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## EARLY STAGES AND LARVAL HOST PLANTS OF SOME NORTHEASTERN INDIAN BUTTERFLIES

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### OPEN ACCESS



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**Abstract:** Eastern Himalaya and northeastern India are part of two global biodiversity hotspots, yet the critical butterfly-plant associations and early stages of most butterfly species in this region are poorly recorded. We have reported early stages and larval host plants of 78 butterfly species, some of which are rare and endemic, providing specific information on spatial and temporal details associated with these records. These records contribute region-specific information on Indian butterflies, which may be useful in basic ecological and conservation studies in the future.

**Keywords:** Eastern Himalaya, Indo-Burma Biodiversity Hotspot, larval ecology, Lepidoptera.

Eastern Himalaya and northeastern India are part of two global biodiversity hotspots—the Himalaya and Indo-Burma (Myers et al. 2000)—that are separated by the Brahmaputra River with eastern Himalaya falling north of the river in India. Forests of these regions are rich in endemic, rare and endangered butterfly species (Evans 1932; Wynter-Blyth 1957; Kunte et al. 2012, 2018; Ghatak & Roy 2013; Sondhi & Kunte 2016). While recent studies highlight the diversity and spatial occurrence of

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butterflies in this region, little is known about their larval host plants and early stages (Wynter-Blyth 1957; Igarashi & Fukuda 1997, 2000; Robinson et al. 2001; Kunte et al. 2018), which is critical information for ecological as well as conservation studies. To fill this gap, we here report our observations of larval host plants and early stages of 78 butterfly species, along with spatio-temporal details.

## MATERIALS AND METHODS

From 2009 to early 2016 we conducted butterfly surveys in the states of West Bengal, Sikkim and Arunachal Pradesh, which belong to eastern Himalaya, Meghalaya and Nagaland which belong to the Indo-Burma region, following the research and collection permits issued by state forest departments. During these survey we opportunistically encountered early stages of several butterfly species. We raised the eggs and caterpillars to adult stages on fresh parts of the host plants on which we found them, maintaining them in plastic jars at campsites. The caterpillars were fed and the frass was cleaned everyday. The records below are based on this direct evidence. We photographed and released most butterflies shortly after eclosion. Some specimens were preserved as voucher specimens in the research collections of the National Centre for Biological Sciences. Butterfly species identifications were done with these images and voucher specimens using standard identification keys and reference material from the Natural History Museum, London, and NCBS research collections. We report larval host plants of some common species that are already reported in literature, but we include them here again because we are providing seasonal and location information with our records. Such precise spatial and temporal information on host plant use is useful to understand ecological requirements of butterflies in their critical early stages. We identified plants from publications of regional floras (Hooker 1872–1887; Kanjilal et al. 1934–1938; Haridasan & Rao 1987), and in consultation with plant experts on eFlora groups (Anonymous 2016a,b; The Plant List 2013). More information on early stages and larval host plants reported here is available on the Butterflies of India website (<http://www.ifoundbutterflies.org/lifecycles>), which is continually updated.

## RESULTS

We recorded early stages of 78 butterfly species feeding on 64 plant species. These records include nine butterfly species for which early stages had never been known before, 17 butterfly species for which early stages had not yet been recorded in India, 14 new larval

host plant records which had not been recorded before for those species, and 11 larval host plants which had not been recorded for those species in India before. The results are presented below with the information given in the following order: scientific name and authority, common name, scientific name of plant and plant type, location, date and other comments.

### Family HesperIIDae (Images 1–3)

**1. *Ancistroides nigrita diocles* (Moore, [1866]) — Bengal Chocolate Demon:** *Curcuma* sp. (Zingiberaceae): wild ginger. The larvae fed on young leaves. Cooch Behar Sadar, Cooch Behar District, West Bengal. December 2013. *Curcuma* sp. (Zingiberaceae) has previously been reported as host plant of this butterfly from India (Robinson et al. 2001).

**2. *Burara gomata gomata* (Moore, [1866]) — Bengal Pale Green Awlet:** *Schefflera elliptica* (Blume) Harms (Araliaceae): epiphytic straggler. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. November 2013. This is a new larval host plant for this species, which has not been recorded anywhere before.

**3. *Celaenorrhinus leucocera* (Kollar, [1844]) — Common Spotted Flat:** *Eranthemum pulchellum* Andrews (Acanthaceae): shrub. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. October 2013. This is a new larval host plant of this species from India.

**4. *Choaspes furcata* Evans, 1932 — Hooked Awlking:** *Sabia limoniacea* Wallich ex J.D. Hooker & Thomson (Sabiaceae): evergreen tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. October 2013. This is the first record of early stages and larval host plant of this species from India.

**5. *Choaspes stigmata* Evans, 1932 — Branded Awlking:** *Meliosma simplicifolia* (Roxb.) (Sabiaceae): evergreen tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. November 2013. This is the first record of early stages and larval host plant of this species from India.

**6. *Coladenia agnioides* Elwes & Edwards, 1897 — Brown-tipped Pied Flat:** *Rhaphiolepis* sp. (Rosaceae): shrub. The larvae fed on young leaves. Tura Peak, West Garo Hills District, Meghalaya. June 2014. This is the first record of early stages and larval host plant of this species from India.

