp}) + n(\text{Evergreen})}$$

$$\text{POC(Evergreen)} = 100 - \text{POC(Swamp)}$$

Here n was the absolute number of individuals of a particular species seen in a transect (myristica swamp or evergreen forest) added over the study period.

Butterflies were identified based on field photographs and relevant literature. Oviposition alone was not taken as primary criteria of hostplant confirmation because of the well-known oviposition mistakes. Oviposition on an already known plant species being utilized

elsewhere, or presence of more than one instar of the larval stages of a butterfly on the plant on which an egg is laid or successful field observation of the larvae surviving to adulthood on the particular plant was taken into consideration to establish a plant as the larval hostplant. Larval identification follows Bell (1909–1927) and Kunte et al. (2018). Identification of adult butterflies are based on Evans (1932) and taxonomy follows Kunte et al. (2018). Larval host plants used by butterflies in the myristica swamps were photographed. Floras referred for identification of the larval hostplants are Ramarao (1914), Gamble (1967), Subramanian (1995), Blatter & Millard (1997), Sivarajan & Mathew (1997), Seethalakshmi & Kumar (1998), Renuka (2000), Ravi & Mohanan (2004) and Nayar et al. (2006). Host plant utilization was checked against Sevastopulo (1973), Kunte (2000, 2006), Robinson et al. (2001), Kalesh & Prakash (2007, 2015), and Nitin et al. (2018).

RESULTS AND DISCUSSION

Vegetation

The vegetation of the swamps are evergreen species with a majority of the trees being from Myristicaceae. The swamps had a predominance of myristica trees *Gynacranthera farquhariana* J.Hk. & Thoms., and *Myristica fatua* var. *magnifica* (Bedd.) Sinclair from Myristicaceae family. Other trees observed were *Syzygium travancoricum* Gamble, *Vateria indica* L., *Hopea parviflora* Bedd., *Lophopetalum wightianum*

Table 1. Percentage of occurrence (POc) of myristica swamp dependent butterflies.

	Family	Tribe	Genus	Species	Subspecies	POc
1	Nymphalidae	Danaini	<i>Idea</i>	<i>malabarica</i>	-	87.5
2	Papilionidae	Papilionini	<i>Papilio</i>	<i>dravidarum</i>	-	81.81
3	Lycaenidae	Polyommata	<i>Neopithecops</i>	<i>zalmora</i>	<i>dharma</i>	80.95
4	Lycaenidae	Arhopalini	<i>Arhopala</i>	<i>alea</i>	-	76.92
5	Papilionidae	Troidini	<i>Pachliopta</i>	<i>pandiyana</i>	-	75.47
6	Lycaenidae	Arhopalini	<i>Arhopala</i>	<i>bazaloides</i>	<i>bazaloides</i>	75
7	Lycaenidae	Arhopalini	<i>Arhopala</i>	<i>abseus</i>	<i>indicus</i>	75

Arn., *Holigarna arnottiana* J.Hk., occurring as dominant species. *Pandanus thwaitesii* Martelli, *Phrynium pubinerve* Bume, *Indianthus virgatus* (Roxb.) Suksathan & Borchs., and *Carex* sp. constituted the undergrowth. The ground vegetation was mainly of *Lagenandra ovata* (L.). Climbers were also seen in the swamps especially *Parsonisia spiralis* Wall. ex G.Don and Lianas included *Kunstleria keralensis* Mohanan & Nair, *Chilocarpus denudatus* Blume, *Gnetum edule* (Willd.) Blume, and *Ventilago bombaiensis* Dals. There were also climbing ferns and *Calamus* represented by *Calamus thwaitesii* Becc., *Calamus hookerianus* Becc., and *C. travancoricus* Bedd. ex Becc., especially in the ecotone with adjacent lowland evergreen forests. The swamp edges had a good undergrowth of plants from Rutaceae, Aristolochaceae, Fabaceae and Poaceae.

Butterfly fauna

In the Myristica swamp forests, 206 species of butterflies were recorded over a study period of two years (Appendix I). Of these, seven species were MSD with POc value more than or equal to 75, 151 species were MSS with POc >50 and the rest 48 were stragglers (POc <50).

Myristica swamp Dependents (MSD)

Idea malabarica (Moore, 1877) is a typical MSD species with a POc value of 87.5 (Table 1). The regionally preferred host plant is *Parsonisia spiralis* Wall. ex G.Don (Apocynaceae), and this plant is mostly restricted to the myristica swamps of the region, which explains its high POc value 87.5. For *Papilio dravidarum* Wood-Mason, 1880, *Clausena heptaphylla* (Roxb.) Wight & Arn. and *Glycosmis pentaphylla* (Retz.) DC. (Rutaceae) are the known larval hostplants seen in the swamp. The species was found to have a POc value of 81.81. For *Neopithecops zalmora dharma* (Moore, [1881]), *Glycosmis mauritiana* (Lam.) Tanaka, and *Glycosmis pentaphylla* (Retz.) DC. (Rutaceae) are the known larval hosts seen in the

Table 2. Endemic species among myristica swamp associate butterflies

	Species	Endemic range
1	<i>Troides minos</i> (Cramer, [1779])	Southern India
2	<i>Graphium teredon</i> (Felder & Felder, 1865)	Southern India
3	<i>Mycalesis junonia</i> Butler, 1868	Southern India
4	<i>Discophora lepida lepida</i> (Moore, 1857)	Southern India, Sri Lanka
5	<i>Elymnias caudata</i> Butler, 1871	Southern India, Sri Lanka
6	<i>Cirrochroa thais thais</i> (Fabricius, 1787)	Southern India, Sri Lanka
7	<i>Papilio liomedon</i> Moore, [1875]	Western Ghats
8	<i>Papilio buddha</i> Westwood, 1872	Western Ghats
9	<i>Appias wardii</i> (Moore, 1884)	Western Ghats
10	<i>Parantirrhoea marshalli</i> Wood-Mason, 1881	Western Ghats
11	<i>Zipaetis saitis</i> Hewitson, 1863	Western Ghats
12	<i>Cethosia mahratta</i> Moore, 1872	Western Ghats
13	<i>Kallima horsfieldii</i> Kollar, [1844]	Western Ghats
14	<i>Curetis siva</i> Evans, 1954	Western Ghats
15	<i>Sovia hyrtacus</i> (de Nicéville, 1897)	Western Ghats
16	<i>Thoressa astigmata</i> (Swinhoe, 1890)	Western Ghats
17	<i>Thoressa honorei</i> (de Nicéville, 1887)	Western Ghats
18	<i>Pareronia ceylanica ceylanica</i> (Felder & Felder, 1865)	Western Ghats, Sri Lanka

undergrowth of the swamp edges. This small lycaenid had a POc of 80.95. *Arhopala alea* (Hewitson, 1862) had three known host species *Terminalia paniculata* Roth, *Hopea* sp. (Dipterocarpaceae) and *Syzygium salicifolium* (Wight) J.Graham (Myrtaceae). This is a rare butterfly in the region with POc value of 76.92. Males were seen mudpuddling on the sandy edges of swamps in drier winter months. *Pachliopta pandiyana* (Moore, 1881) is a monophagus species endemic to Western Ghats that feeds on *Thottea siliquosa* (Lam.) Ding Hou (Aristolochiaceae). This host plant was an ecotone species seen at the edges of the swamps. The



