Butterflies of Trashiyangtse Valley, eastern Bhutan (Part 2)

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Results (contd.)

Annotated checklist

Nymphalidae

Heliconiinae

N-1. ***Acraea issoria issoria*** (Hübner, 1819)

1♂, 20. viii. 2011 (YW); 1♂, 9. viii. 2011 (MH); 1♀, 20. viii. 2011 (MH)

This species was seen only around Trashi Yangtse. Saito observed numerous newly emerged adults resting on a bush between Trashi Yangtse and Duksum during October, 2011.

N-2. ***Childrena childreni childreni*** (Gray, 1831)

1♂, 13. viii. 2011 (MS); 1♂, 17. viii. 2011 (MS); 1♀, 9. viii. 2011 (SY & TA)

This species was occasionally seen from Trashi Yangtse to Tarphel. Males were observed coming to puddles.

N-3. ***Argyreus hyperbius hyperbius*** (Linnaeus, 1763)

1♀, 12. viii. 2011 (SY & TA); 1♂, 17. viii. 2011 (MY); 1♀, 9. viii. 2011 (YI)

This species was sparsely seen from Trashi Yangtse to Tarphel.

Nymphalinae

N-4. ***Vanessa cardui*** (Linnaeus, 1758)

1♂, 19. viii. 2011 (YW)

N-5. ***Vanessa indica indica*** (Herbst, 1794)

1♂, 14. viii. 2011 (SY & TA)

This species was common throughout Trashiyangtse Valley. In Tarphel, many males were observed displaying territorial behavior at sunny spots along forest in the afternoon.

N-6. ***Aglais caschmirensis aesis*** (Fruhstorfer, 1912)

1♂, 12. viii. 2011 (MY)

This species was observed chiefly around Tarphel at 2,200 m. In October 2011, several adults were observed visiting flower clusters of buckwheat near the village.

N-7. ***Kaniska canace canace*** (Linnaeus, 1763)

1♂, 9. viii. 2011 (YW); 1♂, 19. viii. 2011 (SY & TA); 1♂, 19. viii. 2011 (MS); 1♀, 12. viii. 2011 (MS)

This species was sparsely found at various places. In the forest near Tarphel, some adults were observed drinking tree sap.

N-8. ***Symbrenthia lilaea khasiana*** Moore, 1875

1♂, 14. viii. 2011 (MY); 1♂, 17. viii. 2011 (SY & TA); 1♂, 15. viii. 2011 (SY & TA); 1♀, 12. viii. 2011 (MS)

This species was occasionally observed around Tarphel.

N-9. ***Symbrenthia niphanda niphanda*** Moore, 1872

1♂, 13. viii. 2011 (MY); 1♂, 17. viii. 2011 (SY & TA); 1

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♀, 19. viii. 2011 (SY & TA); 1♂, 13. viii. 2011 (YW); 1♂, 19. viii. 2011 (SY & TA); 1♀, 13. viii. 2011 (SY & TA)

This species was observed around Tarphel above 2,200 m. Some adults were observed visiting flowers (Fig. 29).

N-10. ***Symbrenthia brabira sivokana*** Moore, 1899

1♀, 11. viii. 2011 (YI); 1♀, 19. viii. 2011 (MS); 1♂, 9. viii. 2011 (SY & TA); 1♀, 9. viii. 2011 (MY); 1♀, 9. viii. 2011 (MY)

This species was sparsely observed from Trashi Yangtse to Tarphel. It seems to prefer lower altitudes than *S. niphanda*.

N-11. ***Junonia iphita iphita*** (Cramer, 1779) (Fig. 30)

1♀, 9. viii. 2011 (MH); 1♂, 19. viii. 2011 (SY & TA); 1♂, 10. viii. 2011 (MY); 1♂, 9. viii. 2011 (YI); 1♂, 9. viii. 2011 (MY); 1♀, 19. viii. 2011 (SY & TA)

This species was generally common from Trashi Yangtse up to Tarphel.

N-12. ***Junonia orithya ocyale*** Hübner, 1819

1♀, 9. viii. 2011 (YI); 1♂, 14. viii. 2011 (MH); 1♂, 14. viii. 2011 (SY & TA); 1♀, 10. viii. 2011 (SY & TA); 1♂, 10. viii. 2011 (MY); 1♀, 14. viii. 2011 (MH)

This species was common throughout Trashiyangtse Valley. Tarphel (about 2,500 m) seems to be high in altitude for this tropical species, but many adults were observed near a grassy field.