**7. *Erionota apex* Semper, 1892 — White-tipped Palm-redeye:** *Caryota monostachya* Becc. (Arecaceae):

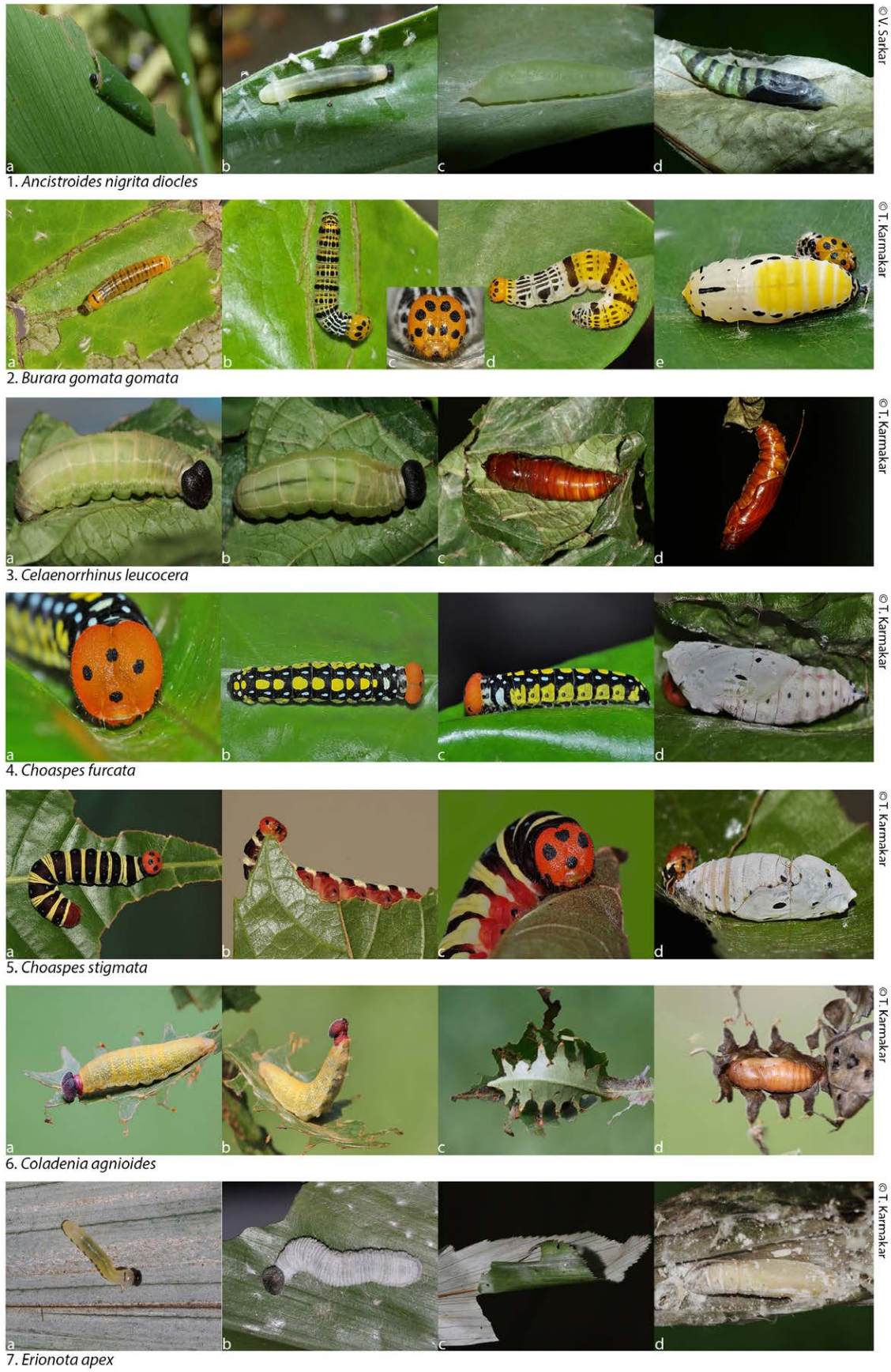


Image 1. Early stages of HesperIIDae.



8. *Erionota thrax thrax*

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9. *Erionota torus*

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10. *Gangara lebadea lebadea*

© K. Kunte



11. *Hasora chromus chromus*

© T. Karmakar



12. *Hyarotis adrastus praba*

© R. Das



13. *Lotongus sarala sarala*

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14. *Matapa cresta*

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Image 2. Early stages of HesperIIDae.



**Image 3.** Early stages of Hesperidae.

palm. The larvae fed on both young and mature leaves. Wakabah Fall valley, Sohra, East Khasi Hills District, Meghalaya. October 2014. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

**8. *Erionota thrax thrax* (Linnaeus, 1767) — Oriental Acute Palm-redeye:** *Musa x paradisiaca* (Musaceae): cultivated banana. The larvae fed on both young and mature leaves. Lungpuk, Mara Autonomous District Council, Mizoram. November 2009. *Musa* sp. and *Musa x paradisiaca* (Musaceae) have previously been reported as host plants of this butterfly from India (Robinson et al. 2001).

**9. *Erionota torus* Evans, 1941 — Rounded Palm-redeye:** *Musa balbisiana* Colla. (Musaceae): wild banana. The larvae fed on both young and mature leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. October 2013. This is a new larval host plant of this species from India.

**10. *Gangara lebadea lebadea* (Hewitson, [1868]) — Bornean Banded Redeye:** *Bismarckia nobilis* Hildebr. & H.Wendl. (Arecaceae): palm. The larvae fed on both young and mature leaves. Pakke TR, East Kameng District, Arunachal Pradesh. May 2007. This is a new larval host plant for this species, which has not been recorded anywhere before.