Image 2. *Parantirrhoea marshalli* Travancore Evening Brown

POc value was 75.47. *Arhopala bazaloides bazaloides* (Hewitson, 1878) has *Hopea ponga* (Dennst.) Mabb. (Dipterocarpaceae) as the known larval hostplant. The butterfly was a rare one with POc 75. *Arhopala abseus indicus* Riley, 1923 was a rare butterfly of the region with high POc of 75 with *Shorea robusta* C.F. Gaertn. (Dipterocarpaceae) was the only recorded hostplant in literature. We report here a species of *Hopea* as its new host plant. This *Hopea* sp. was generally seen on the fringes of the myristica swamps of the region.

Among the MSD species *Idea malabarica* (Moore, 1877), *Papilio dravidarum* Wood-Mason, 1880, *Pachliopta pandiyana* (Moore, 1881) and *Arhopala alea* (Hewitson, 1862) are endemic to the Western Ghats (Larsen 1987). Two species of the MSD are on the IUCN Red Data List, viz., *Arhopala bazaloides bazaloides* (Hewitson, 1878) under Least Concern category and *Idea malabarica* (Moore, 1877) under the Near Threatened category (IUCN 2018). One species, *Arhopala bazaloides bazaloides* (Hewitson, 1878) comes under Schedule II of the Indian Wildlife (Protection) Act, 1972.

Myristica swamp associates (MSA)

There were 151 species that were MSA. They had a POc value between 50 and 75. This implies that they spend much of their time in and around the myristica swamps than outside it. These included 37 Hesperiid species, 40 Lycaenids, 45 Nymphalids, 13 Papilionids, 14 Pierids and two Riodinids (Appendix I). Eighteen taxa listed in the MSA category were found to be endemic species of which 11 species were strictly Western Ghat endemics (Table 2). Two species were Red-Listed by IUCN and 29 species were listed in the various Schedules of the Indian Wildlife (Protection) Act, 1972 (WPA 1972) (Appendix I).

Stragglers

Forty-eight species were found to be stragglers; of them, three were endemics, three were in IUCN Red List and six species were listed in the WPA 1972. Three species were endemics in the straggler category: *Prioneris sita* (Felder & Felder, 1865) is endemic to southern India and Sri Lanka, *Eurema nilgiriensis* (Yata, 1990) is endemic to the Western Ghats, and *Rapala lankana* (Moore, 1879)



Image 3. *Eurema nilgiriensis* Nilgiri Grass Yellow

is restricted to Western Ghats and Sri Lanka (Western Ghats complex). *Hypolimnas misippus* (Linnaeus, 1764) was listed under Schedule I & II, while *Catapaecilma major callone* (Fruhstorfer, 1915), *Dophla evelina laudabilis* Swinhoe, 1890 and *Halpe hindu* Evans, 1937 falls under Schedule II; *Appias libythea* (Fabricius, 1775) and *Prioneris sita* (Felder & Felder, 1865) were Schedule IV species under WPA, 1972. Three species were in IUCN Red List in the Least Concern category – *Junonia almana almana* (Linnaeus, 1758), *J. hierta hierta* (Fabricius, 1798), and *Eurema brigitta rubella* (Wallace, 1867).

Host plant utilization

The complete list of plants of myristica swamps of the study area was obtained from Nair et al. (2007). Eighty-one plant species recorded during the study were butterfly larval hosts in the myristica swamp. Of these, 54 species of plants that we observed as larval hosts were already known larval host plants being used elsewhere for butterflies in the Western Ghats (Table 3). We also found 27 species of new hostplant records being used by 43 species of butterflies (Table 4).

CONCLUSIONS

In our study, we found 206 species of butterflies from Papilionidae, Pieridae, Lycaenidae, Riodinidae, Nymphalidae, and Hesperidae from myristica swamps of Shendurney. Of these only seven species were MSD, which are restricted to the swamps of the region, and 23 species of butterflies were endemic to peninsular India of the Western Ghats complex. With respect to WPA 1972, 32 species seen in the swamps are protected and seven species are in the Red List of IUCN. It was noted that most of the butterflies were shared species with the nearby evergreen patches and only seven species were specifically partial to it. We confirmed the presence of the rare *Eurema nilgiriensis* (Yata, 1990) Nilgiri Grass Yellow butterfly from Shendurney, extended its range into Agasthyamalais and have recorded *Ventilago bombaiensis* Dals., as its site-specific larval hostplant. Eighty-one species of plants were recorded as butterfly larval hosts in the myristica swamp ecosystem, with 27 species being new host plant records for Western Ghats. Interestingly, none of the butterflies recorded were

using plants of myristicaceae family as larval hosts as far as it is known. The POC is a simple index that can be easily applied to assess habitat association of any taxa.

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Table 3. List of larval host plants for butterflies of myristica swamp forests, Shendurney WS, recorded from our observations from 2008–2018.

