MODIFICATIONS TO THE KNOWN EXPANSE OF SOME OAKBLUE BUTTERFLIES *ARHOPALA* (LEPIDOPTERA: LYCAENIDAE) FROM INDIA

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The genus *Arhopala* Boisduval, 1832 (Lepidoptera: Lycaenidae) is represented by 48 species in India (Varshney & Smetacek, 2015). They are largely inhabitants of dense broadleafed forests, from low elevations to nearly 2600 m and are common in suitable habitats. Some species are known to swarm in summer.

Evans (1932) presented a range of wingspans or expanses for each butterfly species, based on a single measurement for each specimen. He measured the distance from the centre of the thorax to the tip of a forewing apex in millimetres and doubled the result.

While examining the reference collection at the Butterfly Research Centre, Bhimtal, some unusual specimens were noted and measured, following the method above. The results are presented below:

Arhopala rama (Kollar, [1844]) (Figure 1)

A. rama rama (Kollar, [1844])

Material examined: 1 ♂: Forewing length: 14 mm; Expanse: 30 mm. 2.ii.2023 Butterfly Research Centre, Bhimtal, Uttarakhand 1500 m. *Leg*.: Peter Smetacek; *Coll*. Butterfly Research Centre, Bhimtal, Uttarakhand.

Remarks: This is the smallest specimen of the species recorded so far. Evans (1932) gives an expanse range of 38-40 mm for the west Himalayan subspecies *A. r. rama*, and 34-40 mm for the east Himalayan subspecies *A. r. ramosa* (Evans, 1925). Taking the abovementioned specimen into account, the new measurement for *Arhopala rama* is 30-40 mm and the new measurement for *A. rama rama* is 30-40 mm. However, the measurement for *A. r. ramosa* remains the same as mentioned in Evans (1932), i.e. 34-40 mm.

Arhopala dodonea (Moore, [1858]) (Figure 1)

Material examined: 1 ♀: Forewing length: 21 mm; Expanse 46 mm. Butterfly Research Centre, Bhimtal, Uttarakhand, India 1500 m. 24.x.1993. *Leg*.: Peter Smetacek; *Coll*. Butterfly Research Centre, Bhimtal, Uttarakhand.

Remarks: This is the largest specimen of *A. dodonea* known. Evans (1932) gives an expanse of 38-44 mm for the species. The specimen examined in this study has an expanse of 46 mm, 2 mm larger than the largest specimen measured by Evans (1932). Therefore, the new measurement for the expanse of this species is 38-46 mm.

Arhopala ganesa (Moore, [1858]) (Figure 1)

Material examined: 1 ex.: Forewing length: 13 mm; Expanse: 28 mm. Butterfly Research Centre, Bhimtal, Uttarakhand, 1500 m. 21.v.1994. *Leg*. Peter Smetacek. *Coll*. Butterfly Research Centre, Bhimtal, Uttarakhand.

Remarks: This is the smallest known specimen of this species. Evans (1932) gives an expanse of 32-37 mm for the species. The present specimen is 4 mm smaller. The known expanse for the species therefore is 28-37 mm.

Arhopala atrax (Hewitson, 1862) (Figure 1)

Material examined: 1 ♂: Forewing length: 15 mm; Expanse: 32 mm. Kaladhungi, Uttarakhand, 400 m. 2.v.1994. *Leg*. Peter Smetacek. *Coll*. Butterfly Research Centre, Bhimtal, Uttarakhand.

Remarks: This is the smallest known specimen of this species. Evans (1932) gives an expanse of 34-40 mm for the species. The present specimen is 2 mm smaller. The known expanse for the species therefore is 32-40 mm.

DISCUSSION

Some west Himalayan *Arhopala* species overwinter as adults and it is not unusual to see *A. dodonea*, *A. rama* and *A. ganesa* active on sunny days during January and February, when almost no other butterflies are on the wing. Recently, *A. paraganesa* (de Niceville, 1882) was also recorded in mid-winter, suggesting that it, too, overwinters as an adult (Smetacek & Sayed, 2023). This has a.bearing on the minimum size of species mentioned above. In multi-brooded species, such as *Papilio polyctor* Boisduval, 1836, the spring brood, whose larval stage was spent during the autumn and winter, are often small, the pre-Monsoon brood larger and the post Monsoon brood the largest. However, this does not come into play with *Arhopala* species that overwinter as adults. The smallest specimens have eclosed from larvae that did not manage to get much food. The larval hostplant of *A. rama*, *A. dodonea* and *A. ganesa* is the Himalayan Silver Oak *Quercus leucotrichophora*. Thus. there is an abundance of food available for them the whole year, unlike for butterfly species that feed on annual herbs and shrubs.

REFERENCES

Evans, W.H. 1932. *The identification of Indian butterflies*. 2nd ed. Bombay Natural History Society, Bombay. x+454 pp., 32 pl.

Smetacek, P. & A. Sayed. 2023. Male *Arhopala* Boisduval, 1832 (Lepidoptera: Lycaenidae) hibernate in the Kumaon Himalaya, India. *Bionotes* 25(1&2): 65-66.

Figure 1: *Arhopala* specimens mentioned in the text above. Butterfly Research Centre, Bhimtal