N-13. ***Kallima knyvettii*** de Nicéville, 1886

1♂, 19. viii. 2011 (MS); 1♂, 19. viii. 2011 (YW); 1♂, 13. viii. 2011 (MS); 1♂, 19. viii. 2011 (SY & TA)

This rare species was described from Buxa in Bhutan. It is known from N. E. India, Bhutan, S. E. Tibet, Myanmar, Laos and Thailand. Biological information on the species is very scarce. During our survey, this species was found only in dense forests from Bumdeling to Tarphel at 1,900-2,100 m. One adult was observed coming to animal droppings near Bumdeling. It was hard to collect because the flight was very fast. An allied species, *Kallima inachus*, was not observed at all and this species seems to prefer lower elevations than *K. knyvetti.* Not a single adult was observed at the same place during September and October when adults normally hibernate. Further study on the life history is needed.

Limenitidinae

N-14. ***Neptis sappho astola*** Moore, 1872

1♂, 17. viii. 2011 (MS); 1♂, 13. viii. 2011 (SY & TA); 1♀, 17. viii. 2011 (MY); 1♀, 12. viii. 2011 (MY); 1♂, 20. viii. 2011 (YW); 1♀, 12. viii. 2011 (SY & TA)

This species was common from Bumdeling to Tarphel.

N-15. ***Neptis soma soma*** Moore, 1858

1♂, 14. viii. 2011 (MS); 1♂, 19. viii. 2011 (MS); 1♂, 10. viii. 2011 (SY & TA); 1♂, 12. viii. 2011 (SY & TA); 1♂, 10. viii. 2011 (MY); 1♂, 10. viii. 2011 (MH)

This species was common from Bumdeling to Tarphel.

N-16. ***Neptis armandia melba*** Evans, 1912

1♀, 14. viii. 2011 (YW)

This species was recorded from Nepal to China, and recently also from C. Vietnam. It is generally rare. Only one damaged female was obtained at Tarphel in August, suggesting the peak flight period is earlier, from June to July.

N-17. ***Neptis nycteus*** de Nicéville, 1890

1♂, 15. viii. 2011 (SY & TA)

This species has hitherto been known from Nepal, Bhutan, N. E. India, S. E. Tibet and W. China. It is rare and local in every place. Only one worn male was collected at Tarphel in August, suggesting the peak flight period is earlier, in July.

N-18. ***Athyma jina jina*** Moore, 1858

1♀, 10. viii. 2011 (MY)

Only a few adults of this species were observed around Bumdeling.

N-19. ***Athyma opalina opalina*** (Kollar, 1844)

1♂, 17. viii. 2011 (SY & TA); 1♂, 10. viii. 2011 (MH); 1♂, 11. viii. 2011 (YI); 1♂, 15. viii. 2011 (SY & TA); 1♂, 12. viii. 2011 (MY); 1♀, 20. viii. 2011 (SY & TA)

This species is known to occur at higher altitude among other *Athyma* spp. It was sparsely found from Trashi Yangtse to Tarphel up to about 2,300 m. Saito observed two females visiting flower clusters of buckwheat at Tarphel in October. He also found a female laying an egg on the leaf of a Berberidaceae shrub (Fig. 31). Harada (2009) has reported the early stage of this species from China.

N-20. ***Athyma cama cama*** Moore, 1858

1♂, 20. viii. 2011 (YW); 1♂, 20. viii. 2011 (YW)

This species was observed only at rather low altitude around Duksum. Trashi Yangste is probably too high in altitude for this species.

N-21. ***Parasarpa dudu dudu*** (Doubleday, 1848) (Fig. 32)

1♂, 10. viii. 2011 (MH); 1♂, 11. viii. 2011 (MS); 1♀, 19. viii. 2011 (MS)

Fig. 29. *Symbrenthia niphanda*, visiting a flower cluster of *Hydrangea*.
Fig. 30. *Junonia iphita* ♂, basking.
Fig. 31. *Athyma opalina* ♀, resting after laying eggs.

Fig. 32. *Parasarpa dudu*, resting on the ground.
Fig. 33. *Neurosigma siva* ♂, basking on the ground.