	Species	Butterflies		Species	Butterflies
1	<i>Abrus precatorius</i> L.	<i>Curetis thetis</i> (Drury, [1773]) <i>Jamides celeno celeno</i> (Cramer, [1775]) <i>Lampides boeticus</i> (Linnaeus, 1767) <i>Leptotes plinius plinius</i> (Fabricius, 1793)	23	<i>Grewia nervosa</i> (Lour.) Panigrahi	<i>Neptis hylas varmana</i> Moore, 1872 <i>Neptis jumbah nalanda</i> Fruhstorfer, 1908 <i>Coladenia indrani indra</i> Evans, 1926 <i>Odontoptilum angulata angulata</i> (Felder, 1862)
2	<i>Acacia torta</i> (Roxb.) Craib	<i>Prosotas dubiosa indica</i> (Evans, [1925]) <i>Prosotas nora ardantes</i> Moore, [1875] <i>Rapala manea schistacea</i> (Moore, 1879) <i>Surendra quercetorum biplagiata</i> Butler, 1883 <i>Charaxes bharata</i> Felder & Felder, [1867]	24	<i>Helicteres isora</i> L.	<i>Caprona ransonnetti potiphera</i> (Hewitson, 1873) <i>Neptis hylas varmana</i> Moore, 1872
3	<i>Areca catechu</i> L.	<i>Elymnias caudata</i> Butler, 1871	25	<i>Ixora</i> sp.	<i>Cheritra freja butleri</i> Cowan, 1965 <i>Rathinda amor</i> (Fabricius, 1775) <i>Zeltus amasa amasa</i> (Hewitson, 1865)
4	<i>Aristolochia tagala</i> Cham.	<i>Pachliopta aristolochiae aristolochiae</i> (Fabricius, 1775) <i>Troides minos</i> (Cramer, [1779])	26	<i>Lagerstroemia speciosa</i> (L.) Pers.	<i>Arhopala amantes amantes</i> (Hewitson, 1862) <i>Arhopala centaurus pirama</i> (Moore, [1881])
5	<i>Atalantia racemosa</i> Wight ex Hook.	<i>Chilades lajus lajus</i> (Stoll, [1780]) <i>Papilio polymnestor polymnestor</i> Cramer, [1775] <i>Papilio polytes romulus</i> Cramer, [1775]	27	<i>Lepisanthes tetraphylla</i> Radlk.	<i>Acytolepis puspa felderi</i> Toxopeus, 1927 <i>Cheritra freja butleri</i> Cowan, 1965 <i>Megisba malaya</i> (Moore, [1881]) <i>Rapala manea schistacea</i> (Moore, 1879)
6	<i>Axonopus compressus</i> (Sw.) P. Beauv.	<i>Borbo cinnara</i> (Wallace, 1866) <i>Iambrix salsala luteipalpis</i> (Plötz, 1886) <i>Oriens golooides</i> (Moore, [1881]) <i>Pelopidas agna agna</i> (Moore, [1866]) <i>Pelopidas mathias mathias</i> (Fabricius, 1798) <i>Pelopidas subochracea subochracea</i> (Moore, 1878) <i>Potanthus pseudomaesa pseudomaesa</i> (Moore, [1881]) <i>Taractroceras ceramas</i> (Hewitson, 1868) <i>Ypthima ceylonica</i> Hewitson, 1865 <i>Ypthima huebneri</i> Kirby, 1871	28	<i>Mallotus philippensis</i> (Lam.) Müll.Arg.	<i>Coladenia indrani indra</i> Evans, 1926 <i>Megisba malaya thwaitesi</i> (Moore, [1881]) <i>Prosotas dubiosa indica</i> (Evans, [1925]) <i>Prosotas nora ardantes</i> (Moore, [1875]) <i>Neptis jumbah nalanda</i> Fruhstorfer, 1908
7	<i>Bauhinia phoenicea</i> Wight & Arn.	<i>Charaxes schreiberi wardii</i> (Moore, 1896) <i>Coladenia indrani indra</i> Evans, 1926	29	<i>Mangifera indica</i> L.	<i>Anthe emolus emolus</i> (Godart, [1824]) <i>Chilades lajus lajus</i> (Stoll, [1780]) <i>Horaga onyx cingalensis</i> Moore, [1884] <i>Rathinda amor</i> (Fabricius, 1775) <i>Spalgis epius epius</i> (Westwood, 1852) <i>Euthalia aconthea meridionalis</i> Fruhstorfer, 1913
8	<i>Bombax ceiba</i> L.	<i>Neptis hylas varmana</i> Moore, 1872 <i>Neptis jumbah nalanda</i> Fruhstorfer, 1908	30	<i>Melastoma malabathricum</i> L.	<i>Rapala iarbus sorya</i> (Kollar, [1844]) <i>Tanaecia lepidea miyana</i> (Fruhstorfer, 1913)
9	<i>Calamus hookerianus</i> Becc.	<i>Hyarotis adrastus praba</i> (Moore, [1866]) <i>Quedara basiflava</i> (de Nicéville, [1889]) <i>Salanoemia sala</i> (Hewitson, [1866])	31	<i>Mimosa pudica</i> L.	<i>Prosotas dubiosa indica</i> (Evans, [1925]) <i>Junonia hiarta hiarta</i> (Fabricius, 1798) <i>Junonia orithya orithya</i> Butler, 1885 <i>Eurema hecabe hecabe</i> (Linnaeus, 1758)
10	<i>Calamus thwaitesii</i> Becc.	<i>Salanoemia sala</i> , (Hewitson, [1866]) <i>Gangara thyrus thyrus</i> (Fabricius, 1775) <i>Amathusia phidippus friderici</i> Fruhstorfer, 1904 <i>Elymnias caudata</i> Butler, 1871	32	<i>Mitragyna parvifolia</i> (Roxb.) Korth.	<i>Moduza procris procris</i> Fruhstorfer, 1906
11	<i>Calamus travancoricus</i> Bedd. ex Becc.	<i>Suastus minuta bipunctus</i> Swinhoe, 1894	33	<i>Mussaenda frondosa</i> L.	<i>Athyma inara inara</i> Westwood, 1850 <i>Moduza procris procris</i> Fruhstorfer, 1906
12	<i>Cinnamomum malabathrum</i> (Burm.f.) J. Presl.	<i>Graphium doson eleius</i> (Felder & Felder, 1864) <i>Graphium teredon</i> (Felder & Felder, 1865) <i>Papilio clytia clytia</i> Linnaeus, 1758	34	<i>Neolamarckia cadamba</i> (Roxb.) Bossler	<i>Moduza procris procris</i> Fruhstorfer, 1906
13	<i>Combretum latifolium</i> Blume	<i>Badamia exclamantis</i> (Fabricius, 1775) <i>Bibasis sena sena</i> (Moore, [1866]) <i>Burara jaina fergusonii</i> (de Nicéville, [1893]) <i>Anthe emolus emolus</i> (Godart, [1824])	35	<i>Ochlandra travancorica</i> (Bedd.) Gamble	<i>Baoris farri</i> (Moore, 1878) <i>Caltoris kumara kumara</i> (Moore, 1878) <i>Caltoris philippina philippina</i> (Herrich-Schäffer, 1869) <i>Matapa aria</i> (Moore, [1866]) <i>Sovia hyrtacus</i> (de Nicéville, 1897) <i>Tellicota bambusae bambusae</i> (Moore, 1878) <i>Tellicota colon colon</i> (Fabricius, 1775) <i>Thoressa astigmata</i> (Swinhoe, 1890) <i>Thoressa honorei</i> (de Nicéville, 1887) <i>Potanthus pava pava</i> (Fruhstorfer, 1911) <i>Discophora lepida lepida</i> (Moore, 1857) <i>Parantirrhoea marshalli</i> Wood-Mason, 1881 <i>Zipaetis saitis</i> Hewitson, 1863
14	<i>Connarus</i> sp.	<i>Deudorix epijarbas epijarbas</i> (Moore, 1857) <i>Nacaduba beroe gythion</i> Fruhstorfer, 1916	36	<i>Olea dioica</i> Roxb.	<i>Athyma ranga karwara</i> (Fruhstorfer, 1906)
15	<i>Cheilocostus speciosus</i> (J.Koenig) C. D. Specht	<i>Notocrypta curvifascia curvifascia</i> (Felder & Felder, 1862)	37	<i>Oplismenus compositus</i> (L.) P. Beauv.	<i>Oriens golooides</i> (Moore, [1881]) <i>Melanitis leda leda</i> (Linnaeus, 1758) <i>Melanitis phedima varaha</i> Moore, 1857 <i>Mycalis perseus tabitha</i> (Fabricius, 1793)
16	<i>Dalbergia horrida</i> (Dennst.) Mabb.	<i>Pantoporia sandaka davidsoni</i> Eliot, 1969	38	<i>Parsonsia alboflavescens</i> (Dennst.) Mabb.	<i>Idea malabarica</i> (Moore, 1877)
17	<i>Elaeocarpus</i> sp.	<i>Neptis jumbah nalanda</i> Fruhstorfer, 1908	39	<i>Persea macrantha</i> (Nees) Kosterm	<i>Graphium teredon</i> (Felder & Felder, 1865)
18	<i>Entada rheedii</i> Spreng.	<i>Nacaduba hermus sidoma</i> Fruhstorfer, 1916 <i>Nacaduba pactolus continentalis</i> Fruhstorfer, 1916	40	<i>Schleichera oleosa</i> (Lour.) Merr.	<i>Acytolepis puspa felderi</i> Toxopeus, 1927 <i>Arhopala centaurus pirama</i> (Moore, [1881]) <i>Catochrysops strabo strabo</i> (Fabricius, 1793) <i>Chilades pandava pandava</i> (Horsfield, [1829]) <i>Megisba malaya</i> (Moore, [1881]) <i>Rapala iarbus sorya</i> (Kollar, [1844])
19	<i>Ficus hispida</i> L.f.	<i>Euploea klugii kollari</i> Felder & Felder, [1865]			
20	<i>Flacourtia montana</i> J. Graham	<i>Cupha erymanthis maja</i> Fruhstorfer, 1898 <i>Phalanta phalantha phalantha</i> (Drury, [1773])			
21	<i>Glochidion ellipticum</i> Wight	<i>Athyma inara inara</i> Westwood, 1850 <i>Athyma perius perius</i> (Linnaeus, 1758)			
22	<i>Glycosmis pentaphylla</i> (Retz.) DC.	<i>Chilades lajus lajus</i> (Stoll, [1780]) <i>Neopithecops zalmora dharma</i> (Moore, [1881]) <i>Papilio demoleus demoleus</i> Linnaeus, 1758 <i>Papilio dravidarum</i> Wood-Mason, 1880 <i>Papilio helenus daksha</i> Hampson, 1888 <i>Papilio polymnestor polymnestor</i> Cramer, [1775] <i>Papilio polytes romulus</i> Cramer, [1775]			

