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# BIONOTES

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# AN IDENTIFICATION GUIDE TO THE GENUS *CALLINDRA* RÖBER (LEPIDOPTERA: EREBIDAE: ARCTIINAE) OF INDIA

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## ABSTRACT

We present a simple identification guide to the Indian members of the tiger moth genus *Callindra* Röber, 1925. The known distributions of *C. arginalis* (Hampson, 1894), *C. nyctemerata* (Moore, 1879) and *C. nepos* (Leech, 1899) within the Indian subcontinent are all extended.

## INTRODUCTION

The genus *Callindra* Röber, 1925 comprises seven species, which are primarily Himalayan in distribution. All are known from the Eastern Himalaya and the Chinese province of Yunnan, but some species occur as far west as Afghanistan and the Pamirs, and to the east, others occur as far south as Myanmar, Thailand, Vietnam, and one taxon is found in Sumatra.

The species that have currently been recorded from India are *C. arginalis* (Hampson, 1894), *C. principalis* (Kollar, 1844), *C. equitalis* (Kollar, 1844), *C. similis* (Moore, 1879), *C. nepos* (Leech, 1899) and *C. nyctemerata* (Moore, 1879).

Thus, only *C. lenzeni* Daniel, 1943, has so far not been recorded from India.

Although *C. eques* (Reich, 1932) is currently considered to be a junior synonym of *C. nepos*, we present the original description of *C. eques* because its description was based on a single specimen from Sikkim, which we illustrate. *C. nepos* itself was described from China.

We refer to members of this genus as ‘Ounces’, which is an alternate name for Snow Leopards, since the common names of other members of the erebid subfamily Arctiinae are often associated with the cat family (Felidae). Furthermore, *Callindra* species are montane, inhabiting the general range of snow leopards, although they do not occur at very high elevation.

## Systematic Section

To facilitate identification, we divide the six species of *Callindra* occurring in India into two groups based on abdominal colour, red or yellow.

## Red abdomen group

1. CRIMSON OUNCE *Callindra arginalis* (Hampson, 1894)

Figures 1(1); 2 (A, B, C); 8 (Holotype).

*Areas arginalis* Hampson, 1894. *Fauna British India (Moths)* 2: 26. Type locality “Naga Hills, 3500 feet” (India: Nagaland). *Callindra gigantea* Rober, 1925. *Stettin. Ent. Ztg.* 86(1): 171. Type locality Naga-Hills (India).

*Callindra arginalis*: Fang, 2000. *Fauna Sinica* (Insecta) 19: 468, pl.8, fig. 1.

Distribution: Nagaland, Arunachal Pradesh (India); China, Myanmar, Vietnam and Thailand.

Material examined: 4 exs.: Holotype: ♂ Naga Hills, 3500-? feet, August 1889 (Doherty), ex coll. Elwes (in coll. Natural History Museum, London (NHMUK)); Roing, Lower Dibang district, Arunachal Pradesh, 390 m. 28.iv.-15.v.2021 x 3 specimens in Coll. B.R.C., Bhimtal.

Forewing length: 42 mm

Wingspan: 94 mm

Distinctive features: The large size and red hindwings are unique and diagnostic.

The following is the original description:

“Male: Head crimson spotted with black, the third joint of palpi black. Thorax ochreous tinged with crimson, the collar, tegulae, and vertex marked with black; abdomen crimson, with dorsal and lateral series of black spots. Forewing smoky black, a white spot at base, three below

costa, two in cell, four in internommedian interspace, and three on vein 1; a broad irregular maculate band from the costa beyond middle to outer margin above the angle; three submarginal spots. Hindwing crimson; three medial black spots; three submarginal blotches, the one near apex conjoined to some marks on the margin.

Hab. Naga Hills, 3500 feet (Doherty). Expanse 103 mm. Type in coll. Elwes” (NHM, examined)

Remarks: The present records extend the known global distribution of the species northwards to Arunachal Pradesh. From the small series examined, there seems to be little individual variation in this species.

This moth has a remarkable elevational distribution; specimens have been recorded from 3200 m in Yunnan, China (Dubatolov & Kishida, 2006), but the present records are from 390 m at Roing, Arunachal Pradesh.

There appear to be at least two annual broods, one in April and the second in August.

2. GOLDEN OUNCE *Callindra principalis* (Kollar, 1844)

Figures 1(2); 3(A-F).

*Euprepia principalis* Kollar, [1844]. in *Hügel, Kaschmir und das Reich der Siek* 4(2): 465, pl. 20, fig. 2; type locality: Himalaya, Massuri (India, Uttarakhand, Mussoorie).

*Hypercompa flavicolor* Moore, 1879. *Proc. zool. Soc. Lond.* 1879: 397. Type

locality: "Simla, N.W. Himalaya" (India, Himachal Pradesh, Shimla).

*Hypercompa principalis* var. *regalis* Leech, 1889. *Trans. Ent. Soc. Lond.* 1889: 125, pl. 9, fig. 4. Type locality "Kiukiang" (China: Jiangxi).

*Callimorpha principalis* var. *fedtschenkoi* Grun-Grshimailo, 1902. *Ann. Mus. Zool. Acad. Imp. Sci. St. Petersb.* 7(1-2): 197. Type locality: "in regione Pamir dicta, in valle fl. Gunt." (Tajikistan).