Fig. 34. *Euthalia amplifascia,* visiting the animal dropping.

Fig. 35. *Euthalia sahadeva* ♂, basking on the leaf.

Fig. 36. *Neorina hilda* ♂, mud-puddling on the cliff.
Fig. 37. Foodplant of *Neorina hilda.*
Fig. 38. Eggs of *Neorina hilda.*

Fig. 39. *Zophoessa sidonis*, fresh adults were observed in early October.

Fig. 40. *Lethe serbonis* (right) and *Lethe isana* (left) were visiting animal droppings.

Fig. 41. *Lethe margaritae* ♂, only one adult collected near Tobrang in July, 2012. **Fig. 42.** *Neope pulaha* ♂, mud-paddling.

Fig. 43. *Ypthima confusa*, sipping human sweat from the knapsack. **Fig. 44.** *Callerebia scanda*, mud-paddling.

This species was sparsely observed from Trashi Yangtse to Tarphel.

N-22. ***Parasarpa zayla zayla*** (Doubleday, 1848)

1♂, 9. viii. 2011 (SY & TA); 1♂, 19. viii. 2011 (MS); 1♂, 11. viii. 2011 (YW); 1♂, 17. viii. 2011 (SY & TA)

This species was locally common from Bumdeling to Tarphel and often seen at roadside cliff. Males were observed coming to puddles.

N-23. ***Neurosigma siva siva*** (Westwood, 1850)

1♂, 20. viii. 2011 (YW)

Only a few adults were observed between Duksum and Trashi Yangtse. Male was observed mud-puddling on the road (Fig. 33). The altitude at Trashi Yangtse (1,750 m) seems to be rather high for this species.

N-24. ***Euthalia duda*** Staudinger, 1886

1♀, 14. viii. 2011 (SY & TA); 1♀, 20. viii. 2011 (SY & TA)

This species is distributed from Nepal to Khasi Hills. It was sparsely observed at Trashi Yangtse old dzong and the road between Trashi Yangtse and Bumdeling. Males usually glided high around the forest canopy. Females seemed to be inactive and were observed resting among bushes growing in shady forest.

N-25. ***Euthalia amplifascia*** Tytler, 1940 [New Record]

1♂, 10. viii. 2011 (MS)

This species was previously known from northern Myanmar (Kachin), so this is the first recorded from Bhutan. The specific name *amplifascia* was originally described as a subspecies of *E. duda* (Tytler, 1940). Yokochi (2012) recently treated *amplifascia* as a distinct species based on differences of the wing pattern and male genitalia. He also indicated that the forewing length of *E. amplifascia* is almost the same as that of *E. duda* (*E. amplifascia*: 41-46 mm; *E. duda*: 40-46 mm). As far as we observed and/or examined at Trashiyangtse Valley, however, *E. amplifascia* was smaller than *E. duda* in size [ex. the forewing length 41.2 mm (n = 1) in *E. amplifascia* and 46.0-50.0 mm (n = 3) in *E. duda*]. In addition, the two species were flying together with each other at the same place (1,750-1,900 m). In the first survey (August 2011) *E. amplifascia* was already worn, while *E. duda* was still fresh. In the third survey (July 2012) only fresh adults of *E. amplifascia* were observed (Fig. 34). These observations suggest the flight period of *E. amplifascia* is earlier than that of *E. duda*.

N-26. ***Euthalia nara*** (Moore, 1859)

1♂, 15. viii. 2011 (SY & TA)

In August 2011, only a few males were observed from 1,900-2,200 m, and no females were collected. This suggests the peak flight period is earlier, in June and July.

N-27. ***Euthalia sahadeva*** (Moore, 1859) (Fig. 35)

1♂, 10. viii. 2011 (MH); 1♂, 10. viii. 2011 (MY); 1♀, 9. viii. 2011 (SY & TA); 1♀, 20. viii. 2011 (YI); 1♀, 20. viii. 2011 (MS); 1♂, 9. viii. 2011 (SY & TA); 1♂, 13. viii. 2011 (YI); 1♀, 9. viii. 2011 (MY); 1♀, 10. viii. 2011 (SY & TA)

This species is distributed from Nepal to China. Yokochi (2011) divided *E. sahadeva* into three distinct species, namely *E. sahadeva, E. narayana* and *E. thawgawa*. According to the key provided by him, the specimens collected in our survey are assigned to *E. sahadeva*. The Bhutanese population of this species

is similar to the Nepalese one in the wing markings. However, it differs from the latter in the color and size of the spots on the male hindwing upperside. It was locally common between Trashi Yangtse and Bumdeling. Males flew fast above the forest canopy and seldom came down to the ground. Females were less active and were observed among shady bushes inside the forest.

