

FIRST RECORDS FOR NEPAL OF *ALBULINA ARCASEIA* AND *ALBULINA PHARIS* (LYCAENIDAE) FROM THE HREBLAY COLLECTION

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Máron Hreblay (1963 – 2000) was a Hungarian lepidopterist who worked extensively on Owlet moths (Noctuidae) between 1993 and 2000. He produced 52 scientific publications and proposed 604 species-level and 28 genus-level names for the Noctuidae. He had an extensive private collection of nearly 150,000 specimens, which is now housed in the Hungarian Natural History Museum (HNHM). In 2014, a detailed description of Hreblay's scientific work and collection of Owlet moths was published by the HNHM (Bálint *et al.*, 2014). Apart from moths, Hreblay's collection also comprised a large number of butterflies, including many from the Himalaya. He made 11 collection trips to Nepal between 1993 and 2000.

Early in 2021, the authors came into contact and exchanged lists of species, those known from Nepal, based on an unpublished 2021 draft catalogue of butterfly species of Nepal, and those from Nepal present in the Hreblay collection. When the lists were crosschecked, there were several possible new species records for Nepal. After checking the provisional identifications, two new species records for Nepal were identified.

For first identification, Fruhstorfer (1916), Evans (1932), d'Abrera (1993), and Smith (1994, 2011) were used. The second author carried out significant research on Polyommata species, including *Albulina* (Bálint & Johnson, 1997). He also prepared the genitalia of both species, confirming the

generic placement of the two species. Information from the Hreblay collection and from other sources about the occurrence of these species in and near Nepal is presented here.

Albulina arcaseia (Fruhstorfer, 1916) Kamba Mountain Blue.

Fruhstorfer (1916) described the species as *Lycaena pheretes arcaseia* from Kambajong in Tibet, 15 km from the Sikkim border. Bollow (1930) repeated the information given in the original description. D'Abrera (1993) documented the species from "Sikkim" and from "Sikkim, Tungu, Teesta Valley, 13,000-14,000 ft.", showing the male and the female phenotypes. Huang (2001) indicates that *A. arcaseia* is sympatric with *A. orbitulus tibetana*, *A. lehana asiatica* (= *A. asiatica*) and *A. pharis* in the border area of Sikkim and Tibet. This species is not listed for India in Varshney & Smetacek (2015). Van Gasse (2018) lists it as apparently rare in North Sikkim at about 4000 m elevation, based on pictures on the website of the Indian Foundation of Butterflies (Kunte *et al.*, 2021). Talavera *et al.* (2012) list this species in the combination of *Agriades arcaseia*, after merging *Agriades* s.s., *Albulina (orbitulus)* and *Vacciniina* s.s. Funet (2021) and Van Gasse (2018) follow Talavera *et al.* (2012).

Fruhstorfer (1916) describes the male to have lighter blue upper wings compared with *L. pheretes* (= *A. orbitulus*) and *L. asiatica* Elwes and to be slightly less shiny and slightly more

greenish compared with *L. hylas* Esper (= *Polyommatus dorylas*); the under side of the forewing has a white-ringed black end cell spot and three white roundish spots between cell end and apex. However, these traits are rather variable in *Polyommatus* and subject to environmental variables (Piszter *et al.*, 2019). Fruhstorfer (1916) also stated that the valves of *arcaseia* were much wider and dorsally straighter than those of *pheretes* (= *orbitulus*) and *lehana*, while the uncus differed considerably and was more robust, but did not present any documentation for comparison. Indeed, the valval shape of *A. arcaseia* is broader in the apical region and the aedeagus is blunt compared to congeners [see figures in Stempffer (1937-1938), Higgins (1975) and Fernandez-Rubio (1976)].

Three specimens were collected in June 1998 by Márton Hreblay and Balázs Benedek near Lhonak in the Kanchenjunga area in East Nepal (roughly 27° 47' N and 88° 02' E), some 65 km SW of Kambajong in Tibet. Pictures of a male *A. arcaseia* upper and undersides are presented here together with pictures of its genitalia capsula and the aedeagus. This is the first record of *A. arcaseia* for Nepal and it represents a small extension westward of its known distribution area. The common English name indicated above is proposed here, as the name used by the Indian Foundation of Butterflies (Eastern Mountain Blue) appears not correct for a species, which on the Indian subcontinent is only found in Sikkim and NE Nepal.

Albulina pharis (Fawcett, 1904) Fawcett's Mountain Blue.