*Callimorpha principalis nuristanica* Kardakoff, 1937. *Arb. morph. taxon. Ent. Berlin.* 4(3):191. Type locality: "Ramgul-Tal" (Afghanistan, Nuristan, Ramgul valley).

*Eucallimorpha principalis principalis*: Kishida, 2004. *Yadoriga* 202: 16, pl. 4, fig. 5.

*Eucallimorpha principalis flavicolor*: Kishida, 2004. *Yadoriga* 202: 16, pl. 4, fig. 6.

*Callindra principalis*: Dubatolov & Kishida. 2006. *Tinea* 19(2): 120.

Distribution: Afghanistan, Pamirs (Kyrgyzstan; Tajikistan), Tibet, Himalaya from Pakistan through India, Nepal and Bhutan to Myanmar and S.W. (Yunnan) and S.E. China.

Material examined: 16 exs.: Sama, Bageshwar district, Uttarakhand, 1980 m, 16.vi.1990 x 10 specimens Jageshwar, Almora district, Uttarakhand, 1820 m 19.vi.1990 x2; Auli, Chamoli district, Uttarakhand, 2100 m, 17.viii.1992 x 3 specimens; Mussoorie, Uttarakhand, 2250 m; Munsiri, district Pithoragarh, Uttarakhand 2500 m. 21.vi.2023. Coll. B.R.C., Bhimtal.

Forewing length: 36-38 mm

Wingspan: 82-84 mm

Distinctive features: Within the genus, the combination of red abdomen and yellow hindwings are diagnostic for this species.

The forewing spots vary from yellow to white, as does the extent of the fuscous area on the hindwing, with two extremes depicted in figure 3(A & B).

Dubatolov & Kishida (2006) treat three subspecies of *C. principalis* from the Indian subcontinent: the nominotypical subspecies occurs along the southern slopes of the Himalaya from Pakistan to Sikkim; *C. p. flavicolor* (Moore, 1879) occurs in the trans-Himalayan parts of Himachal Pradesh and in Ladakh, and *C. p. regalis* (Leech, 1899) occurs in China and along the inner Himalayan ranges in Nepal at least as far west as Mustang. In the present study, we have examined specimens from Auli, Munsiri and Sama, all in the main Himalayan range, and all unequivocally belong to *C. p. principalis*. However, we have examined no material from the trans-Himalayan part of Uttarakhand to ascertain whether *C. p. flavicolor* or *C. p. regalis* or even *C. p. principalis* occurs there. This would be of interest because this region appears to be an overlap zone of the pale western populations representing *C. p. flavicolor* and the deep yellow eastern populations representing *C. p. regalis*.

Remarks: Although Dubatolov & Kishida (2006) opine that the type specimen of *flavicolor* is wrongly labelled, in the sense that the label says Simla (=Shimla, Himachal Pradesh), the moth was probably collected in the dry zone of the Himalaya

further north where specimens with paler ground colour occur. However, one of the specimens (Figure 3(6)) in the present study rather resembles *flavicolor* and is from Auli, in the wet zone of the Himalaya, where it was taken with two specimens belonging to the nominotypical subspecies. Therefore, it is likely that the type of *flavicolor* was indeed taken in Shimla and retained because it was paler than other specimens.

*Callindra principalis* occurs with *C. equitalis* in Mussoorie and in the middle and main ranges of the Himalaya in Uttarakhand, and although it has been recorded in Almora, Bageshwar and Pithoragarh districts, it is absent in Nainital district. *Callindra equitalis* occurs throughout these areas.

### 3. PALE OUNCE *Callindra equitalis* (Kollar, 1844)

Figures 1(3); 4(A-F).

*Euprepia equitalis* Kollar, [1844]. in *Hugel, Kaschmir und das Reich der Siek* 4(2): 465, pl. 20, fig. 3; type locality: Himalaya, Massuri (India, Uttarakhand, Mussoorie).

*Callimorpha equitalis* var. *ochricolor* Alpheraky, 1897. In Romanoff, N.M. (Ed.), *Memoires sur les Lépidoptères* 9: 128-129. Type locality: "des montagnes du Kham" (eastern Tibet).

*Callimorpha principalis* f. *equitalis*: Kishida, 1992. In Haruta, T. (Ed.), *Moths of Nepal*. Part 1: 72-73, pl. 18, fig. 15.

*Eucallimorpha ochricolor*: Dubatolov, 1996. *Ent. Obozr.* 75(2): 347.

*Eucallimorpha equitalis*: Kishida, 2004. *Yadoriga* 202: 17, pl. 5, fig. 1.

*Callindra equitalis*: Dubatolov & Kishida. 2006. *Tinea* 19(2): 118.

Distribution: Kashmir to Arunachal Pradesh, Meghalaya, Nepal, Bhutan, Myanmar, Thailand, Vietnam and China.