**11. *Hasora chromus chromus* (Cramer, [1780]) — Oriental Common Banded Awl:** *Pongamia pinnata* (L.) (Fabaceae): small tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. July 2014. *Pongamia pinnata* (Fabaceae) has previously been reported as host plant of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**12. *Hyarotis adrastus praba* (Moore, [1886]) — Bengal Tree Flitter:** *Phoenix acaulis* Roxb. (Arecaceae): palm. The larvae fed on both young and mature leaves. Domjur, Howrah District, West Bengal. July 2011. *Phoenix*

*caulis* (Arecaceae) has previously been reported as host plant of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**13. *Lotongus sarala sarala* (de Nicéville, 1889) — Khasi Yellow-banded Palmer:** *Calamus* sp. (Arecaceae): palm. The larvae fed on both young and mature leaves. Nongriat, East Khasi Hills District, Meghalaya. April 2015. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

**14. *Matapa cresta* Evans, 1949 — Fringed Branded Redeye:** *Gigantochloa nigrocliliata* (Buse) (Poaceae): bamboo. The larvae fed on young leaves. Gongrot, Balpakram National Park, South Garo Hills District, Meghalaya. November 2009. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

**15. *Matapa druna* (Moore, [1866]) — Grey-branded Redeye:** *Gigantochloa nigrocliliata* (Buse) (Poaceae): bamboo. The larvae fed on young leaves. Mawlong-Terna Road, East Khasi Hills District, Meghalaya. October 2014. This is the first record of early stages and larval host plant of this species from India.

**16. *Notocrypta feisthamelii alysos* (Moore, [1866]) — Himalayan Spotted Demon:** *Alpinia galanga* (L.) Willd. (Zingiberaceae): herb. The larvae fed on young leaves. Mawkisyiem, East Khasi Hills District, Meghalaya. October 2014. This is a new larval host plant for this species, which has not been recorded anywhere before.

**17. *Plastingia naga* (de Nicéville, [1884]) — Silver-spotted Lancer:** *Caryota monostachya* Becc. (Arecaceae): palm. The larvae fed on both young and mature leaves. Wakabah Fall valley, Sohra, East Khasi Hills District, Meghalaya. October 2014. This is a new larval host plant of this species from India.

**18. *Tagiades litigiosa litigiosa* Möschler, 1878 — Sylhet Water Snow Flat:** *Dioscorea pyrifolia* Kunth. (Dioscoreaceae): climber. The larvae fed on young leaves. Tura peak, West Garo Hills District, Meghalaya. June 2014. This is a new larval host plant of this species from India.

#### Family Lycaenidae (Images 4–5)

**19. *Caleta elna noliteia* (Fruhstorfer, 1918) — Indo-Chinese Elbowed Pierrot:** *Ziziphus oenopolia* (L.) Mill. (Rhamnaceae): straggler. The larvae fed on young leaves. Gorumara National Park, Jalpaiguri District, West Bengal. July 2015. *Ziziphus rugosa* (Rhamnaceae) has previously been reported as host plant of this butterfly from India (Wynter-Blyth 1957).

**20. *Castalius rosimon rosimon* (Fabricius, 1775) — Continental Common Pierrot:** *Ziziphus* sp. (Rhamnaceae): small tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. October 2013. *Ziziphus rugosa* and *Ziziphus jujuba* (Rhamnaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957).

**21. *Cheritra freja evansi* Cowan, 1965 — Khasi Common Imperial:** *Rosa acicularis* Lindl. (Rosaceae): shrub. The larvae fed on young leaves. Chapramari Wildlife Sanctuary, Jalpaiguri District, West Bengal. December 2014. This is a new larval host plant for this species, which has not been recorded anywhere before.

**22. *Curetis saronis gloriosa* Moore, [1884] — Sylhet Saronis Sunbeam:** *Pongamia pinnata* (L.) Pierre (Fabaceae): small tree. The larvae fed on young leaves. Alipurduar junction, Alipurduar District, West Bengal. August 2015. This is the first record of early stages and larval host plant of this species from India.

**23. *Heliophorus epicles latilimbata* (Fruhstorfer, 1908) — Himalayan Purple Sapphire:** *Persicaria chinensis* (L.) H. Gross (Polygonaceae): herb. The larvae fed on young leaves. Damanpur, Alipurduar District, West Bengal. January 2015. This is the first record of early stages of this species from India.

**24. *Hypolycaena erylus himavantus* Fruhstorfer, 1912 — Sikkim Common Tit:** *Ixora singaporensis* hort. (Rubiaceae): shrub. The larvae fed on floral buds and young leaves. Damanpur, Alipurduar District, West Bengal. January 2015. This is a new larval host plant for this species in India.

**25. *Lampides boeticus* (Linnaeus, 1767) — Pea Blue:** *Cajanus cajan* (L.) Millsp. (Fabaceae): perennial legume. The larvae fed on young seed pods. Ramsai Butterfly Conservatory, Gorumara National Park, Jalpaiguri District, West Bengal. February 2016. *Butea monosperma*, *Cajanus cajan*, *Crotalaria capensis*, *Crotalaria juncea*, *Crotalaria pallida*, *Crotalaria saltiana*, *Lablab purpureus*, *Lupinus* sp., *Melilotus* sp., *Pisum sativum*, *Vigna unguiculata* and *Xylia xylocarpa* (Fabaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**26. *Mahathala ameria ameria* (Hewitson, 1862) — Khasi Falcate Oakblue:** *Mallotus repandus* (Willd.) Müll. Arg. (Euphorbiaceae): climbing shrub. The larvae fed on young leaves. DVC Canal, Baidyabati, Hooghly District, West Bengal. September 2015. This is the first record of early stages of this species from India.



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19. *Caleta elna noliteia*



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20. *Castalius rosimon rosimon*



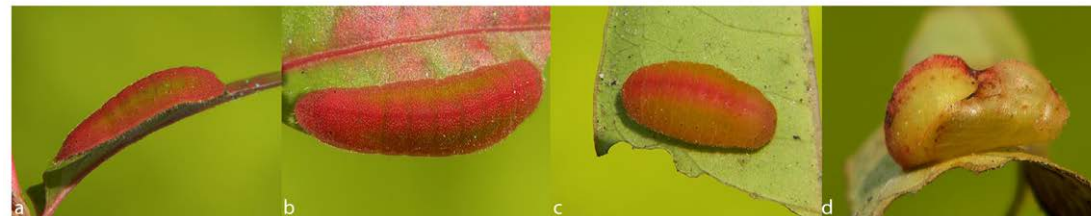
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21. *Cheritra freja evansi*



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22. *Curetis saronis gloriosa*



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23. *Heliophorus epicles latilimbata*



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24. *Hypolycaena erylus himavantus*



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25. *Lampides boeticus*

Image 4. Early stages of Lycaenidae.