Fawcett described the species as *Lycaena pheretes pharis* and recorded it in July from "Khamba Jong, Thibet, at 15,000 ft (4,600 m) elevation. Seitz (1923) just mentions "*Lycaena pheretes pharis*" (*pheretes* is now a synonym for *orbitulus*) and illustrates the underside of the male wings, but Bollow (1930) described it in detail referring the illustration presented in Seitz (1923). Most probably based on the mentioned sources, Evans (1932) also listed it

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as a ssp. of *Polyommatus pheretes* from Sikkim, Chumbi". D'Abrera (1993) documented "*Albulina pharis*" from the "Chumbi Valley" and Sikkim" showing the male and the female phenotypes. Huang (2001) stated that *A. pharis* is sympatric with *A. orbitulus tibetana*, *A. lehana asiatica* (= *A. asiatica*) and *A. arcaseia* in S Central Tibet and nearly sympatric with *A. lehana lehana* in SW Tibet. This species is listed from Sikkim in Varshney & Smetacek (2015). However, Van Gasse (2018) only mentions it from Khambajong in Tibet, and as one possible species for a specimen from Mishmi Hills (Arunachal Pradesh), which was identified as *Lycaena pheretes* by South in 1913, but requires re-examination. Van Gasse (*pers. comm.*), states that Evans' information is solely based on the record of Fawcett and there may not be any evidence of *A. pharis* in India. Talavera *et al.* (2012) do not list *pharis*, but based on their merging of *Agriades s.s.*, *Albulina (orbitulus)* and *Vacciniina s.s.*, they would probably name it *Agriades pharis*, as done on the Funet website (2021).

Fawcett (1904) stated that the male of *A. pharis* has a dark purple-blue upper side with black marginal lines, broader on hindwing, especially at apex and costa. The underside of the forewing is purple-grey, paler at apex with a white-ringed black end cell spot and usually four small white-ringed black discal spots; the hindwing is pale brownish, with a pale ochreous spot in and extending beyond the cell, six more such spots beyond it and an indistinct one near the base. The genitalia structures show commonplace *Albulina* shapes.

Four specimens were collected in July 1996 by Lenga Sherpa on the Dhaulagiri slopes, NW of Marpha in Lower Mustang (roughly 28° 47' N and 83° 39' E) at about 4000m elevation. Pictures of the male *A. pharis* upper and underside are presented here together with pictures of the genitalia capsula and the aedeagus. This is the first record of *A. pharis* from Nepal and represents a small SW

extension into Nepal of its known distribution area.

Discussion

Talavera *et al.* (2012) proposed to merge species of three genera into an enlarged *Agriades* genus, including three monophyletic lineages that may be considered as subgenera: *Albulina* (*orbitulus*), *Vacciniina* s.s. (*optilete*) and *Agriades* s.s. (*glandon*, *pheretiades*, *podarce* and *pyrenaicus*). Bálint disagrees with the authors as the newly created *Agriades* genus is impossible to identify in real conditions as it is based on empirical molecular data, ignoring evidence-based morphology traits. Talavera *et al.* (2012) did not include specimens of the two species of this article in their study, but list *Agriades arcaseia*. The Funet website and others follow Talavera *et al.* (2012), but this discussion is not yet finished and we maintain the two new species for Nepal in the genus *Albulina*.

Finding these two species in Nepal is not unexpected as they are known to fly not far from the Nepal border in Tibet and Sikkim. These two new records bring the total number of recognized butterfly species in Nepal to 679. Recently, there has been an increase in the number of first records of species in Nepal, mainly by students and naturalists. Many more new species for Nepal may be found in the near future. Reaching 750 butterfly species for Nepal appears to be a reasonable goal for the next decades.

References

Bálint, Zs., G. Katona & A. Gubányi. 2014. *A Life for Noctuidae - the owl Moths of Márton Hreblay (1963–2000) Names, specimens and types*. Hungarian Natural History Museum, Budapest, 270 pp.

Bálint, Zs. & K. Johnson. 1997. Reformation of the *Polyommatus* Section with a Taxonomic and Biogeographic Overview (Lepidoptera, Lycaenidae, Polyommataini). *Neue Ent. Nachr.* 40, p.1-68, 4 pls.

Bollow, Ch. 1930-1931. 29. *Gattung: Lycaena F.*, pp 254-280 (1930) 255-296 (1931). In Seitz, A. (ed.). *Die Palaearktischen Tagfalter*.

BIONOTES

Supplement. Alfred Kernen Verlag, Stuttgart. vii + 399 pp, 16 pls.

D'Abrera, B. 1993. *Butterflies of the Holarctic Region. Part III Nymphalidae (cocl.)*, *Libytheidae*, *Riodinidae* & *Lycaenidae*. Hill House, Victoria, Australia, p.335-524.

Evans, W. H. 1932. *The Identification of Indian Butterflies*. (Second Edition Revised). Bombay Natural History Society, Bombay. x+454 pp., 32 pls.

Fawcett, J. M. 1904. On some New and Little-known Butterflies, mainly from high elevations in the N.E. Himalayas. *Proc. zool. Soc. London* 2 (1): 131-141.