Material examined: 17 exs.: Binsar, Almora district, Uttarakhand, 2200 m; 13.vi.1990; Jones Estate, Bhimtal, Nainital district, Uttarakhand 1500 m. 23.vi.1981 ♀; 1.vii.1983; 20.iv.1992 x 2 specimens; 24.iv.1992; 2.vii.1983; 21.iv.1994; 26.iv.1998; 28.iv.1998; 9.iv.1999; 17.iv.1999; 19.iv.2001; 16.v.2002; 22 km Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 1450 m. 5.v.2019; Km.65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 2200 m. 2-9.vii.2019. Coll. B.R.C., Bhimtal.

Forewing length: 33-37mm

Wingspan: 72-80 mm

Distinctive features: The combination of red abdomen and white hindwing ground colour is diagnostic. This species lacks spots where indicated by the red arrows 1 & 2 in figure 1(3).

Remarks: There is little individual variation among specimens from the western and eastern Himalaya. It has not been recorded in the trans-Himalayan region. The larva of the July generation overwinters in Kumaon, Uttarakhand.

The moth is active during the daytime as well as night. Peile (1937) recorded large numbers of these moths being attracted to a honeycomb.

**Yellow abdomen group**4. LESSER OUNCE *Callindra similis* (Moore, 1879)

Figures 1(4); 5 (A-F), 8 & 9 (Holotype).

*Hypercompa similis* Moore, 1879. *Proc. zool. Soc. Lond.* 1879: 397-398. Type locality: “Dharamsala, N.W. Himalaya” (India: Himachal Pradesh).

*Callimorpha similis*, ssp. ? : de Toulgoët, 1975. *Ent. basil.* 1: 117.

*Eucallimorpha similis*: Kishida, 2004. *Yadoriga* 202: 17, pl. 5, fig.2.

*Callindra similis*: Dubatolov & Kishida. 2006. *Tinea* 19(2): 117.

Distribution: Himachal Pradesh to Arunachal Pradesh, Nepal and China.

Material examined: 7 exs.: Holotype with data labels: *Hypercompa similis* type. Moore [handwritten, Moore; and on reverse:] Dharamsala; Moore Coll. 94-106; Type [red]; NHMUK 014203695; Manali, Himachal Pradesh, 2050 m. 19.vii.1993; Km 65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh 2200 m. 2-9.vii. 2019 x 5 specimens. Coll. B.R.C., Bhimtal.

Forewing length: 24-29 mm

Wingspan: 51-62 mm

Distinctive features: The forewing spots indicated by the red arrow 3 in Figure 1 (4) are separate, not conjoined as in *C. nepos* and *C. nyctemerata*. This species has spots where indicated by the red arrows 1 & 2 in Figure 1 (3), which distinguishes it from *C. equitalis*.

Remarks: Generally a small species, the population in Himachal Pradesh appears to consist of even smaller individuals than those found in the eastern Himalaya. It has so far not been reported from Uttarakhand.

We illustrate the holotype of this species from Dharamsala, Himachal Pradesh (Figures 8 & 9). Material from Arunachal Pradesh appears to be generally larger than the holotype and the single western Himalayan specimen examined in the present study. Although the Himachal Pradesh specimen examined in the present study was active during the daytime, the species is generally active at night.

The following is the original description of this species:

“Form and pattern of *H. equitalis*. Forewing darker green; spots of a clear ochreous-yellow; costal spots small; the series beyond end of the cell composed of six in a curve, the lowest spot small and placed below the cell, seven spots in the series between the lower median and submedian veins; the outer marginal series small; hind wing yellowish white veins and two median transverse partially-interrupted bands, and cilia fuliginous. Legs blackish above, ochraceous beneath.”

5. ELUSIVE OUNCE *Callindra nyctemerata* (Moore, 1879)

Figures 1(5); 6(A-F), 10 & 11.

*Hypercompa nyctemerata* Moore, 1879. *Descr. New Indian Lepid. Ins. Atkinson*: 38-39. Type locality: “Darjiling” (India, West Bengal).

*Callimorpha nyctemerata*: de Toulgoët, 1975. *Ent. basil.* 1: 117.

*Callindra nyctemerata*: Dubatolov & Kishida. 2006. *Tinea* 19(2): 115.

Distribution: Pakistan; Sikkim to Arunachal Pradesh; Nepal, Bhutan; Myanmar to China.

Material examined: 12 exs.: Holotype with data label: *Hypercompa nyctemerata* ♀ (type) Moore [handwritten, Moore]; Moore Coll. 94-106; Darj. [= Darjeeling]; Type [red]; NHMUK 014203694; Km 65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 2200 m. 2-9.vii.2021 x 11 specimens. Coll. B.R.C., Bhimtal.

Forewing length: 27-33 mm

Wingspan: 58-72 mm

Distinctive features: This species is distinguished from *C. equitalis* by the yellow abdomen and the presence of two white spots on the forewing in the spaces indicated by the red arrows 1 and 2 in figure 1(3), both of which are absent in *C. equitalis*. It may be distinguished from *C. similis* by the conjoined spots on the forewing indicated by the red arrow 4 in figure 1(5), which are separate in *C. similis* (see red arrow 3 in figure 1(4)), and from *C. nepos* by the much smaller size of the spots on the forewing indicated by red arrow 5 in figure 1(6).