Image 5. Early stages of Lycaenidae.



**27. *Mota massyla* (Hewitson, 1869) — Saffron:** *Acacia* sp. (Fabaceae): small tree. The larvae fed on young leaves. Pange, Ziro District, Arunachal Pradesh. August 2015. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

**28. *Pratapa deva lila* Moore, [1884] — Sylhet White Tufted Royal:** *Scurrula ferruginea* (Jack) Danser (Loranthaceae): hanging hemiparasite. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. November 2014. This is a new larval host plant of this species, which has not been recorded anywhere before.

**29. *Rapala pheretima petosiris* (Hewitson, 1863) — Indian Copper Flash:** *Ziziphus* sp. (Rhamnaceae): small tree. The larvae fed on floral buds and young leaves. Jayanti, Alipurduar District, West Bengal. October 2014. This is the first record of early stages and larval host plant of this species from India.

**30. *Rapala varuna orseis* (Hewitson, 1863) — Variable Indigo Flash:** *Ziziphus* sp. (Rhamnaceae): small tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. January 2015. *Combretum indicum* (Combretaceae), *Lantana camara* (Verbenaceae), *Sapindus trifoliatus* (Sapindaceae), *Ziziphus rugosa* and *Ziziphus xylopyrus* (Rhamnaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**31. *Surendra quercetorum quercetorum* (Moore, [1858]) — Himalayan Common Acacia Blue:** *Albizia odoratissima* (L.f.) Benth. (Fabaceae): evergreen tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. November 2013. *Albizia odoratissima* (Fabaceae) has previously been reported as host plant of this butterfly from India (Robinson et al. 2001).

**32. *Zeltus amasa amasa* (Hewitson, 1865) — Indian Fluffy Tit:** *Ixora singaporensis* hort. (Rubiaceae): shrub. The larvae fed on floral buds. Damanpur, Alipurduar District, West Bengal. January 2015. This is the first time that early stages of this species have been observed, and its larval host plant recorded, in India.

#### Family Nymphalidae (Images 6–9)

**33. *Acraea issoria issoria* (Hübner, [1819]) — Himalayan Yellow Coster:** *Debregeasia saeneb* (Forssk.) Hepper & J.R.I.Wood (Urticaceae): shrub. The larvae fed on young leaves. Kabi, North Sikkim District, Sikkim. April 2008. *Debregeasia saeneb* (Urticaceae) has previously been reported as host plant of this butterfly from India

(Robinson et al. 2001).

**34. *Aglais caschmirensis aesis* (Fruhstorfer, 1912) — Himalayan Tortoiseshell:** *Urtica dioica* L. (Urticaceae): herb. Rangli, East Sikkim District, Sikkim. May 2011. *Urtica* sp. (Urticaceae) has previously been reported as host plant of this butterfly from India (Robinson et al. 2001).

**35. *Ariadne merione tapestrina* (Moore, 1884) — Himalayan Common Castor:** *Ricinus communis* L. (Euphorbiaceae): shrub. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. January 2014. *Ricinus communis*, *Tragia hispida* and *Tragia plukenetii* (Euphorbiaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**36. *Athyma perius perius* (Linnaeus, 1758) — Oriental Common Sergeant:** *Glochidion zeylanicum* (Gaertn.) A. Juss. (Phyllanthaceae): tree. The larvae fed on young leaves. Ramsai Butterfly Conservatory, Gorumara National Park, Jalpaiguri District, West Bengal. March 2015. This is a new larval host plant of this species from India.

**37. *Cethosia biblis tisamena* Fruhstorfer, 1912 — Himalayan Red Lacewing:** *Passiflora foetida* L. (Passifloraceae): climber. The larvae fed on young leaves. Pabung Khola, South Sikkim District, Sikkim, May 2011, and Khonoma, Kohima District, Nagaland, May 2013. *Adenia* sp. and *Passiflora foetida* (Passifloraceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**38. *Cethosia cyane cyane* (Drury, [1770]) — Bengal Leopard Lacewing:** *Passiflora caerulea* L. (Passifloraceae): climber. The larvae fed on young leaves. Cooch Behar, Cooch Behar District, West Bengal. February 2016. *Passiflora* sp. (Passifloraceae) has previously been reported as host plant of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**39. *Charaxes bernardus hierax* C. & R. Felder, [1867] — Variable Tawny Rajah:** *Litsea cubeba* (Lour.) Pers. (Lauraceae): small tree. The larvae fed on both young and mature leaves. Koomsong, Bordubi, Tinsukia District, Assam. January 2015. This is a new larval host plant record for this species, which has not been recorded anywhere before.

**40. *Danaus genutia genutia* (Cramer, [1779]) — Oriental Striped Tiger:** *Holostemma ada-kodien* Schult. (Apocynaceae): creeper. The larvae fed on young leaves. Chilapata Wildlife Sanctuary, Alipurduar District, West Bengal. October 2012. This is a new larval host plant of this species from India.

**41. *Dichorragia nesimachus nesimachus* (Doyère, [1840]) — Himalayan Constable:** *Meliosma simplicifolia* (Roxb.) Walp. (Sabiaceae): evergreen tree. The larvae fed on young leaves. Chilapata Wildlife Sanctuary, Alipurduar District, West Bengal. November 2013, and in Gorumara National Park, Jalpaiguri District, West Bengal. February 2014. *Meliosma rhoifolia* Maxim. (Sabiaceae): small tree. The larvae fed on young leaves. Gorumara National Park, Jalpaiguri District, West Bengal. January 2014. This is the first record of early stages and larval host plants of this species from India.