	Species	Butterflies
41	<i>Indianthus virgatus</i> (Roxb.) Suksathan & Borchs	<i>Psolos fuligo subfasciatus</i> (Moore, 1878)
42	<i>Sida rhombifolia</i> L.	<i>Spialia galba</i> (Fabricius, 1793) <i>Hypolimnas bolina jacintha</i> (Drury, 1773) <i>Junonia lemonias lemonias</i> (Linnaeus, 1758)
43	<i>Smilax zeylanica</i> L.	<i>Spindasis lohita lazularia</i> Moore, 1881 <i>Zesius chrysomallus</i> Hübner, 1819 <i>Kaniska canace viridis</i> Evans, 1924 <i>Loxura atymnus atymnus</i> (Stoll, [1780])
44	<i>Strobilanthes ciliata</i> Nees	<i>Celaenorrhinus leucocera</i> (Kollar, [1844]) <i>Celaenorrhinus putra putra</i> (Moore, [1866]) <i>Junonia iphita iphita</i> (Cramer, [1779]) <i>Kallima horsfieldii</i> Kollar, [1844]
45	<i>Terminalia elliptica</i> Willd.	<i>Coladenia indrani indra</i> Evans, 1926 <i>Arhopala amantes amantes</i> (Hewitson, 1862)
46	<i>Terminalia paniculata</i> Roth	<i>Cupitha purreea</i> (Moore, 1877) <i>Anthene emolus emolus</i> (Godart, [1824]) <i>Arhopala alea</i> (Hewitson, 1862) <i>Arhopala amantes amantes</i> (Hewitson, 1862) <i>Arhopala centaurus pirama</i> (Moore, [1881]) <i>Catapaecilma major callone</i> (Fruhstorfer, 1915) <i>Spindasis lohita lazularia</i> Moore, 1881 <i>Zesius chrysomallus</i> Hübner, 1819
47	<i>Mallotus nudi oris</i> (L.) Kulju & Welzen	<i>Catapaecilma major callone</i> (Fruhstorfer, 1915) <i>Thaduka multicaudata kanara</i> Evans, 1925

	Species	Butterflies
48	<i>Thottea siliquosa</i> (Lam.) Ding Hou	<i>Pachliopta aristolochiae aristolochiae</i> (Fabricius, 1775) <i>Pachliopta pandiyana</i> (Moore, 1881) <i>Troides minos</i> (Cramer, [1779])
49	<i>Urena lobata</i> L.	<i>Caprona ransonnetti potiphera</i> (Hewitson, 1873) <i>Odontoptilum angulata angulata</i> (Felder, 1862) <i>Spialia galba</i> (Fabricius, 1793) <i>Rapala manea schistacea</i> (Moore, 1879) <i>Neptis hylas varmona</i> Moore, 1872
50	<i>Uvaria narum</i> Wall.	<i>Graphium agamemnon menides</i> (Fruhstorfer, 1904)
51	<i>Vateria indica</i> L.	<i>Nacaduba kurava canaraica</i> Toxopeus, 1927
52	<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	<i>Notocrypta curvifascia curvifascia</i> (Felder & Felder, 1862) <i>Udaspes folus</i> (Cramer, [1775]) <i>Jamides alecto alocina</i> (Fruhstorfer, 1916)
53	<i>Zizyphus oenoplia</i> (L.) Miller	<i>Caleta decidia decidia</i> (Hewitson, 1876) <i>Castalius rosimon rosimon</i> (Fabricius, 1775) <i>Discolampa ethion ethion</i> Westwood, 1851 <i>Tarucus ananda</i> (de Nicéville, [1883])
54	<i>Zizyphus rugosa</i> Lam.	<i>Caleta decidia decidia</i> (Hewitson, 1876) <i>Castalius rosimon rosimon</i> (Fabricius, 1775) <i>Catapaecilma major callone</i> (Fruhstorfer, 1915) <i>Rapala iarbus sorya</i> (Kollar, [1844]) <i>Rapala lankana</i> (Moore, 1879) <i>Rapala varuna lazulina</i> (Moore, 1879) <i>Spindasis vulcanus</i> (Fabricius, 1775)

Table 4. Newly discovered larval host-plants for butterflies of Western Ghats, recorded from myristica swamp forests, Shendurney WS, during our study from 2008–2018.