Remarks: Although known mostly from the eastern Himalaya, there is a series of specimens collected in Khaira Gali, near Murree in Pakistan, in 1880-1881 in the collection of the Natural History Museum, London. The labels on these specimens

read “India: Punjab: Khyra Gali: 1880-1881”. Although the wing markings match those for *C. nyctemerata*, the head is red, which is not normal for this species.

*Callindra nyctemerata* has so far not been recorded from Uttarakhand, Himachal Pradesh or Kashmir in India.

The following is the original description of this confusing species:

“Similar to *H. equitalis*, Kollar from the N.W. Himalayas. Differs on forewing in the transverse discal series of spots being more equal length and regular in position, with a series curving upward before the spot below the apex; there is also an additional lengthened spot contiguous to and below the basal spot within the cell; hind wing white; veins and narrow outer marginal line slightly fuliginous; a subanal and slight subapical fuliginous streak, which is less defined in female. Cilia fuliginous in male white near anal angle in male and at apical angle in female. Body ochreous-yellow, with black dorsal narrow bands, and three rows of small spots beneath; legs blackish above, ochreous-yellow beneath.”

6. GREATER OUNCE *Callindra nepos* (Leech, 1899)

Figures 1(6), 7(A-F), 12 & 13.

*Callimorpha nepos* Leech, 1899. *Trans. ent. Soc. Lond.* 1899: 166. Type locality: “Chia-ting-fu” (China: Sichuan).

*Callimorpha eques* P. Reich, 1932. *Int. ent. Z.* 26: 234-235, pl. 2, fig. 5. Type locality: “Sikkim” (India).

*Callimorpha nyctemerata*: Daniel, 1943. *Mitt. Münch. Ent. Ges.* 33: 262-263, pl. 8, fig. 5.

*Eucallimorpha nyctemerata*: Kishida, 2004. *Yadoriga* 202: 17, pl. 5, fig. 4.

*Callindra nepos*: Dubatolov & Kishida. 2006. *Tinea* 19(2): 114.

*Callindra nyctemerata*: Smetacek, 2008. *Bionotes* 10(1): 7.

Distribution: Uttarakhand to Arunachal Pradesh. Nepal, China and Vietnam. Also occurs in Bhutan, *vide* Gielis *et al.* (2022).

Material examined: 8 exs.: Holotype of *C. eques* in MfN Berlin, with data: “*Callimorpha eques*, det. Paul Reich, spec. nov.; Sikkim, [18]87, Möd.; Typus; Coll. Staudinger”; Jageshwar, Almora district, Uttarakhand, 1870 m. 19.vi.1990; Maheshkhan, Nainital district, Uttarakhand, 2200 m, 4.vi.1998; Jones Estate, Bhimtal, Nainital district, Uttarakhand, 1500 m, 16.v.2002; 22 km Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 1450 m, 5.v.2019 x 3 specimens; Roing, Lower Dibang district, Arunachal Pradesh, 390 m, 28.iv.-15.v.2021. Coll. B.R.C., Bhimtal.

Forewing length: 37 mm

Wingspan: 78 mm

The following is the original description of *C. nepos*:

“Head yellow, palpi marked with black, a black spot on the frons and two at the back of the head; collar black edged with yellow; thorax yellow, the prothorax and tegulae marked with black; abdomen

yellow with dorsal and lateral series of black spots, those of dorsal series large.

“Primaries blackish, with white markings placed as follows- three small spots between the cell and the costa; a blotch from the yellowish base to vein 2, this is widest towards the base and is only separated from an oblong spot in the cell by the median nervule; a large round spot at end of the cell with a dot above it; a transverse series of seven large spots, the fifth oblong and extending almost to the outer margin; a submarginal series of four small spots, one in each interspace above the oblong spot of median series, and a large one below it which extends to the outer margin and is intersected by vein 2; the inner margin is narrowly white. Secondaries white, with much interrupted, macular, median, and submarginal black bands, the first composed of four small spots and the latter of four larger spots; there are some black dots at the ends of the veins before the white fringes. Undersurface as above.

“Expanse 72 mm.

“One male specimen from Chia-ting-fu, taken in June or July.

“Habitat: Western China.

“Allied to *C. nyctemerata*, Moore, and *C. equalis*, Koll., from each of which, however, it may be distinguished by the different arrangement of the four apical spots, the large spot above the outer angle, and the elongate double spot at base of the primaries.”

The following is a translation of the original description of *C. eques*:

“Larger and more compact than *equitalis*. Forewing not narrow and elongate. Anal angle blunt edged. Margin steeper. Head without red, with brown eyes. Abdomen yellow with wider brownish black dorsal band. Forewing white, with umber brown markings. The white series of spots runs from two-thirds of the costal margin to the inner angle [he means the lower wing tornus, compare photos], is divided under vein 3 and sends a row of spots to two-thirds of the dorsum, so that in its entirety, the figure resembles an inverted **Y**. On the hindwing it can be distinguished from *equitalis* by the white cilia, which is marked with black spots only between veins 3 to 5. The veins themselves are not darkened, and on the upper margin (costa) one finds above the middle of vein 7 another black spot. On the abdomen the red markings are not present; all markings are yellow.

Locality: Sikkim. Type: 1 female in the Berlin Zoological Museum.”