**42. *Discophora sondaica* zal Westwood, [1851] — Indian Common Duffer:** *Bambusa* sp. (Poaceae): bamboo. The larvae fed on young leaves. Dimapur, Dimapur District, Nagaland. January 2015. This is the first record of early stages and larval host plant of this species from India.

**43. *Doleschallia bisaltide indica* Moore, 1899 — Himalayan Autumn Leaf:** *Erythrina variegata* L. (Fabaceae): tree. The larvae fed on young leaves. Mawlong-Terna Road, East Khasi Hills District, Meghalaya. October 2014. *Graptophyllum pictum* (Acanthaceae) and *Urtica* sp. (Urticaceae) have previously been reported as host plants of this butterfly from India (Robinson et al. 2001).

**44. *Elymnias malelas malelas* (Hewitson, 1863) — Bengal Spotted Palmfly:** *Dypsis lutescens* (H.Wendl.) Beentje & J. Dransf. (Arecaceae): palm. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. November 2014. We observed a female ovipositing, and then raised the caterpillar from the egg up to the fourth instar, when it developed a microbial infection and died. This is the first record of early stages and larval host plant of this species from India.

**45. *Euthalia anosia anosia* (Moore, [1858]) — Patkai Grey Baron:** *Mangifera indica* L. (Anacardiaceae): tree in an evergreen forest opening. The larvae fed on both young and mature leaves. Deban, Namdapha National Park, Changlang District, Arunachal Pradesh. March 2015. *Mangifera indica* has previously been reported as host plant of this butterfly from India (Robinson et al. 2001).

**46. *Euthalia lubentina lubentina* (Cramer, [1777]) — Oriental Gaudy Baron:** *Scurrula ferruginea* (Jack) Danser (Loranthaceae): hemiparasitic hanging shrub. The larvae fed on young leaves. *Loranthus cordifolius* Wall. (Loranthaceae): hemiparasitic hanging shrub. The larvae fed on young leaves. Caterpillars preferentially fed on *L. cordifolius*. Arovindanagar, Alipurduar District, West Bengal. November 2014. *Dendrophthoe glabrescens*, *Loranthus longiflorus* and *Scurrula parasitica*

(Loranthaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**47. *Euthalia monina kesava* (Moore, 1859) — Assam Powdered Baron:** *Diospyros* sp. (Ebenaceae): small tree. The larvae fed on both young and mature leaves. Joychandrapur, Trishna WLS, South Tripura District, Tripura. September 2014. *Diospyros melanoxylon* (Ebenaceae) and *Shorea robusta* (Dipterocarpaceae) have previously been reported as host plants of this butterfly from India (Robinson et al. 2001).

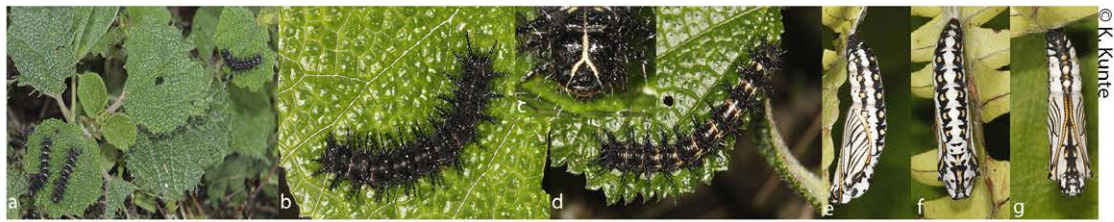
**48. *Euthalia phemius phemius* (Doubleday, [1848]) — Sylhet White-edged Blue Baron:** *Mangifera indica* L. (Anacardiaceae): tree. The larvae fed on both young and mature leaves. Legship, West Sikkim District, Sikkim. November 2009. *Mangifera indica* (Anacardiaceae) and *Litchi chinensis* (Sapindaceae) have previously been reported as host plants of this butterfly from India (Igarashi and Fukuda 1997; Robinson et al. 2001).

**49. *Faunis eumeus assama* (Westwood, 1858) — Khasi Large Faun:** *Caryota monostachya* Becc. and *Caryota maxima* Blume ex Mart. (Arecaceae): palms. The larvae fed on young leaves. Larvae freely fed on both plant species. Wakabah Fall valley, Sohra, East Khasi Hills District, Meghalaya. October 2014. *Caryota monostachya* is a new larval host plant of this species, which has not been recorded anywhere before.

**50. *Junonia almana almana* (Linnaeus, 1758) — Oriental Peacock Pansy:** *Hygrophila auriculata* (Schumach.) (Acanthaceae): herbaceous medicinal plant. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. October 2013. This is a new larval host plant of this species from India. *Acanthus* sp., *Barleria* sp., *Hygrophila costata* (Acanthaceae), *Gloxinia* sp. (Gesneriaceae), *Mimulus gracilis* (Phrymaceae) and *Osbeckia* sp. (Melastomataceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**51. *Junonia atlites atlites* (Linnaeus, 1763) — Oriental Grey Pansy:** *Hygrophila auriculata* (Schumach.) Heine (Acanthaceae): herbaceous medicinal plant. The larvae fed on young leaves. Arovindanagar, Alipurduar Court, Alipurduar District, West Bengal, May 2015. *Barleria* sp., *Hygrophila auriculata* and *Hygrophila costata* (Acanthaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**52. *Junonia lemonias lemonias* (Linnaeus, 1758) — Chinese Lemon Pansy:** *Hygrophila auriculata* (Schumach.) Heine (Acanthaceae): herbaceous medicinal plant. The larvae fed on young leaves. Arovindanagar,