	Species	Butterflies
1	<i>Alpinia malaccensis</i> (N. L. Burman) Roscoe	<i>Notocrypta curvifascia curvifascia</i> (Felder & Felder, 1862) <i>Notocrypta paralyssos mangla</i> Evans, 1949 <i>Udaspes folus</i> (Cramer, [1775])
2	<i>Areca catechu</i> L.	<i>Suastus gremius gremius</i> (Fabricius, 1798) <i>Gangara thyrsis thyrsis</i> (Fabricius, 1775) <i>Elymnias caudata</i> Butler, 1871
3	<i>Artabotrys zeylanicus</i> Hook.f. & Thomson	<i>Graphium agamemnon menides</i> (Fruhstorfer, 1904)
4	<i>Barleria courtallica</i> Nees	<i>Junonia atlites atlites</i> (Linnaeus, 1763) <i>Junonia hierta hierta</i> (Fabricius, 1798) <i>Junonia lemonias lemonias</i> (Linnaeus, 1758)
5	<i>Bauhinia phoenicea</i> Wight & Arn.	<i>Acytolepis puspa felderi</i> Toxopeus, 1927 <i>Cheritra freja butleri</i> Cowan, 1965
6	<i>Butea parviflora</i> DC.	<i>Chilades pandava pandava</i> (Horsfield, [1829]) <i>Curetis thetis</i> (Drury, [1773]) <i>Euchrysops cnejus cnejus</i> (Fabricius, 1798) <i>Jamides bochus bochus</i> (Stoll, [1782]) <i>Jamides celeno celeno</i> (Cramer, [1775]) <i>Coladenia indrani indra</i> Evans, 1926
7	<i>Calophyllum polyanthum</i> Wall. ex Choisy	<i>Rathinda amor</i> (Fabricius, 1775)
8	<i>Curcuma ecalcarata</i> Sivar. & Balach.	<i>Notocrypta curvifascia curvifascia</i> (Felder & Felder, 1862) <i>Notocrypta paralyssos mangla</i> Evans, 1949 <i>Udaspes folus</i> (Cramer, [1775])
9	<i>Derris canarensis</i> (Dalzell) Baker	<i>Hasora badra badra</i> (Moore, [1858]) <i>Curetis thetis</i> (Drury, [1773])
10	<i>Desmodium heterocarpon</i> (L.) DC.	<i>Chilades pandava pandava</i> (Horsfield, [1829]) <i>Curetis siva</i> (Evans, 1954) <i>Euchrysops cnejus cnejus</i> (Fabricius, 1798)
11	<i>Dimocarpus longan</i> Lour.	<i>Nacaduba bereo gythion</i> Fruhstorfer, 1916
12	<i>Dioscorea bulbifera</i> L.	<i>Tagiades gana silvia</i> , Evans, 1934 <i>Tagiades litigiosa litigiosa</i> Möschler, 1878
13	<i>Diospyros species</i>	<i>Dophla evelina laudabilis</i> Swinhoe, 1890

	Species	Butterflies
14	<i>Hopea parviflora</i> Bedd.	<i>Arhopala bazaloides bazaloides</i> (Hewitson, 1878) <i>Arhopala centaurus pirama</i> (Moore, [1881]) <i>Arhopala amantes amantes</i> (Hewitson, 1862) <i>Arhopala abseus indicus</i> Riley, 1923 <i>Rathinda amor</i> (Fabricius, 1775)
15	<i>Hoya pauciflora</i> Wight	<i>Euploea sylvestre coreta</i> (Godart, 1819) <i>Tirumala limniace exotica</i> (Gmelin, 1790)
16	<i>Humboldtia decurrens</i> Bedd.	<i>Jamides celeno celeno</i> (Cramer, [1775])
17	<i>Hibiscus furcatus</i> Roxb.	<i>Neptis hylas varmona</i> Moore, 1872
18	<i>Hydnocarpus pentandra</i> (Buch.-Ham.) Oken	<i>Cirrochroa thais thais</i> (Fabricius, 1787)
19	<i>Lagerstroemia speciosa</i> (L.) Pers.	<i>Catapaecilma major callone</i> (Fruhstorfer, 1915)
20	<i>Litsea travancorica</i> Gamble	<i>Graphium teredon</i> (Felder & Felder, 1865) <i>Papilio clytia clytia</i> Linnaeus, 1758
21	<i>Pinanga dicksonii</i> (Roxb.) Bl.	<i>Gangara thyrsis thyrsis</i> (Fabricius, 1775) <i>Elymnias caudata</i> Butler, 1871 <i>Suastus gremius gremius</i> (Fabricius, 1798)
22	<i>Polyalthia fragrans</i> (Dalz.) Bedd.	<i>Graphium agamemnon menides</i> (Fruhstorfer, 1904) <i>Graphium doson eleus</i> (Felder & Felder, 1864) <i>Graphium nomius nomius</i> (Esper, 1799)
23	<i>Sterculia guttata</i> Roxb.	<i>Rapala maneaschistacea</i> (Moore, 1879)
24	<i>Syzygium species</i>	<i>Arhopala amantes amantes</i> (Hewitson, 1862) <i>Arhopala centaurus pirama</i> (Moore, [1881]) <i>Arhopala alea</i> (Hewitson, 1862)
25	<i>Tylophora mollissima</i> Wight	<i>Euploea core core</i> (Cramer, [1780]) <i>Parantica aglea aglea</i> , (Stoll, [1782]) <i>Tirumala limniace exotica</i> (Gmelin, 1790)
26	<i>Vateria indica</i> L.	<i>Arhopala centaurus pirama</i> (Moore, [1881]) <i>Arhopala amantes amantes</i> (Hewitson, 1862) <i>Rathinda amor</i> (Fabricius, 1775)
27	<i>Ventilago bombaiensis</i> Dals.	<i>Eurema nilgiriensis</i> (Yata, 1990)

Appendix 1. A checklist of butterflies of myristica swamps of Shendurney WS, Kollam, Kerala.