N-28. ***Cyrestis thyodamas thyodamas*** Doyère, 1840

1♂, 11. viii. 2011 (YI); 1♂, 20. viii. 2011 (MH); 1♂, 19. viii. 2011 (SY & TA)

This species was sparsely observed around Trashi Yangtse and Bumdeling.

N-29. ***Pseudergolis wedah wedah*** (Kollar, 1844)

1♂, 10. viii. 2011 (SY & TA); 1♂, 19. viii. 2011 (SY & TA); 1♂, 19. viii. 2011 (MY); 1♂, 10. viii. 2011 (MY)

This species was found occasionally from Trashi Yangtse to Tarphel. Males were observed coming to puddles. Several eggs and larvae were also observed from *Debregeasia edulis* (Ulticaceae) by Harada.

N-30. ***Stibochiona nicea nicea*** (Gray, 1846)

1♂, 9. viii. 2011 (MY); 1♂, 11. viii. 2011 (YI); 1♂, 19. viii. 2011 (MS); 1♂, 19. viii. 2011 (SY & TA)

This species was sparsely observed, mainly below 2,000 m.

Apaturinae

N-31. ***Mimathyma ambica namouna*** (Doubleday, 1845)

1♂, 20. viii. 2011 (YW)

Several adults were found along the valley below Trashi Yangtse (1,750 m).

N-32. ***Sephisa chandra chandra*** (Moore, 1858)

1♂, 11. viii. 2011 (MY); 1♂, 20. viii. 2011 (MS)

Only a few adults were collected at Trashi Yangtse old dzong, where it seemed to be relatively rare and local. Yazaki (2012) also recorded this species from Trashi Yangtse in September 2008.

N-33. ***Hestinalis nama nama*** (Doubleday, 1844)

1♀, 9. viii. 2011 (MH); 1♂, 20. viii. 2011 (MH); 1♀, 20. viii. 2011 (YW)

This species was sparsely observed at altitudes below 2,000 m.

Satyrinae

N-34. ***Melanitis leda ismene*** (Cramer, 1775)

1♀, 9. viii. 2011 (YW)

This female was found in the restaurant of the hotel at Trashi Yangtse.

N-35. ***Neorina hilda*** Westwood, 1850

1♂, 11. viii. 2011 (MS); 1♂, 13. viii. 2011 (MS); 1♂, 19. viii. 2011 (MS); 1♀, 14. viii. 2011 (MY)

This species ranges from N. India (Sikkim-Assam), S. E. Tibet to N. Myanmar, and generally occurs in evergreen forest above 1,500 m. It appears once a year from July to August and is generally rare. In our survey, this species was observed locally common. Watanabe, one of the authors, observed many adults at 2,500 m on August 15. One male was observed sipping water on the roadside cliff (Fig. 36). Yago collected a female which was laying eggs on bamboo growing naturally along a stream (Fig. 37). This female was kept in captivity for egg-laying; many eggs (Fig. 38) were laid on leaves of the bamboo in a plastic case. Although young larvae hatched from the eggs, we were unable to rear them. Thus, the larval and pupal stages of the species are still unknown.

N-36. ***Zophoessa sidonis*** (Hewitson, 1863)

2♂, 13. viii. 2011 (MS); 1♂, 14. viii. 2011 (MH); 1♀, 15. viii. 2011 (MY)

This species was collected chiefly in Tarphel at 2,200-2,300 m. All specimens collected in August were worn. Saito found fresh specimens in late September to early October (Fig. 39), so the species is considered to be multivoltine. Males were often observed mud-puddling on the ground near village houses.

N-37. ***Zophoessa goalpara gana*** (Talbot, 1947)

1♂, 13. viii. 2011 (MY)

Only one fresh specimen was collected in deep deciduous forest at 2,150 m.

N-38. ***Lethe rohria rohria*** (Fabricius, 1787)

1♂, 20. viii. 2011 (MH)

Only one male was observed in a relatively hot and dry area below 1,600 m.