Distinctive features: The forewings are broader than in other species with yellow abdomens and the forewing pale spots are larger; thus, in particular, the two spots indicated by the red arrow 5 in figure 1(6) are large compared to those in *C. similis*, *C. nyctemerata* and *C. equitalis*.

Remarks: This is a rather uncommon moth in the western Himalaya, where three specimens have been recorded over a period of 50 years. In the western Himalaya, it has been recorded between 1500 m and 2200 m, while in the eastern

Himalaya, it occurs from low elevation (390 m) to 2200 m.

Its misidentification by some authors (Daniel, 1943; Kishida, 2004; Smetacek, 2008) has caused confusion in the past.

In figures 12 & 13, we have illustrated the holotype of *C. eques* from Sikkim, which is a synonym of *C. nepos* according to Dubatolov & Kishida (2006).

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## REFERENCES

Alpheraky, S. 1897. Lépidoptères des provinces chinoises Se-Tchouen et Kham recueillis, en 1893, par M-r G.N. Potanine. In Romanoff, N.M. (Ed.), *Memoires sur les Lépidoptères* 9: 83-149. M.M. Stassulewitch, St. Petersburg.

Daniel, F. 1943. Beitrage zur Kenntnis der Arctiidae Ostasiens unter besonderer Berücksichtigung der Ausbeuten H.

Höne's aus diesem Gebeit (Lep. Het.). Teil: Callimorphinae und Nyctemerinae. *Mit. Münch. Ent. Ges.* 33: 247-269, pl. 13.

Dubatolov, V.V. 1996. A catalogue of type specimens of the Palearctic tiger moths (Lepidoptera, Arctiidae, Arctiinae), being deposited in a collection of Zoological Institute R.A.S. (St. Petersburg). *Ent. Obozr.* 75(2): 338-356.

Dubatolov, V.V. & Y. Kishida. 2006. On the re-arrangement of the East Asian *Callimorpha* species (Lepidoptera: Arctiidae). *Tinea* 19(2): 111-125.

Fang, C. 2000. Lepidoptera. Arctiidae. *Fauna Sinica* (Insecta) 19. 590 pp., 20 pl. Science Press, Beijing.

Gielis, C., M. Franssen, F. Groenen & K. Wangdi. 2022. *Moths of Bhutan*. Gielis & Klein, Lexmond. 419 pp., 196 pl.

Hampson, G.F. 1894. *The Fauna of British India including Ceylon and Burma*. Moths vol. 2. Taylor and Francis Ltd., London. 609 pp.

Hügel, C. [1844]. Kaschmir und das Reich der Siek. 4(2). 696 pp.

Kishida, Y. 1992. In Haruta, T. *Moths of Nepal*. Part 1. *Tinea* 13 (Suppl. 2):72-75.

Kishida, Y. 2004. Fascinated by the beauty of Tiger Moth (2). *Yadoriga* 202: 2-24.

Leech, J.H. 1899. Lepidoptera Heterocera from Northern China, Japan, and Corea. Part 2. *Trans. Ent.Soc. Lond.* 1899: 99-215.

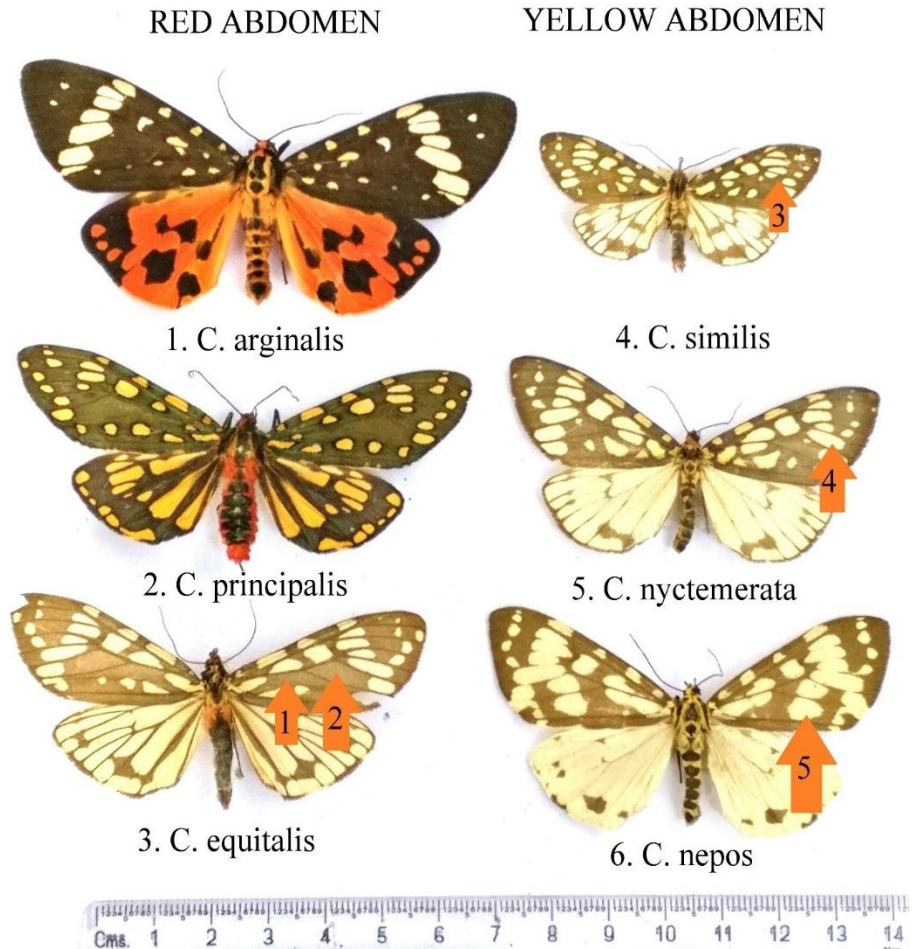
Moore, F. 1879. Descriptions of new genera and species of Asiatic Lepidoptera Heterocera. *Proc. zool. Soc. Lond.* 1879: 387-417, pls. 32-34.