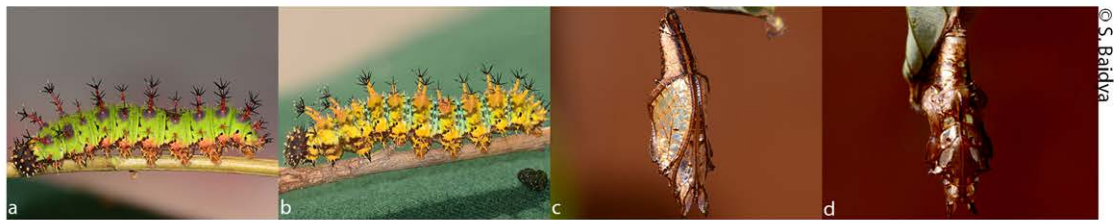
33. *Acraea issoria issoria*



34. *Aglais caschmirensis aesis*



35. *Ariadne merione tapestrina*



36. *Athyma perius perius*



37. *Cethosia biblis tisamena*

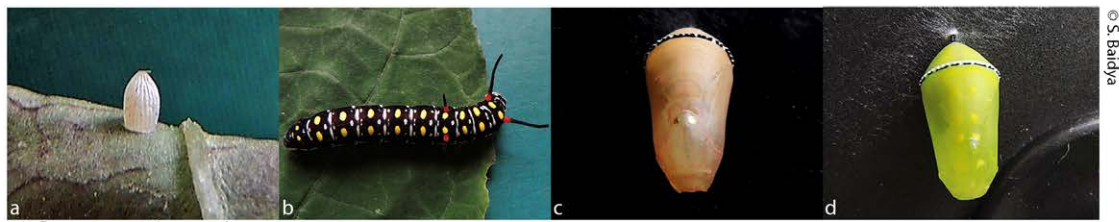


38. *Cethosia cyane cyane*



39. *Charaxes bernardus hierax*

Image 6. Early stages of Nymphalidae.



40. *Danaus genutia genutia*

© S. Baidya



41. *Dichorragia nesimachus nesimachus*

© S. Baidya



42. *Discophora sondaica zal*

© J. Veino, L. Veino & R. Veino



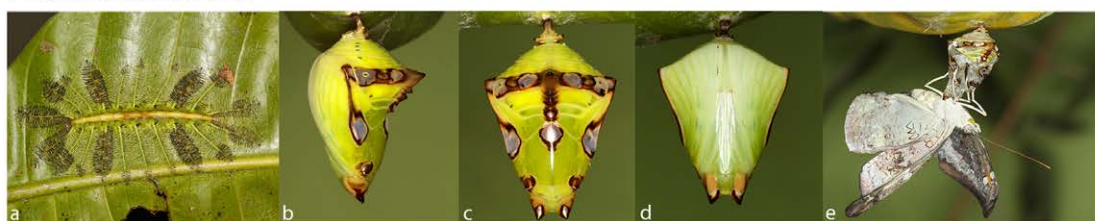
43. *Doleschallia bisaltide indica*

© T. Karmakar



44. *Elymnias malelas malelas*

© T. Karmakar



45. *Euthalia anosia anosia*

© K. Kunte



46. *Euthalia lubentina lubentina*

© T. Karmakar

Image 7. Early stages of Nymphalidae.



47. *Euthalia monina kesava*

© Z. Mirza & R. Sanap



48. *Euthalia phemius phemius*

© K. Kunte



49. *Faunis eumeus assama*

© T. Karmakar & V. Sarkar



50. *Junonia almana almana*

© T. Karmakar



51. *Junonia atlites atlites*

© S. Mazumder



52. *Junonia lemonias lemonias*

© S. Mazumder



53. *Kaniska canace canace*

© T. Karmakar

Image 8. Early stages of Nymphalidae.



Image 9. Early stages of Nymphalidae.

Alipurduar Court, Alipurduar District, West Bengal. May 2015. *Hygrophila auriculata*, *Hygrophila costata*, *Nelsonia canescens* (Acanthaceae), *Corchorus* sp. and *Sida rhombifolia* (Malvaceae) have previously been

reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

53. *Kaniska canace canace* (Linnaeus, 1763) — Continental Blue Admiral: *Smilax* sp. (Smilacaceae):

climber. The larvae fed on young leaves. Thangkharang, East Khasi Hills District, Meghalaya. May 2014. *Smilax* sp. (Smilacaceae) has previously been reported as host plant of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**54. *Melanitis leda leda* (Linnaeus, 1758) — Oriental Common Evening Brown:** *Saccharum officinarum* L., *Gigantochloa nigrociliata* (Buse) Kerz and *Thysanolaena latifolia* (Roxb. ex Hornem.) Honda (Poaceae): grasses. The larvae fed on young leaves. Larvae fed freely on all three species. Arovinanagar, Alipurduar District, West Bengal. November 2014. *Gigantochloa nigrociliata* and *T. latifolia* are new larval host plants for this species, which have not been recorded anywhere before.

**55. *Melanitis zitenius zitenius* (Herbst, 1796) — Himalayan Great Evening Brown:** *Gigantochloa nigrociliata* (Buse) Kerz (Poaceae): bamboo. The larvae fed on young leaves. Sukna, Mahananda WLS, Darjeeling District, West Bengal. October 2013. *Thysanolaena latifolia* (Roxb. ex Hornem.) Honda (Poaceae): reed-like plant. The larvae fed on young leaves. Mawlong-Terna Road, East Khasi Hills District, Meghalaya. October 2014. Both these records are new larval host plants for this species, which have not been recorded anywhere before.