N-39. ***Lethe verma sintica*** Fruhstorfer, 1911

1♂, 9. viii. 2011 (SY & TA); 1♂, 10. viii. 2011 (MY); 1♂, 9. viii. 2011 (MH); 1♀, 18. viii. 2011 (SY & TA)

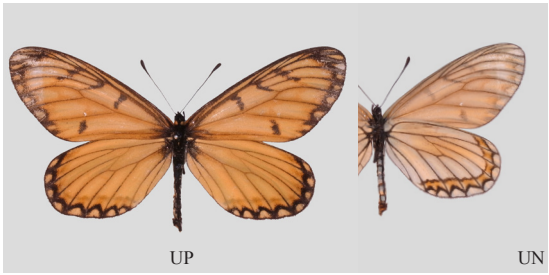
This species was sparsely seen from Trashi Yangtse (1,750 m) to Tarphel (2,200 m).

N-40. ***Lethe isana dinarbas*** (Hewitson, 1863) (Fig. 40)

1♂, 12. viii. 2011 (MY); 1♂, 13. viii. 2011 (MH); 1♂, 9. viii. 2011 (MH); 1♂, 19. viii. 2011 (MS); 1♂, 15. viii. 2011 (SY & TA); 1♀, 15. viii. 2011 (MY)

This species was sparsely observed around Tarphel area at 2,200-2,300 m.

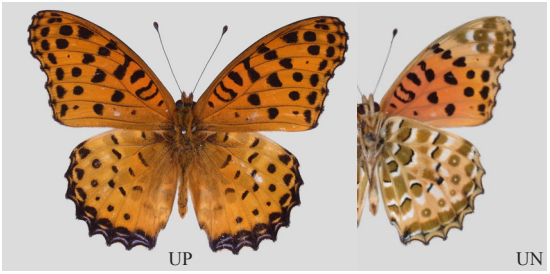
N-1. *Acraea issoria issoria* ♂.



N-1. *Acraea issoria issoria* ♀.

N-2. *Childrena childreni childreni* ♂.

N-2. *Childrena childreni childreni* ♀.



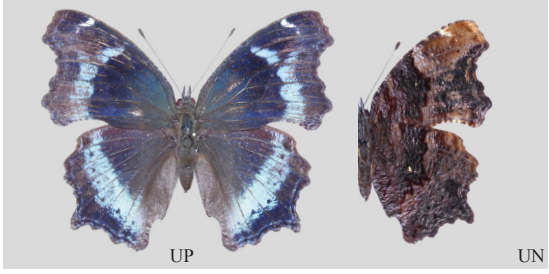
N-3. *Argyreus hyperbius hyperbius* ♂.

N-3. *Argyreus hyperbius hyperbius* ♀.

N-4. *Vanessa cardui* ♂.

N-5. *Vanessa indica indica* ♂.

N-7. *Kaniska canace canace* ♂.



N-7. *Kaniska canace canace* ♀.

N-6. *Aglais caschmirensis aesis* ♂.

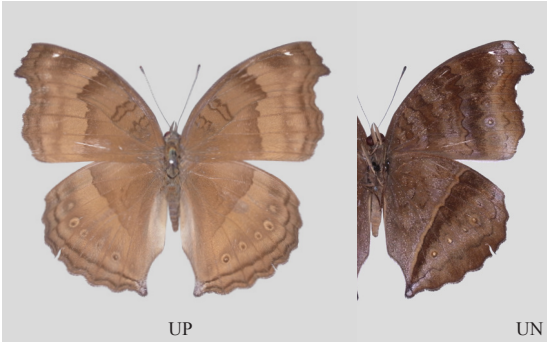
N-8. *Symbrenthia lilaea khasiana* ♂.

N-8. *Symbrenthia lilaea khasiana* ♀.

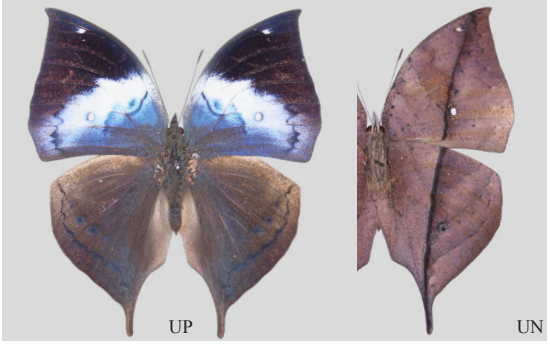
N-9. *Symbrenthia niphanda niphanda* ♂.