Peile, H.D. 1937. *A guide to collecting butterflies of India*. Staples Press, London. xiv + 312 pp., 25 pl.

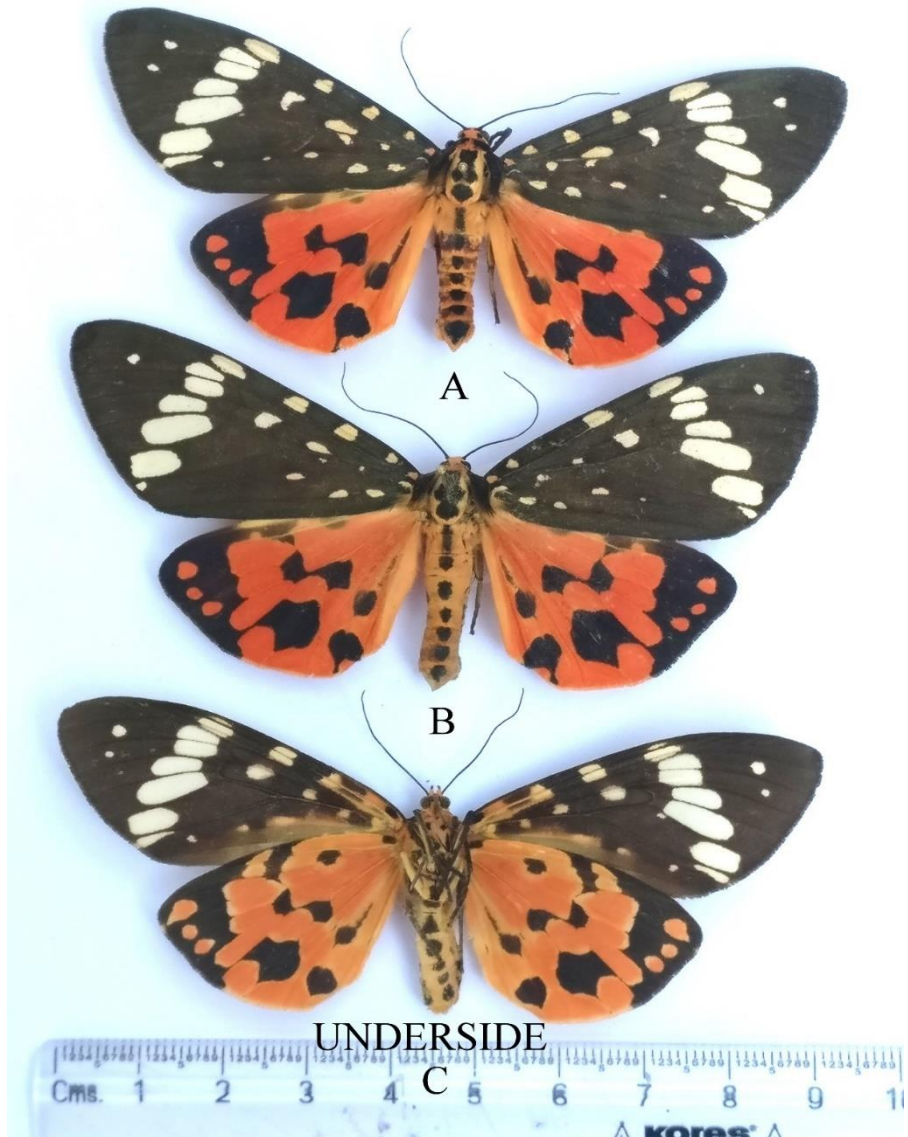
Smetacek, P. 2008. Moths recorded from different elevation in Nainital District, Kumaon Himalaya, India. *Bionotes* 10(1): 5-15.

Toulgoët, H. de. 1975. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorisches Museum in Basel. Lepidoptera: Fam. Arctiidae. *Ent. basil.* 1: 113-117.