	Genus	Species	Subspecies	Status	Endemic status	IUCN Redlist Status	WPA 1972
Papilionidae							
1	<i>Troides</i>	<i>minos</i>	-	MSA	Southern India		
2	<i>Pachliopta</i>	<i>aristolochiae</i>	<i>aristolochiae</i>	MSA			
3	<i>Pachliopta</i>	<i>hector</i>	-	MSA	Peninsular India, SL		Sh I
4	<i>Pachliopta</i>	<i>pandiyana</i>	-	MSD	Western Ghats		
5	<i>Graphium</i>	<i>agamemnon</i>	<i>menides</i>	MSA			
6	<i>Graphium</i>	<i>doson</i>	<i>eleius</i>	MSA			
7	<i>Graphium</i>	<i>teredon</i>	-	MSA	Southern India		
8	<i>Graphium</i>	<i>antiphates</i>	<i>naira</i>	STR			
9	<i>Papilio</i>	<i>buddha</i>	-	MSA	Western Ghats		Sh II
10	<i>Papilio</i>	<i>clytia</i>	<i>clytia</i>	MSA			Sh I
11	<i>Papilio</i>	<i>helenus</i>	<i>daksha</i>	MSA			
12	<i>Papilio</i>	<i>liomedon</i>	-	MSA	Western Ghats		Sh I
13	<i>Papilio</i>	<i>paris</i>	<i>tamilana</i>	MSA			
14	<i>Papilio</i>	<i>polymnestor</i>	<i>polymnestor</i>	MSA			
15	<i>Papilio</i>	<i>polytes</i>	<i>romulus</i>	MSA			
16	<i>Papilio</i>	<i>dravidarum</i>	-	MSD	Western Ghats		
17	<i>Papilio</i>	<i>demoleus</i>	<i>demoleus</i>	STR			
Pieridae							
18	<i>Catopsilia</i>	<i>pomona</i>	<i>pomona</i>	MSA			
19	<i>Catopsilia</i>	<i>pyranthe</i>	<i>pyranthe</i>	MSA			
20	<i>Eurema</i>	<i>blanda</i>	<i>silhetana</i>	MSA			
21	<i>Eurema</i>	<i>hecabe</i>	<i>hecabe</i>	MSA			
22	<i>Eurema</i>	<i>brigitte</i>	<i>rubella</i>	STR		Least Concern	
23	<i>Eurema</i>	<i>nilgiriensis</i>	-	STR	Western Ghats		
24	<i>Appias</i>	<i>albina</i>	<i>swinhoei</i>	MSA			
25	<i>Appias</i>	<i>indra</i>	<i>shiva</i>	MSA			Sh II
26	<i>Appias</i>	<i>lyncida</i>	<i>latifasciata</i>	MSA			Sh II
27	<i>Appias</i>	<i>wardii</i>	-	MSA	Western Ghats		Sh II
28	<i>Cepora</i>	<i>nadina</i>	<i>remba</i>	MSA			Sh II
29	<i>Delias</i>	<i>eucharis</i>	-	MSA			
30	<i>Hebomoia</i>	<i>glauippe</i>	<i>australis</i>	MSA			
31	<i>Leptosia</i>	<i>nina</i>	<i>nina</i>	MSA			
32	<i>Pareronia</i>	<i>ceylanica</i>	<i>ceylanica</i>	MSA	Western Ghats, SL		
33	<i>Pareronia</i>	<i>hippia</i>	-	MSA			
34	<i>Appias</i>	<i>libythea</i>	-	STR			Sh IV
35	<i>Belenois</i>	<i>aurota</i>	<i>aurota</i>	STR			
36	<i>Cepora</i>	<i>nerissa</i>	<i>phryne</i>	STR			
37	<i>Prioneris</i>	<i>sita</i>	-	STR	Southern India, SL		Sh IV
Nymphalidae							
38	<i>Cethosia</i>	<i>mahratta</i>	-	MSA	Western Ghats		
39	<i>Acraea</i>	<i>violae</i>	-	STR			
40	<i>Euthalia</i>	<i>aconthea</i>	<i>meridionalis</i>	MSA			

	Genus	Species	Subspecies	Status	Endemic status	IUCN Redlist Status	WPA 1972
41	<i>Euthalia</i>	<i>lubentina</i>	<i>arasada</i>	MSA			Sh IV
42	<i>Tanaecia</i>	<i>lepidea</i>	<i>miyana</i>	MSA			Sh II
43	<i>Dophla</i>	<i>evelina</i>	<i>laudabilis</i>	STR			Sh II
44	<i>Amathusia</i>	<i>phidippus</i>	<i>friderici</i>	MSA			
45	<i>Discophora</i>	<i>lepida</i>	<i>lepida</i>	MSA	Southern India, SL		Sh II
46	<i>Ariadne</i>	<i>ariadne</i>	<i>indica</i>	MSA			
47	<i>Ariadne</i>	<i>merione</i>	<i>merione</i>	MSA			
48	<i>Charaxes</i>	<i>bharata</i>	-	MSA			
49	<i>Charaxes</i>	<i>psaphon</i>	<i>imna</i>	MSA			
50	<i>Charaxes</i>	<i>schreiber</i>	<i>wardii</i>	MSA			Sh I
51	<i>Charaxes</i>	<i>solon</i>	<i>solon</i>	MSA			
52	<i>Cyrestis</i>	<i>thyodamas</i>	<i>indica</i>	STR			
53	<i>Euploea</i>	<i>core</i>	<i>core</i>	MSA		Least Concern	
54	<i>Parantica</i>	<i>aglea</i>	<i>aglea</i>	MSA			
55	<i>Idea</i>	<i>malabarica</i>	-	MSD	Western Ghats	Near threatened	
56	<i>Danaus</i>	<i>chrysippus</i>	<i>chrysippus</i>	STR			
57	<i>Danaus</i>	<i>genutia</i>	<i>genutia</i>	STR			
58	<i>Euploea</i>	<i>klugii</i>	<i>kollari</i>	STR			
59	<i>Euploea</i>	<i>sylvester</i>	<i>coreta</i>	STR			
60	<i>Tirumala</i>	<i>limniace</i>	<i>exoticus</i>	STR			
61	<i>Tirumala</i>	<i>septentrionis</i>	<i>dravidarum</i>	STR			
62	<i>Elymnias</i>	<i>caudata</i>	-	MSA	Southern India, SL		
63	<i>Hypolimnias</i>	<i>bolina</i>	<i>jacintha</i>	MSA			
64	<i>Junonia</i>	<i>iphita</i>	<i>iphita</i>	MSA			
65	<i>Junonia</i>	<i>lemonias</i>	<i>lemonias</i>	MSA			
66	<i>Hypolimnias</i>	<i>misippus</i>	-	STR			Sh I & II
67	<i>Junonia</i>	<i>almana</i>	<i>almana</i>	STR		Least Concern	
68	<i>Junonia</i>	<i>atlites</i>	<i>atlites</i>	STR			
69	<i>Junonia</i>	<i>hierta</i>	<i>hierta</i>	STR		Least Concern	
70	<i>Junonia</i>	<i>orithya</i>	<i>swinhoi</i>	STR			
71	<i>Doleschallia</i>	<i>bisaltide</i>	<i>malabarica</i>	MSA			Sh II
72	<i>Kallima</i>	<i>horsfieldii</i>		MSA	Western Ghats		Sh II
73	<i>Kallima</i>	<i>horsfieldii</i>	-	STR	Western Ghats		Sh II
74	<i>Athyma</i>	<i>inara</i>	<i>inara</i>	MSA			
75	<i>Athyma</i>	<i>ranga</i>	<i>karwara</i>	MSA			Sh II
76	<i>Moduza</i>	<i>procris</i>	<i>procris</i>	MSA			
77	<i>Melanitis</i>	<i>leda</i>	<i>leda</i>	MSA			
78	<i>Melanitis</i>	<i>phedima</i>	<i>varaha</i>	MSA			
79	<i>Melanitis</i>	<i>zitenius</i>	<i>gokala</i>	MSA			Sh II
80	<i>Parantirrhoea</i>	<i>marshalli</i>	-	MSA	Western Ghats		Sh II
81	<i>Lasippa</i>	<i>viraja</i>	<i>kanara</i>	MSA			
82	<i>Neptis</i>	<i>hylas</i>	<i>varmona</i>	MSA			
83	<i>Neptis</i>	<i>jumbah</i>	<i>nalanda</i>	MSA			
84	<i>Pantoporia</i>	<i>hordonia</i>	<i>hordonia</i>	MSA			
85	<i>Pantoporia</i>	<i>sandaka</i>	<i>davidsoni</i>	MSA			