N-10. *Symbrenthia brabira sivokana* ♂.

N-10. *Symbrenthia brabira sivokana* ♀.



N-11. *Junonia iphita iphita* ♂.



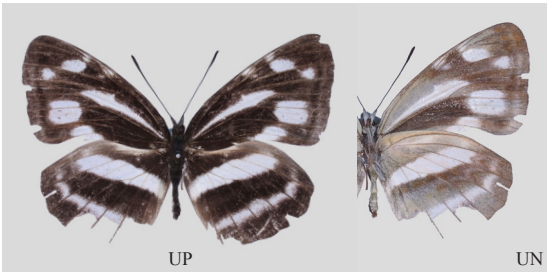
N-13. *Kallima knyvettii* ♂.

N-12. *Junonia orithya ocyale* ♂.

N-12. *Junonia orithya ocyale* ♀.

N-14. *Neptis sappho astola* ♂.

N-15. *Neptis soma soma* ♂.

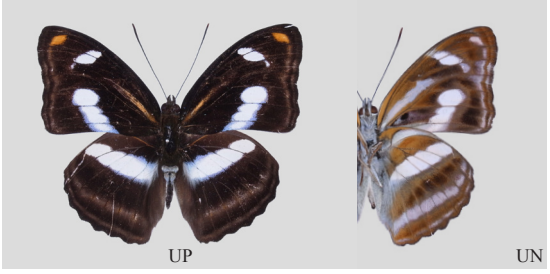


N-16. *Neptis armandia melba* ♀.

N-17. *Neptis nycteus* ♂.

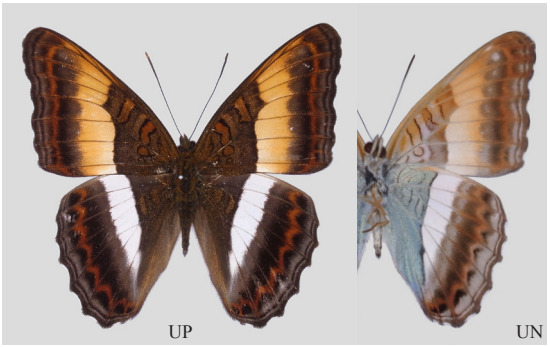
N-18. *Athyma jina jina* ♂.

N-19. *Athyma opalina opalina* ♂.



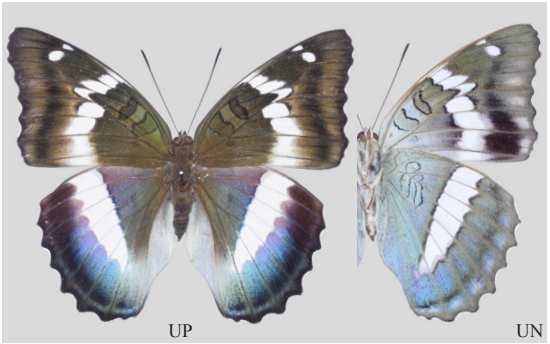
N-20. *Athyma cama cama* ♂.

N-21. *Parasarpa dudu dudu* ♂.

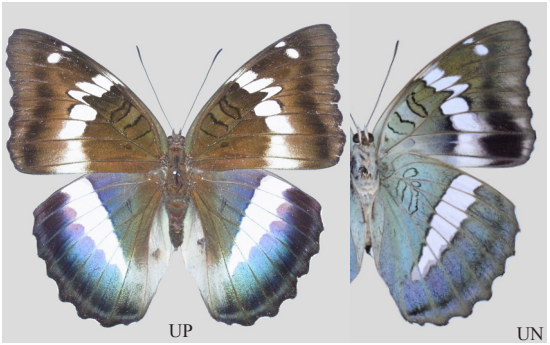


N-22. *Parasarpa zayla zayla* ♂.

N-23. *Neurosigma siva siva* ♂.