**56. *Orinoma damaris damaris* Gray, 1846 — Himalayan Tigerbrown:** *Scleria* sp. (Cyperaceae): sedge. The larvae fed on young leaves. Wakabah Fall valley, Sohra, East Khasi Hills District, Meghalaya. October 2014. We observed a female ovipositing, and then raised the caterpillar up to the fifth instar, when it developed a microbial infection and died. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

**57. *Pseudergolis wedah wedah* (Kollar, [1844]) — Himalayan Tabby:** *Debregeasia orientalis* C. J. Chen (Urticaceae): shrub. We saw an ovipositing female in Buxa Tiger Reserve, Alipurduar District, West Bengal, in November 2013, and subsequently found caterpillars on this species at Mawlong-Terna Road, East Khasi Hills District, Meghalaya. October 2014. The larvae fed on young leaves. This is a new larval host plant of this species from India.

**58. *Stibochiona nicea nicea* (Gray, 1846) — Himalayan Popinjay:** *Boehmeria* sp. (Urticaceae): small tree. The larvae fed on young leaves. Mawlong-Terna Road, East Khasi Hills District, Meghalaya. October 2014. *Boehmeria macrophylla* (Urticaceae) has previously been reported as host plant of this butterfly from India (Robinson et al. 2001).

**59. *Thaumantis diores diores* Doubleday, 1845 — Sylhet Jungleglory:** *Bambusa* sp. (Poaceae): bamboo. The larva fed on young leaves, but died in its second instar due poor quality of host plant available. Gongrot, Balpakram NP, South Garo Hills, Meghalaya. November 2009. This is the first record of early stages and larval host plant of this species, which has not been recorded anywhere before.

#### Family Papilionidae (Image 10)

**60. *Graphium antiphates pompilius* (Fabricius, 1787) — Indo-Chinese Five-bar Swordtail:** *Desmos dunalii* (Wall. ex Hook.f. & Thomson) Saff. (Annonaceae): shrub. The larvae fed on young leaves. Jayanti, Alipurduar District, West Bengal. October 2014. This is a new larval host plant of this species, which has not been recorded anywhere before.

**61. *Papilio clytia clytia* Linnaeus, 1758 — Oriental Common Mime:** *Litsea glutinosa* (Lour.) C.B.Rob. (Lauraceae): largely evergreen small tree. The larvae fed on young leaves. Gorumara National Park, Jalpaiguri District, West Bengal. August 2012. *Alseodaphne semecarpifolia*, *Cinnamomum verum*, *Litsea glutinosa*, *Persea gamblei*, *Ocotea lancifolia* (Lauraceae) and *Sarcosperma arboreum* (Sapotaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**62. *Papilio memnon agenor* Linnaeus, 1758 — Continental Great Mormon:** *Citrus medica* L. (Rutaceae): evergreen shrub or small tree. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. December 2013. This is a new larval host plant of this species from India.

**63. *Papilio nephelus chaon* Westwood, 1845 — Khasi Yellow Helen:** *Murraya koenigii* (L.) Spreng. (Rutaceae): small tree. The larvae fed on young leaves. Refused to feed on *Citrus* sp. (Rutaceae). Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. August 2013. This is the first record of early stages and larval host plant of this species from India.

**64. *Papilio polytes romulus* Cramer, [1775] — Indian Common Mormon:** *Zanthoxylum nitidum* (Roxb.) DC. (Rutaceae): scrambler or liana. *Citrus medica* L. (Rutaceae): evergreen shrub or small tree, which is a preferred host plant in NE India. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar District, West Bengal. November 2013. *Citrus medica* is a new larval host plant of this species, which has not been recorded anywhere before. *Aegle marmelos*, *Citrus aurantifolia*, *Citrus sinensis*, *Correa* sp., *Glycosmis* sp., *Murraya koenigii*, *Triphasia* sp. and *Zanthoxylum*



60. *Graphium antiphates pompilius*

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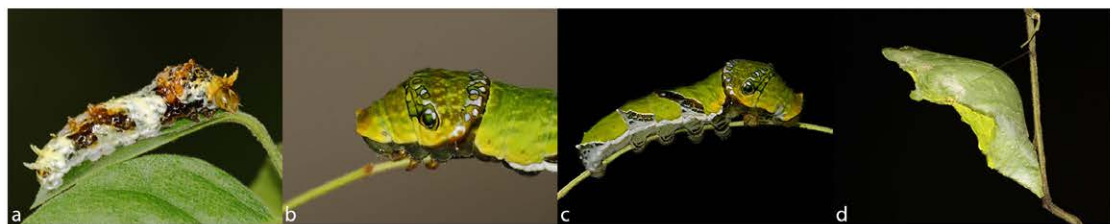
61. *Papilio clytia clytia*

© S. Baidya



62. *Papilio memnon agenor*

© T. Karmakar



63. *Papilio nephelus chaon*

© T. Karmakar



64. *Papilio polytes romulus*

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65. *Papilio protenor euprotenor*

© T. Karmakar

**Image 10. Early stages of Papilionidae.**

sp. (Rutaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**65. *Papilio protenor euprotenor* Fruhstorfer, 1908**  
 — **Himalayan Spangle:** *Zanthoxylum nitidum* (Roxb.)

DC. (Rutaceae): scrambler or liana. *Citrus medica* L. (Rutaceae): evergreen shrub or small tree. The ovipositing females and feeding caterpillars freely used both these plants. The larvae fed on young leaves. Rajabhatkhawa, Buxa Tiger Reserve, Alipurduar





66. *Aporia agathon agathon*

© T. Karmakar



67. *Delias descombesi descombesi*

© T. Karmakar



68. *Delias pasithoe pasithoe*

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69. *Eurema blanda silhetana*

© T. Karmakar



70. *Eurema hecabe hecabe*

© K. Kunte



71. *Eurema simulatrix grandis*

© K. Kunte



72. *Leptosia nina nina*

© S. Mazumdar

Image 11. Early stages of Pieridae.



Image 12. Early stages of Pieridae.