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86	<i>Kaniska</i>	<i>canace</i>	<i>viridis</i>	MSA			
87	<i>Parthenos</i>	<i>sylvia</i>	<i>virens</i>	MSA			Sh II
88	<i>Lethe</i>	<i>drypetis</i>	<i>todara</i>	MSA	Southern India, SL		
89	<i>Lethe</i>	<i>europa</i>	<i>europa</i>	MSA			
90	<i>Orsotriaena</i>	<i>medus</i>	<i>mandata</i>	MSA			
91	<i>Mycalesis</i>	<i>junonia</i>	-	MSA	Southern India		
92	<i>Mycalesis</i>	<i>mineus</i>	<i>polydecta</i>	MSA			
93	<i>Mycalesis</i>	<i>visala</i>	<i>visala</i>	STR			
94	<i>Ypthima</i>	<i>ceylonica</i>	-	STR	Peninsular India, SL		
95	<i>Ypthima</i>	<i>baldus</i>	-	MSA			
96	<i>Ypthima</i>	<i>huebneri</i>	-	MSA			
97	<i>Zipaetis</i>	<i>saitis</i>	-	MSA	Western Ghats		Sh II
98	<i>Cirrochroa</i>	<i>thais</i>	<i>thais</i>	MSA	Southern India, SL		
99	<i>Cupha</i>	<i>erymanthis</i>	<i>maja</i>	MSA			
100	<i>Vindula</i>	<i>erota</i>	<i>saloma</i>	MSA			
101	<i>Phalanta</i>	<i>alcippe</i>	<i>mercea</i>	STR			Sh II
102	<i>Phalanta</i>	<i>phalantha</i>	<i>phalantha</i>	STR			
Riodinidae							
103	<i>Abisara</i>	<i>bifasciata</i>	<i>suffusa</i>	MSA			
104	<i>Abisara</i>	<i>echerius</i>	<i>prunosa</i>	MSA			
Lycaenidae							
105	<i>Curetis</i>	<i>siva</i>		MSA	Western Ghats		
106	<i>Curetis</i>	<i>thetis</i>	-	MSA			
107	<i>Amblypodia</i>	<i>anita</i>	<i>dina</i>	MSA			
108	<i>Thaduka</i>	<i>multicaudata</i>	<i>kanara</i>	MSA			Sh II
109	<i>Iraota</i>	<i>timoleon</i>	<i>arsaces</i>	STR			
110	<i>Arhopala</i>	<i>abseus</i>	<i>indicus</i>	MSD			
111	<i>Arhopala</i>	<i>alea</i>	-	MSD	Western Ghats		
112	<i>Arhopala</i>	<i>bazaloides</i>	<i>bazaloides</i>	MSD		Least Concern	Sh II
113	<i>Arhopala</i>	<i>amantes</i>	<i>amantes</i>	STR			
114	<i>Arhopala</i>	<i>centaurus</i>	<i>pirama</i>	STR			
115	<i>Surendra</i>	<i>quercetorum</i>	<i>biplagiata</i>	STR			
116	<i>Catapaecilma</i>	<i>major</i>	<i>callone</i>	STR			Sh II
117	<i>Cheritra</i>	<i>freja</i>	<i>butleri</i>	MSA		Least Concern	
118	<i>Bindahara</i>	<i>moorei</i>	-	MSA			Sh II
119	<i>Deudorix</i>	<i>epijarbas</i>	<i>epijarbas</i>	STR			
120	<i>Rapala</i>	<i>lankana</i>	-	STR			
121	<i>Rapala</i>	<i>manea</i>	<i>schistacea</i>	STR			
122	<i>Rathinda</i>	<i>amor</i>	-	MSA			
123	<i>Hypolycaena</i>	<i>othona</i>	<i>othona</i>	MSA			Sh I
124	<i>Zeltus</i>	<i>amasa</i>	<i>amasa</i>	MSA			
125	<i>Tajuria</i>	<i>cippus</i>	<i>cippus</i>	MSA			
126	<i>Loxura</i>	<i>atymnus</i>	<i>atymnus</i>	MSA			
127	<i>Anthene</i>	<i>lycaenina</i>	<i>lycaenina</i>	MSA			
128	<i>Acytolepis</i>	<i>lilacea</i>	<i>lilacea</i>	MSA			

