# TWO NEW BUTTERFLY SPECIES FOR NEPAL: *EUREMA ANDERSONI* (PIERIDAE) AND *LETHE DAKWANIA* (NYMPHALIDAE)

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In the process of updating the butterfly species list of Nepal, checking of old photographs revealed several new species for Nepal. One species that has been confirmed is reported here. Another species, that was recently photographed and was also confirmed, was reported in the past but was excluded from the last official list of Lepidoptera of Nepal (Smith, 2010).

*Eurema andersoni* Moore, 1886, One-spot Grass Yellow ssp. *jordani* Corbet & Pendlebury, 1932 occurs from Uttarakhand to N.E. India (Varshney & Smetacek, 2015) and hence was always expected to fly in Nepal. The species was described from South Myanmar, while ssp. *jordani* was described from Sikkim. The species can be confused easily with some *Eurema hecabe* (Linnaeus, 1758) individuals, which may have one or no cell spot rather than the usual two spots. Apart from one zigzag spot in the under-forewing cell, Evans (1932) indicates that *E. andersoni* has no scattered black scales or rusty spots on the underside, brown markings in the under-forewing apical area and an under-hindwing costal spot end pointing to the spot in the cell.

*E. andersoni* was reported for Nepal by V. K. Thapa (1998) with the note "no data available" and no mention of its source. It was not listed in Smith (2010), which only referred to it under "Redundant names" as "Foreign not Nepal". In 2016, it was reported by Colin Smith in his unpublished Butterfly Updates, based on a picture taken by Surendra Pariyar in west Nepal. This picture and several others of Grass Yellows with one spot were sent to IFB, which indicated that all these individuals showed insufficient details for clear identification. Colin Smith agreed to remove it from the draft of his last booklet on butterflies of Nepal (in preparation).

On 7 June and 1 July 2020 I took pictures of two Grass Yellows that appeared to be *E. andersoni*, flying at the forest edge near an open grass field just above Lakeside, Pokhara at about 850m elevation (Figure 1). The identification was later confirmed by Peter Smetacek.

Common Grass Yellows with one or even no cell spots in the under-forewing cell have been regularly encountered in Nepal. Thus, the number of cell spots is an insufficient criterion for identification and the other characteristics, mentioned above, need to be checked. For comparison, pictures are added of two *E. hecabe* individuals: The Common "Zero-spot" and the Common "1-spot" Grass Yellows (figures 3 and 4). To show that variation in the number of cell spots may happen in Grass Yellows, a picture is presented of an *E. blanda* (Boisduval, 1836) aberration, the "Not-so-common Four-spot" Grass Yellow (figure 2).

***Lethe dakwania*** (Tytler, 1939) Garhwal Woodbrown.

**Background**

This species was described from specimens collected in August 1914, at about 2750 m in Dakwani in eastern Garhwal, present-day western Uttarakhand. It was only known from Uttarakhand (Varshney & Smetacek, 2015). Its upper hindwing submarginal black spots are well-defined, the under forewing postdiscal band is better defined (than in *L. sidonis* (Hewitson, 1863)) and pure white near the costa and its under hindwing discal marking are pale brown and ill-defined and the submarginal ocelli are smaller and surrounded with pale brown or very pale violet (Tytler, 1939). It differs from *Lethe sidonis* (Common Woodbrown), which has the under hindwing ocelli in 2 and 6 larger and more clearly defined (figure 8), all ocelli on an even arc and the upper hindwing spots that are black and often vague or obscure without rings (Evans, 1932, figure 7). Tytler (1939) also describes the genitalia of the male *L. dakwania* as clearly different from those of *L. sidonis*.

