

## THE GENUS *XANDRAMES* MOORE, 1867 (INSECTA: LEPIDOPTERA: GEOMETRIDAE) IN INDIA

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The genus *Xandrames* Moore, 1867 includes a group of large Asian Geometridae, with a distinctive broad white medial band across the forewing. The genus is found in India, Nepal, Bhutan, Indonesia, Thailand, Malaysia, Myanmar, China and Japan. The species are found in dense broadleaf forest at moderate elevation in the Himalaya and hills of northeastern India.

Both sexes are never occur in numbers, and usually are attracted to artificial light before 10 pm.

Hampson (1895) reported two taxa from India, namely *X. latiferaria* (Walker, 1860) and *X. albofasciata* Moore, [1868]. He treated several taxa under his concept of *X. latiferaria*, namely *X. dholaria* Moore, [1868], *X. sericea* Butler, 1881 and *X. curvistriga* Warren, 1894. Although the type of the genus was originally *X. dholaria*, Hampson (1895) changed this to *X. latiferaria* since he had synonymised *dholaria* with *latiferaria*. Wehrli (1954), Yazaki (1992) and Kirti *et al.* (2019) treated *X. dholaria*, *X. latiferaria* and *X. albofasciata* as good species, treating *sericea* as a subspecies of *X. dholaria* and *curvistriga* as a subspecies of *X. latiferaria*. In the present paper, *X. xanthomelanaria* Poujade, 1895 is reported from Arunachal Pradesh, India which was earlier reported only from China (Wehrli, 1954). Following is an account of the four species of the genus in the Himalaya and northeastern India:

*Xandrames* Moore, 1867

*Proc. zool. Soc. Lond.* 1867: 634. TS.

*Xandrames dholaria* Moore, 1867. *Proc. zool. Soc. Lond.*: 634.

*Xandrames dholaria* Moore, [1868] Plate 1 & 2, figures 3 & 4

*Xandrames dholaria* Moore, [1868]; *Proc. zool. Soc. Lond.* 1867: 634; TL: Darjeeling.

Forewing length: 37 – 44 mm.

Material examined: 6 males.: 15.vii.1990 Jones Estate, Bhimtal, Uttarakhand, India 1500 m; 19.vi.1990 Jageshwar, Almora, Uttarakhand, India 1700 m; 13.v.2021 Walong, Anjaw, Arunachal Pradesh 1300 m. (Leg. et Coll. P. Smetacek, Bhimtal); 25.vii.2019, Shirui Hills, Ukhrul, Manipur, India, 2835m; 13.ix.2019, Shirui Hills, Ukhrul, Manipur, India 2036m (Leg. et Coll. Jatishwor Irungbam, Imphal).

Distribution: Himachal Pradesh to Arunachal Pradesh and Manipur (Shirui Hills), north to Mongolia and Japan.

Distinctive features: The broad white medial band on the forewing is joined by an obscure pale streak from near the apex, unlike *X. albofasciata*, where this band is prominent. The outer edge of the white discal band is diffuse, and there is no yellow on the forewing or hindwing, unlike *X. latiferaria* and *X. xanthomelanaria*.

Habitat: in the west Himalaya, it occurs in humid oak forest (*Quercus leucotrichophora*) above 1600 m elevation, although stragglers

occasionally descend to 1500 m. It is found at lower elevation in the eastern Himalaya and as high as 2835 m in the hills of Northeastern India.

Remarks: Wehrli (1954) reported that Leech recorded it in June and July in China and Prout reported it in the first half of August in Japan.

*Xandrames latiferaria* Walker, 1860

*Pachyodes? latiferaria* Walker, 1860; *List Spec. Lepid. Insects Colln Br. Mus.* 21: 445. TL. China (North).

*Xandrames latiferaria curvistriga* Warren, 1894 Plate 1 & 2, figure 1

*Xandrames curvistriga* Warren, 1894. *Novit. zool.* 1 (2): 431; TL: Khasia Hills

Forewing length: 31 mm.

Material examined: 1 male: 31.x.2019 Hmuifang, Mizoram, 1600 m. Leg. B. Lalnghahpuii, Coll. P. Smetacek, Bhimtal

Distinctive features: Sexes similar. Females lack a fovea on the forewing. The smallest known member of the genus. The white discal band on the forewing is broad and relatively sharply defined on the outer edge, reaching the outer margin at vein 4. In *X. dholaria*, *X. xanthomelanaria* and *X. albofasciata*, this pale forewing band has a diffuse outer edge.

On the hindwing of *X. latiferaria*, there is a sharply defined submarginal pale line from the apex to the tornus, angled at vein 4. None of the other three species has this.

Distribution: Nepal to Meghalaya, Mizoram to Borneo.

Habitat: it occurs in humid broadleaf forest above 1400 m.