	Genus	Species	Subspecies	Status	Endemic status	IUCN Redlist Status	WPA 1972
129	<i>Acytolepis</i>	<i>puspa</i>	<i>felderi</i>	MSA			
130	<i>Caleta</i>	<i>decidia</i>	<i>decidia</i>	MSA			
131	<i>Castalius</i>	<i>rosimon</i>	<i>rosimon</i>	MSA			
132	<i>Celastrina</i>	<i>lavendularis</i>	<i>lavendularis</i>	MSA			
133	<i>Chilades</i>	<i>lajus</i>	<i>lajus</i>	MSA			
134	<i>Chilades</i>	<i>pandava</i>	<i>pandava</i>	MSA			
135	<i>Discolampa</i>	<i>ethion</i>	<i>ethion</i>	MSA			
136	<i>Ionolyce</i>	<i>helicon</i>	<i>viola</i>	MSA			
137	<i>Jamides</i>	<i>alecto</i>	<i>eurysaces</i>	MSA			
138	<i>Jamides</i>	<i>bochus</i>	<i>bochus</i>	MSA			
139	<i>Jamides</i>	<i>celeno</i>	<i>celeno</i>	MSA			
140	<i>Megisba</i>	<i>malaya</i>	-	MSA			
141	<i>Nacaduba</i>	<i>berenice</i>	<i>ormistoni</i>	MSA			
142	<i>Nacaduba</i>	<i>beroe</i>	<i>gythion</i>	MSA			
143	<i>Nacaduba</i>	<i>calauria</i>	-	MSA			
144	<i>Nacaduba</i>	<i>hermus</i>	<i>sidoma</i>	MSA			
145	<i>Nacaduba</i>	<i>kurava</i>	<i>canaraica</i>	MSA			
146	<i>Nacaduba</i>	<i>pactolus</i>	<i>continentalis</i>	MSA			Sh II
147	<i>Petrelaea</i>	<i>dana</i>	-	MSA			
148	<i>Prosotas</i>	<i>dubiosa</i>	<i>indica</i>	MSA			
149	<i>Prosotas</i>	<i>nora</i>	<i>ardates</i>	MSA			
150	<i>Prosotas</i>	<i>noreia</i>	<i>hampsonii</i>	MSA			Sh I
151	<i>Pseudozizeeria</i>	<i>maha</i>	<i>ossa</i>	MSA			
152	<i>Zizeeria</i>	<i>karsandra</i>	-	MSA			
153	<i>Zizina</i>	<i>otis</i>	<i>indica</i>	MSA			
154	<i>Zizula</i>	<i>hylax</i>	<i>hylax</i>	MSA			
155	<i>Neopithecops</i>	<i>zalmora</i>	<i>dharma</i>	MSD			
156	<i>Freyeria</i>	<i>putli</i>	-	STR			
157	<i>Leptotes</i>	<i>plinius</i>	<i>plinius</i>	STR			
158	<i>Talica</i>	<i>nyseus</i>	<i>nyseus</i>	STR			
159	<i>Spalgis</i>	<i>epeus</i>	<i>epeus</i>	STR			
160	<i>Zesius</i>	<i>chrysomallus</i>	-	MSA			
Hesperiidae							
161	<i>Badamia</i>	<i>exclamationis</i>	-	MSA			
162	<i>Bibasis</i>	<i>sena</i>	<i>sena</i>	MSA			Sh II
163	<i>Burara</i>	<i>jaina</i>	<i>fergusonii</i>	MSA			
164	<i>Hasora</i>	<i>chromus</i>	<i>chromus</i>	MSA			
165	<i>Celaenorrhinus</i>	<i>leucocera</i>	-	MSA			
166	<i>Celaenorrhinus</i>	<i>putra</i>	-	MSA			
167	<i>Pseudocoladenia</i>	<i>dan</i>	<i>dan</i>	MSA			
168	<i>Sarangesa</i>	<i>dasahara</i>	<i>dasahara</i>	MSA			
169	<i>Tagiades</i>	<i>gana</i>	<i>silvia</i>	MSA			
170	<i>Tagiades</i>	<i>litigiosa</i>	<i>litigiosa</i>	MSA			
171	<i>Caprona</i>	<i>ransonnettii</i>	<i>potiphera</i>	STR			
172	<i>Coladenia</i>	<i>indrani</i>	<i>indra</i>	STR			Sh II

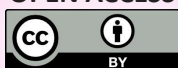
	Genus	Species	Subspecies	Status	Endemic status	IUCN Redlist Status	WPA 1972
173	<i>Gerosia</i>	<i>bhagava</i>	<i>bhagava</i>	STR			
174	<i>Odontoptilum</i>	<i>angulata</i>	<i>angulata</i>	STR			
175	<i>Tapena</i>	<i>thwaitesi</i>	-	STR			
176	<i>Aeromachus</i>	<i>pygmaeus</i>	-	MSA			
177	<i>Ampittia</i>	<i>dioscorides</i>	<i>dioscorides</i>	MSA			
178	<i>Cupitha</i>	<i>purreea</i>	-	MSA			
179	<i>Erionota</i>	<i>torus</i>	-	MSA			
180	<i>Hyarotis</i>	<i>adrastus</i>	<i>praba</i>	MSA			Sh IV
181	<i>Iambrix</i>	<i>salsala</i>	<i>luteipalpis</i>	MSA			
182	<i>Matapa</i>	<i>aria</i>	-	MSA			
183	<i>Notocrypta</i>	<i>curvifascia</i>	<i>curvifascia</i>	MSA			
184	<i>Notocrypta</i>	<i>paralysos</i>	<i>mangla</i>	MSA			
185	<i>Psolos</i>	<i>fuligo</i>	<i>subfasciatus</i>	MSA			
186	<i>Quedara</i>	<i>basiflava</i>	-	MSA	Western Ghats		
187	<i>Salanoemia</i>	<i>sala</i>	-	MSA			
188	<i>Sovia</i>	<i>hyrtacus</i>	-	MSA	Western Ghats		
189	<i>Suastus</i>	<i>minuta</i>	<i>bipunctus</i>	MSA			
190	<i>Thoressa</i>	<i>astigmata</i>	-	MSA	Western Ghats		
191	<i>Thoressa</i>	<i>honorei</i>	-	MSA	Western Ghats		Sh IV
192	<i>Udaspes</i>	<i>folus</i>	-	MSA			
193	<i>Gangara</i>	<i>thyrsis</i>	<i>thyrsis</i>	STR			Sh IV
194	<i>Halpe</i>	<i>hindu</i>	-	STR	Western Ghats		
195	<i>Halpe</i>	<i>porus</i>	-	STR			
196	<i>Zographetus</i>	<i>ogygia</i>	<i>ogygia</i>	STR			Sh IV
197	<i>Oriens</i>	<i>goloides</i>	-	MSA			
198	<i>Potanthus</i>	<i>pseudomaesa</i>	<i>pseudomaesa</i>	MSA			
199	<i>Telicota</i>	<i>bambusae</i>	<i>bambusae</i>	MSA			
200	<i>Telicota</i>	<i>colon</i>	<i>colon</i>	MSA			
201	<i>Baoris</i>	<i>farri</i>	-	MSA			
202	<i>Borbo</i>	<i>cinnara</i>	-	MSA			Sh IV
203	<i>Caltoris</i>	<i>kumara</i>	<i>kumara</i>	MSA			
204	<i>Caltoris</i>	<i>philippina</i>	<i>philippina</i>	MSA			
205	<i>Pelopidas</i>	<i>mathias</i>	<i>mathias</i>	MSA			
206	<i>Polytremis</i>	<i>lubricans</i>	<i>lubricans</i>	MSA			

Key: STR: Straggler, SL: Sri Lanka, Sh: Schedules of Indian Wildlife (Protection) Act, 1972.





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