Fujioka (1970) reported a different form of *L. sidonis*, that was collected in August 1963 in the higher area of Godavari near Kathmandu. These individuals had subequal sized ocelli on the underside of the hindwing, subapical white spots on the upper forewing and a conspicuously wavy margin of the hindwing. Fujioka (1970) indicated that the specimens were similar to the one called *vaivalta* [sic, recte *vaivarta*], a subspecies listed by Evans (1932), but that the genitalia were not different from those of the usual form of *L. sidonis*.

**Observations**

In July-August 2013, I photographed some woodbrowns at about 3000 m near Titi Lake and on the grassy slopes below the Dhaulagiri Icefalls in Mustang in the western part of the Annapurna Conservation Area (ACA) in central Nepal (figures 5 and 6). There were a fairly large number of them visiting almost dry thistle flowers. Colin Smith was not sure and said that maybe they were all *L. sidonis*, Common Woodbrowns. Similar individuals were also photographed in September 2011 west of Pokhara and in September 2012 in Manang in the eastern part of the ACA, at elevations between 2500 and 2800 m. When checking my pictures while working on an updated species list of Nepal's butterflies, I went back to these questionable woodbrowns. My preliminary identification of *L. dakwania* was confirmed by Peter Smetacek for some of them.

**Discussion**

The clearly defined upper hindwing ocelli surrounded (in my pictures) by orange-brown rings, appear to be the easiest identification characteristic of *L. dakwania*, although Tytler (1939) does not mention the rings. Superficially, the undersides of the wet season higher elevation form of *L. sidonis* resemble those of *L. dakwania*, but this was not mentioned by Fujioka (1970). In *L. dakwania* the under-hindwing ocelli in spaces 3-4-5 are more or less in a straight line (Smetacek, *pers. communication*), while for the usual form of *L. sidonis* they are on an even arc. However, for higher elevation wet-season-form of *L. sidonis* the under-hindwing ocelli in spaces 3-4-5 are much less curved than the rest of the ocelli (figure 24-8 in Fujioka, 1970, figure 9).

Smith's (2011) booklet on Butterflies of the ACA lists only two woodbrowns: *L. sidonis* as frequently observed and *L. nicetas* (Hewitson, 1863) as occasionally seen. Among the pictures of woodbrowns that Colin Smith took, those in the southern part of the ACA appear to be the usual form of *L. sidonis*, while most of those in the somewhat higher areas further north in Manang and Mustang are the higher elevation form of *L. sidonis* or *L. dakwania*, but none can be definitely identified as the latter. Similarly, of my pictures only those

taken in the shrubby and grassy meadows below the Dhaulagiri Icefall were definitely *L. dakwania*. The woodbrowns in Manang (figure 9) and those of Titi lake could be both, while the one west of Pokhara has subequal ocelli, but they were on a more even curve, thus appearing to be somewhere in between the usual form and the high altitude form of *L. sidonis* (figure 10).

**Conclusion**

*L. dakwania* was observed locally and fairly frequently in the Annapurna area in Central Nepal in July and August between 3000 and 3100 m. Earlier records may have been identified as *Lethe sidonis*. The species has probably been in Central Nepal for a long time. This is the first record of *Lethe dakwania* for Nepal and for any area outside Uttarakhand. It represents an extension of the distribution area of this species from only Uttakhand to Uttarakhand to Central Nepal. The occurrence of the high altitude wet season form of *L. sidonis* reported by Fujioka (1970) appears not limited to the Kathmandu-Godavari area, but extends at least to the Pokhara and Annapurna area of central Nepal.

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Fig.1: *E. andersoni*

Fig.2: *E. hecabe* without cell-spot

Fig.3: *E. hecabe*

Fig.4: *E. blanda* - Three ("Four")-spot Grass Yellow

Fig.5: *Lethe dakwania*

Fig.6: *Lethe dakwania*

Fig.7: *Lethe sidonis*

Fig.8: *Lethe sidonis*, usual form

Fig.9: Probably *Lethe sidonis* high elevation wsf, Manang.

Fig.10: Probably *Lethe sidonis* high elevation wsf, W of Pokhara