Fernandez-Rubio, F. 1976. *Genitalias (Andropigios) de los Ropalóceros de Alava y su entrono ibérico. Part 1 : Lycaenidae*. Imprime EGRAF, Vitoria. (2) + (4) pp., 71 pls.

Fruhstorfer, H. 1916. Neue paläarktische Lycaeniden. *Ent. Rundschau* 33 (4): 18-19.

Funet (Finnish University and Research Network) website (checked 2021): <http://ftp.funet.fi/index/Science/bio/life/insecta/lepidoptera/ditrysia/papilionoidea/lycaenidae/polyommatainae/agriades/index.html>

Gasse, P. van. 2018 [date on website]. *Butterflies of the Indian Subcontinent Annotated Checklist*.

http://www.biodiversityofindia.org/index.php?title=Butterflies_of_the_Indian_subcontinent. (2021. *Butterflies of the Indian Subcontinent – Distribution Checklist*. Tsikolovets Publications, 272 pp.)

Higgins, L.G. 1975. *The Classification of European Butterflies*. Collins, London, 320 pp.

Huang, H. 2001. Report of H. Huang's 2000 Expedition to SE Tibet for Rhopalocera. *Neue Ent. Nachr.* 51: 65-152.

Kunte, K., S. Sondhi, and P. Roy (Chief Editors). *Butterflies of India*, v. 3.11. Indian Foundation for Butterflies.

<http://www.ifoundbutterflies.org/sp/2885/Albulina-arcaseia>

Piszter, G., K. Kertész, Zs. E. Horváth, Zs. Bálint, & L. P. Biró. 2019. *Reproducible phenotype alteration due to prolonged cooling*

Vol. 23 (2 & 3), September, 2021

of the pupae of *Polyommatus icarus* butterflies. PLOS ONE, 14 (11): 1-24. ISSN 1932-6203

Seitz, A. 1923. 28. *Gattung: Lycaena F.*, pp 927-930. In Seitz, A. (ed.). *Die Gross-Schmetterlinge der Erde. IX. Band: Die Gross-Schmetterlinge des Indo-australischen Faunengebietes.* Alfred Kernen Verlag, Stuttgart, viii + 1197 pp.

Smith, C. P. 1994. *Butterflies of Nepal – A colour Field Guide*, Revised edition of 1989. Tecpress Service L. P. Bangkok, Thailand, 368 pp.

Smith, C. 2011. *Illustrated Checklist of Nepal's Butterflies, 3rd edition.* Lashkar, Kathmandu. (1st ed. 1993), ii + 129 pp.

BIONOTES

Stempffer, H. 1937-1938. Contribution à l'étude des Plebeinae Palaearctiques (Lep. Lycaenidae). *Bull. Soc. ent. Fr.* 42 (15): p.211-218, 13 figs (1931); 42(20): p.296-301, 28 figs (1931).

Talavera, G., V. A. Lukhtanov, N. E. Pierce & R. Vila. 2012. Establishing criteria for higher-level classification using molecular data: the systematics of *Polyommatus* blue butterflies (Lepidoptera, Lycaenidae). *Cladistics* 29(2): 166-192.

DOI:10.1111.j.1096-0031.2012.00421.x
Varshney, R.K. & P. Smetacek (eds.). 2015. *A Synoptic Catalogue of Butterflies of India.* Butterfly Research Centre, Bhimtal & Indinor Publishing, New Delhi, ii + 261 pp., 8 pls.



Fig.1: *Albulina arcaseia*, Kamba Mountain Blue, UP



Fig.2: *Albulina arcaseia*, Kamba Mountain Blue, UN



Fig.3: *Albulina arcaseia*, genitalia capsula



Fig.4: *Albulina arcaseia*, aedaegus



Fig.5: *Albulina pharis*, Fawcett's Mountain Blue, ♂ UP



Fig.6: *Albulina pharis*, Fawcett's Mountain Blue, ♂ UN

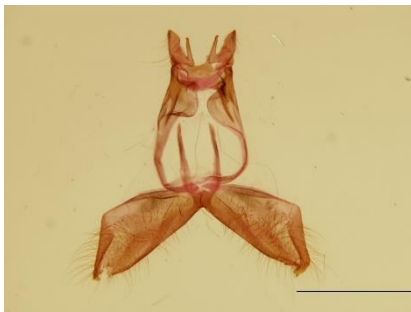


Fig.7: *Albulina pharis*, genitalia capsula

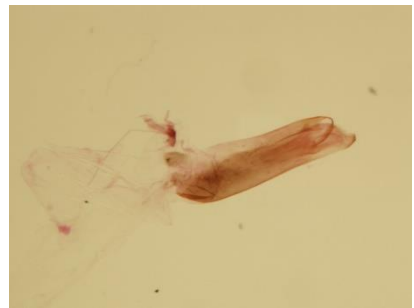


Fig.8: *Albulina pharis*, aedaegus