Remarks: Yazaki (1992) reported 7 specimens collected from Godavari, Nepal in March, April, May, July and September. The present record extends the known flying time of the species. A rather rare moth, which we have so far not recorded from Arunachal Pradesh. The nominotypical subspecies *X. latiferaria latiferaria* has also been erroneously reported from India (N.W. Himalayas) by Kirti *et al.*, (2019).

*Xandrames xanthomelanaria* Poujade, 1895 Plates 1 & 2 Figure 5

*Xandrames xanthomelanaria* Poujade 1895. *Ann. Soc. Ent. Fr.* 309. T. L.: West China.

Forewing length: 55 mm.

Material examined: 3 exs.: 1 female: 29.iv.-10.v.2019 Km 65 Roing-Anini road, Arunachal Pradesh 2200 m. (Leg. et Coll. P. Smetacek, Bhimtal); 2 males: 13.ix.2019, Shirui Hills, Ukhrul, Manipur, India 2036 m (Leg. et Coll. Jatishwor Irungbam, Imphal).

Distinctive features: the upperside forewing lacks the white sub-apical band which is prominent in *X. albofasciata* and present in *X. dholaria*. There is a broad patch of yellow below vein 4. Both *X. dholaria* and *X. latiferaria* lack this while the yellow patch is smaller in *X. albofasciata*.

On the upperside hindwing, there is a prominent yellow marginal band expanding towards the apex. This yellow band is narrow and of even width in *X. albofasciata* and is whitish in *X. latiferaria* while in *X. dholaria* it consists of a few irregular white spots near the apex.

Distribution: India (Arunachal Pradesh, Manipur) to China.

Habitat: the female was recorded in dense broadleaf evergreen forest in the Mishmi Hills.

Remarks: a new record for India. The species is noted to be very rare by Wehrli (1954), who illustrated a male from Tse-Ku. The type specimen was from Moupin and one specimen each was known from Omei-Shan, Chia-kou-ho and Tien-tsuen. It was recorded only in the month of July. The present records extend the known distribution and flying time of the species.

*Xandrames albofasciata* Moore, [1868] Plates 1 & 2, figure 2

*Xandrames albofasciata* Moore, [1868]; *Proc. Zool. Soc. Lond.* 1867(3): 634. TL. Darjeeling, India. Forewing length: 42 mm.

Material examined: 1 female: 2-9.vii.2019 Km. 65, Roing-Anini road, Arunachal

Pradesh, India 2200 m. (Leg. et Coll. Peter Smetacek, Bhimtal)

Distinctive features: on the upperside forewing, the discal white band is joined at vein 4 by a prominent white band originating near the apex. This sub-apical white band is lacking in *X. xanthomelanaria* and *X. latiferaria*, while it is indistinct in *X. dholaria*. On the forewing below vein 4, there is a yellow area. This is prominent in *X. xanthomelanaria* and entirely lacking in both *X. dholaria* and *X. latiferaria*.

On the hindwing, there is a narrow yellow marginal band, extending from the apex to vein 3. In *X. xanthomelanaria*, this band expands towards the costa. In *X. dholaria*, the yellow is replaced with white and is in the form of some suffusion rather than a sharply defined band. In *X. latiferaria*, there is a sharply defined submarginal pale line from the apex to the tornus.

Distribution: The type locality is Darjeeling. It is also reported from Godavari and Mt. Phulchoki (2750 m) in Nepal in April, May, July and September (Yazaki, 1992). The

distribution extends to Tibet and western China.

Habitat: This appears to be found at higher elevation than the remaining three species. We recorded it in dense broadleaf evergreen forest.

#### References

Hampson, G.F. 1895. *The Fauna of British India including Ceylon and Burma*. Moths, Vol. 3. xxvii + 546 pp.

Kirti, J.S., K. Chandra, A. Saxena & N. Singh. 2019. *Geometrid Moths of India*. Nature Books India, New Delhi. 296 pp.

Prout, L.B. 1915. in Seitz, A.(ed.) *The Macrolepidoptera of the World*. Vol. 4. Palaearctic Geometridae. Alfred Kernen Verlag, Stuttgart. 497 pp. 25 pl.

Wehrli, E. 1954 in Seitz, A. *The Macrolepidoptera of the World*. Volume 4 (Supplement). Palaearctic Geometridae. Alfred Kernen Verlag, Stuttgart. 765 pp., 53 pl.

Yazaki, K. 1992. in Haruta, T. (ed.) Moths of Nepal. Part 1. *Tinea* 13 (Supplement 2): xvii + 122. 32 pl.



Fig.1: 1. *X. latiferaria curvistriga*, 2. *X. albofasciata*, 3 & 4. *X. dholaria* and 5. *X. xanthomelanaria*



Fig.2: 1. *X. latiferaria curvistriga*, 2. *X. albofasciata*, 3 & 4. *X. dholaria* and 5. *X. xanthomelanaria*