District, West Bengal. November 2013. *Citrus medica* is a new larval host plant of this species, which has not been recorded anywhere before. *Xanthophyllum* sp. (Polygalaceae) and *Zanthoxylum alatum* (Rutaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

#### Family Pieridae (Images 11 & 12)

**66. *Aporia agathon agathon* (Gray, 1831) — Nepalese Great Blackvein:** *Mahonia* sp. (Berberidaceae): small tree. The larvae fed on young leaves. Khonoma, Kohima District, Nagaland. May 2014. This is the first record and early stages and larval host plants of this species from India.

**67. *Delias descombesi descombesi* (Boisduval, 1836) — Vietnamese Redspot Jezebel:** *Scurrula ferruginea* (Jack) Danser (Loranthaceae): hemiparasitic hanging shrub. *Loranthus cordifolius* Wall. (Loranthaceae): hemiparasitic hanging shrub. The larvae freely fed on

both plant species, and on young leaves. Arovindanagar, Alipurduar District, West Bengal. November 2014. These are new larval host plants of this species, which have not been recorded anywhere before.

**68. *Delias pasithoe pasithoe* (Linnaeus, 1767) — Chinese Redbase Jezebel:** *Scurrula ferruginea* (Jack) Danser (Loranthaceae): hemiparasitic hanging shrub. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. November 2014. This is a new larval host plant of this species, which has not been recorded anywhere before.

**69. *Eurema blanda silhetana* (Wallace, 1867) — Sylhet Three-spot Grass Yellow:** *Acrocarpus fraxinifolius* Arn. (Fabaceae): small tree. The larvae fed on young leaves. Damanpur, Alipurduar District, West Bengal. November 2014. *Acrocarpus fraxinifolius*, *Albizia chinensis*, *Albizia lebbeck*, *Caesalpinia regia*, *Cassia javanica*, *Delonix regia*, *Falcataria moluccana*, *Gliricidia sepium*, *Moullava spicata*, *Sesbania bispinosa*, *Xylin*

*xylocarpa* (Fabaceae) and *Camellia sinensis* (Theaceae) have previously been reported as host plants of this butterfly from India (Wynter-Blyth 1957; Robinson et al. 2001).

**70. *Eurema hecabe hecabe* (Linnaeus, 1758)** — **Oriental Common Grass Yellow:** *Cassia fistula* L. (Fabaceae): small tree. The larvae fed on young leaves. Tongkolong WLS, Mara Autonomous District Council, Mizoram. December 2009. *Albizia procera*, *Cassia fistula*, *Pithecellobium dulce*, *Senna obtusifolia*, *Sesbania bispinosa*, *Sesbania grandiflora* and *Sesbania sesban* (Fabaceae) have previously been reported as host plants of this butterfly from norther and northeastern India (Wynter-Blyth 1957; Robinson et al. 2001).

**71. *Eurema simulatrix grandis* (Moore, [1907])** — **Khasi Changeable Grass Yellow:** *Cassia fistula* L. (Fabaceae): small tree. The larvae fed on young leaves. Tongkolong WLS, Mara Autonomous District Council, Mizoram. December 2009. This is the first time that early stages and larval host plant are reported for this species in India.

**72. *Leptosia nina nina* (Fabricius, 1793) — Oriental Psyche:** *Sisymbrium orientale* L. (Brassicaceae): herb. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. May 2015. This is a new larval host plant of this species, which has not been recorded anywhere before.

**73. *Pieris brassicae nepalensis* Gray, 1846 — Nepalese Large Cabbage White:** *Brassica oleracea* L. (Brassicaceae): herb. The larvae fed on young leaves. Ramaling, Eaglenest WLS, West Kameng District, Arunachal Pradesh. June 2015. *Tropaeolum majus* L. (Tropaeolaceae): herb. Ramaling, Eaglenest WLS, West Kameng District, Arunachal Pradesh. June 2015.

*Brassica nigra*, *Brassica oleracea* and *Tropaeolum* sp. (Tropaeolaceae) have previously been reported as host plants of this butterfly from India (Robinson et al. 2001).

**74. *Pieris canidia indica* Evans, 1926 — Himalayan Cabbage White:** *Brassica nigra* (L.) K.Koch (Brassicaceae): herb. The larvae fed on young leaves. Namprikdang, Dzongu, North Sikkim District, Sikkim. April 2008. This is a new larval host plant of this species, which has not been recorded anywhere before.

**75. *Pieris ajaka ajaka* Moore, 1865 — Himalayan Brown-veined White:** *Brassica oleracea* L. (Brassicaceae): herb. The larvae fed on young leaves. Dimapur, Dimapur District, Nagaland. February 2015. This is the first record of early stages and larval host plant of this species from India.

**76. *Pontia daplidice moorei* (Röber, [1907]) — Himalayan Bath White:** *Sisymbrium orientale* L. (Brassicaceae): herb. The larvae fed on young leaves. Arovindanagar, Alipurduar District, West Bengal. May 2015. This is the first record of early stages and larval host plant of this species from India.

#### Riodinidae (Image 14)

**77. *Abisara bifasciata suffusa* Moore, 1882 — Suffused Double-banded Judy:** *Embelia tsjeriam-cottam* (Roem. & Schult.) A. DC. (Primulaceae): small tree. The larvae fed on young leaves. Gorumara National Park, Jalpaiguri District, West Bengal. July 2015. *Embelia tsjeriam-cottam* has previously been reported as host plant of this butterfly from India. (Pant & Chatterjee 1950).

**78. *Zemerus flegyas flegyas* (Cramer, [1780]) — Himalayan Punchinello:** *Maesa montana* A. DC. (Primulaceae): small tree. The larvae fed on young



Image 13. Early stages of Pieridae and Riodinidae.

leaves. Damanpur, Alipurduar District, West Bengal. January 2015. *Maesa chisia* and *Maesa montana* (Primulaceae) have previously been reported as host plants of this butterfly from India (Robinson et al. 2001).

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