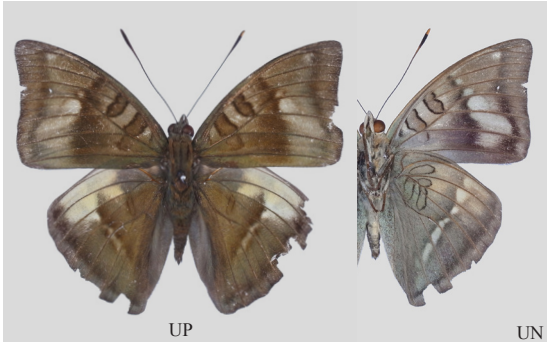


N-24. *Euthalia duda* ♂.



N-24. *Euthalia duda* ♀.

N-25. *Euthalia amplifascia* ♂.

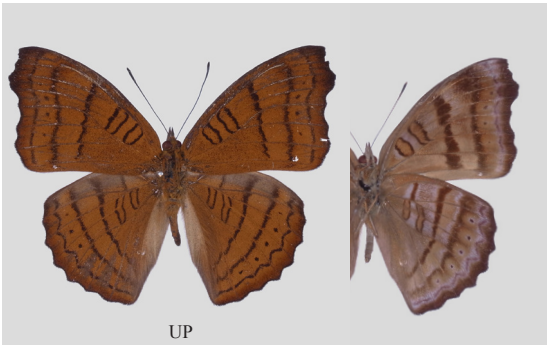


N-26. *Euthalia nara* ♂.

N-27. *Euthalia sahadeva* ♂.

N-27. *Euthalia sahadeva* ♀.

N-28. *Cyrestis thyodamas thyodamas* ♀.



N-29. *Pseudergolith wedah* ♂.

N-30. *Stibochiona nicea nicea* ♂.

N-31. *Mimathyma ambica namouna* ♂.

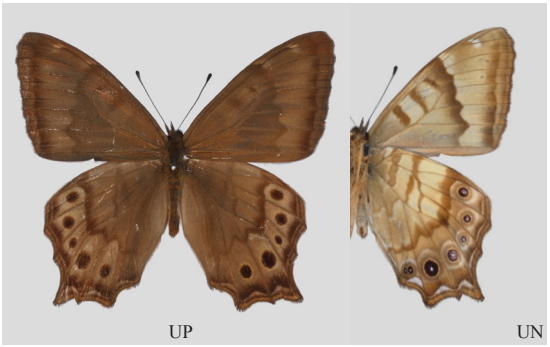
N-32. *Sephisa chandra chandra* ♂.

N-33. *Hestinalis nama nama* ♀.

N-34. *Melanitis leda ismene* ♀.

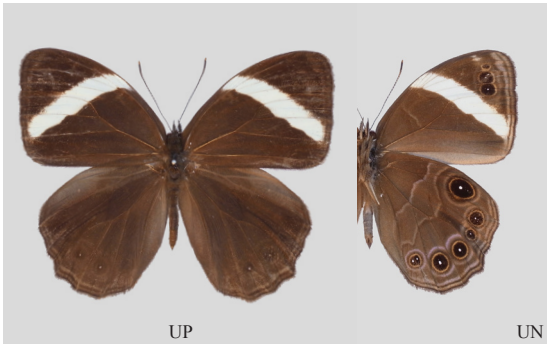
N-35. *Neorina hilda* ♂.

N-36. *Zophoessa sidonis* ♂.

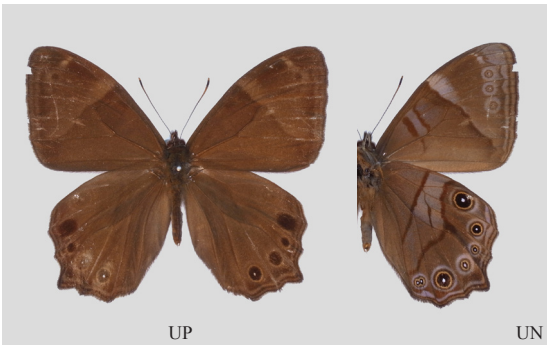


N-37. *Zophoessa goalpara gana* ♂.

N-38. *Lethe rohria rohria* ♂.



N-39. *Lethe verma sintica* ♂.



N-40. *Lethe isana dinarbas* ♂.

N-40. *Lethe isana dinarbas* ♀.

N-41. *Lethe serbonis bhutya* ♂.

N-41. *Lethe serbonis bhutya* ♀.