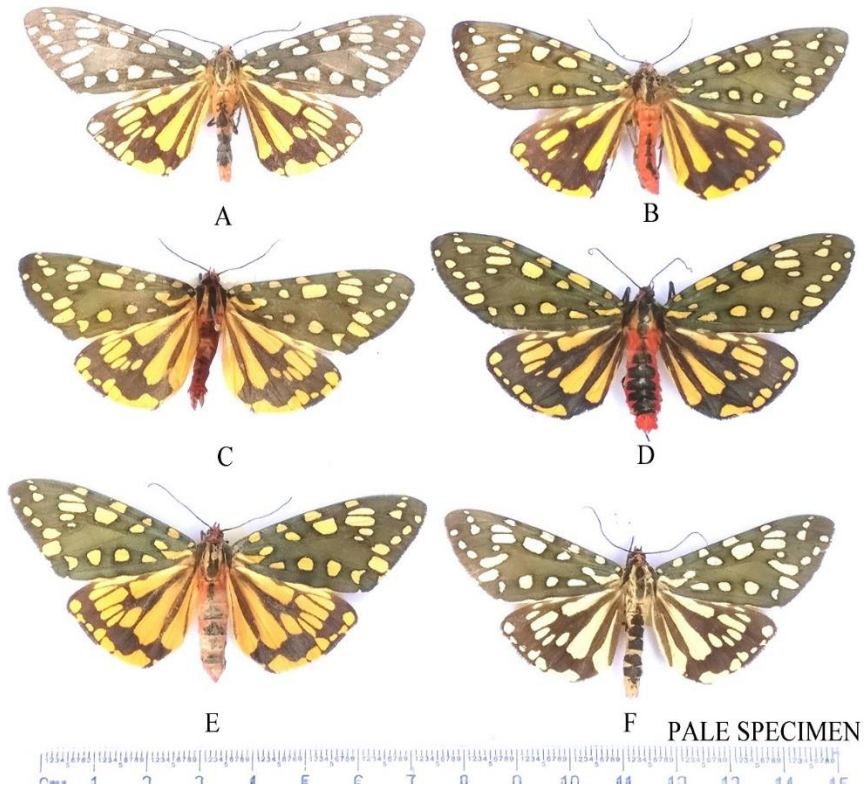
Reich, P. 1932. Neue Arctiiden. *Int. Ent.Zeit.* 26(22): 233-238.



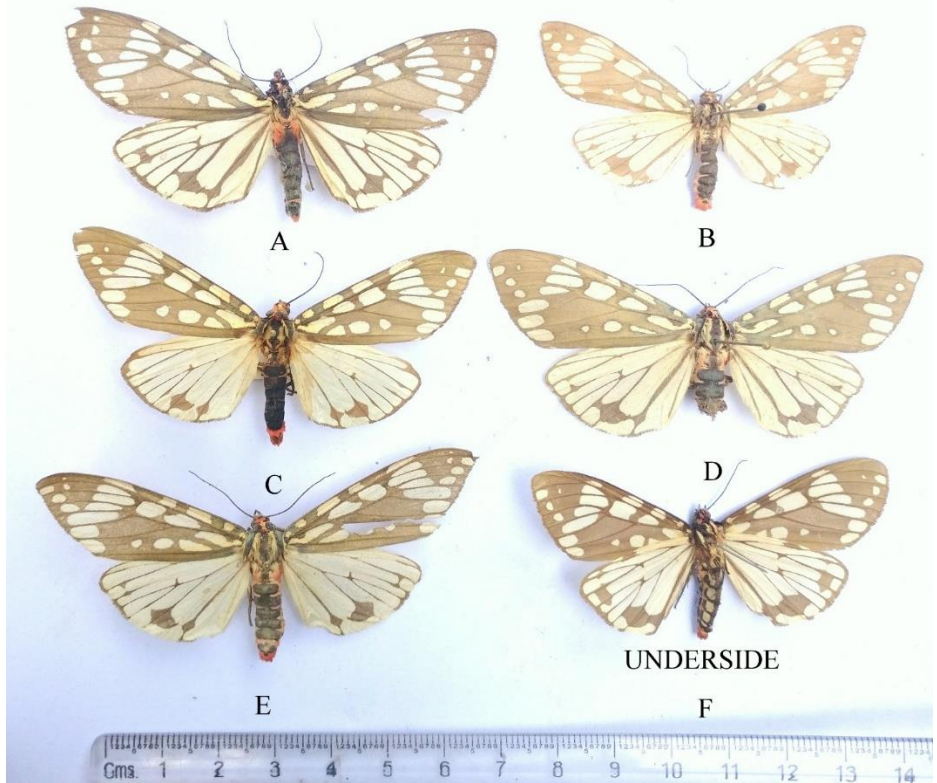
**Figure 1:** 1. Crimson Ounce *Callindra arginalis*; 2. Golden Ounce *Callindra principalis*; 3. Pale Ounce *Callindra equitalis*; 4. Lesser Ounce *Callindra similis*; 5. Eastern Ounce *Callindra nyctemerata*; 6. Greater Ounce *Callindra nepos*.



**Figure 2. A-C:** Crimson Ounce *Callindra arginalis*. Roing, Lower Dibang district, Arunachal Pradesh, 390 m. 28.iv.-15.v.2021. Coll. B.R.C., Bihmtal.



**Figure 3.** Golden Ounce *Callindra principalis*. **A, B & F:** Auli, Chamoli district, Uttarakhand, 2300 m 17.viii.1992; **C, E:** Sama, district Bageshwar, Uttarakhand, 2500 m. 16.vi.1990; **D:** Mungsiari, district Pithoragarh, Uttarakhand 2500 m 21.vi.2023. Coll. B.R.C., Bhimtal.



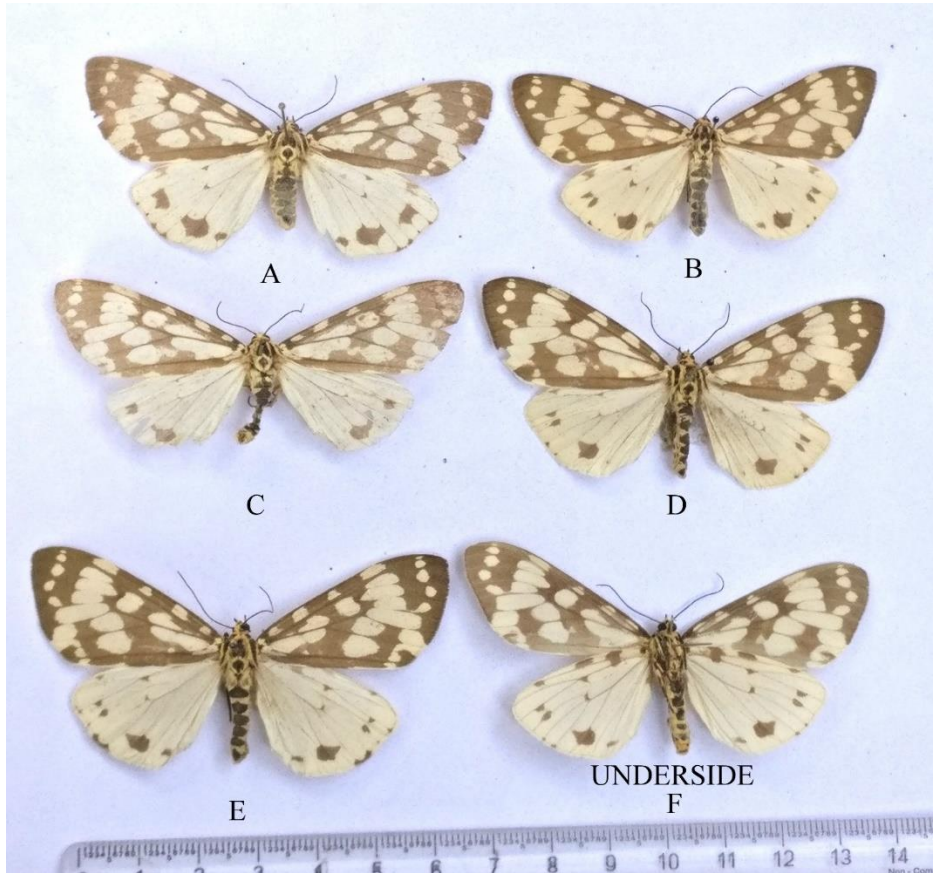
**Figure 4.** Pale Ounce *Callindra equitalis*: **A.** Km.65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 2200 m. 2-9.vii.2019. **B.** Jones Estate, Bhimtal, Nainital district, Uttarakhand 1500 m. 1.vii.1983; **C, E.** Jones Estate, Bhimtal, Nainital district, Uttarakhand 1500 m. 21.iv.1994; **D.** Jones Estate, Bhimtal, Nainital district, Uttarakhand 1500 m. 2.vii.1983; **F.** 22 km Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 1450 m. 5.v.2019. Coll. B.R.C., Bhimtal.



**Figure 5.** Lesser Ounce *Callindra similis*: **A.** Manali Himachal Pradesh, 2050 m. 19.vii.1993. **B, C, D, E, F.** Km 65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh 2200 m. 2-9.vii. 2019. Coll. B.R.C., Bhimtal.



**Figure 6.** Elusive Ounce *Callindra nyctemerata*. **A, B, C, D, E, F:** Km 65, Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 2200 m. 2-9.vii.2021. Coll. B.R.C., Bhimtal.



**Figure 7.** Greater Ounce *Callindra nepos*. **A.** Jageshwar, Almora district, Uttarakhand, 1870 m. 19.vi.1990; **B.** 22 km Roing-Anini road, Lower Dibang district, Arunachal Pradesh, 1450 m. 5.v.2019. **C.** Maheshkhan, Nainital district, 2200 m, 4.vi. 1998; **D, E, F:** Roing, Lower Dibang district, Arunachal Pradesh, 390 m. 28.iv.- 15.v.2021. Coll. B.R.C., Bhimtal.



**Figure 8:** *Callindra arginalis* Holotype Naga Hills © Trustees of the Natural History Museum, London, U.K.



**Figure 9 (upperside), 10 (underside):** *Callindra similis* Holotype Dharamsala, Himachal Pradesh. © Trustees of the Natural History Museum London, U.K.



**Figures 11 (upperside), 12 (underside):** *Callindra nyctemerata* Holotype Darjeeling, W. Bengal. © Trustees of the Natural History Museum London, U.K.



**Figures 13 (upperside), 14 (underside):** Holotype of *Callindra eques*, synonym of *Callindra nepos*: Sikkim. © Collection of Museum für Naturkunde, Berlin, Germany