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Intraspecific variation in *Faunis aerope* (LEECH, 1890) and the description of a new subspecies from Central Vietnam

(Lepidoptera, Nymphalidae, Amathusiinae)

by

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Summary: A new subspecies *Faunis aerope centrala* subsp. nov. from C. Vietnam is described and illustrated. According to some characters of the wing pattern and the genitalia, the taxon *F. aerope* can be divided into two rather distinctive groups, one of which is distributed from Tibet to Yunnan while the representatives of the other one are distributed in Indo-China.

Introduction

The taxon *Faunis aerope*, distributed from Tibet and C. China to Laos and Vietnam, up to the present day has included five subspecies and one aberration. The list of the taxa belonging to the species *Faunis aerope* LEECH was published by C. J. BROOKS in 1933 and has not been seriously changed so far. In 1949 this author described one more race from northern Vietnam. The taxa of *Faunis aerope* listed by BROOKS are shown below:

Faunis aerope aerope (LEECH, 1890)

F. a. aerope ab. *indistincta* BROOKS, 1933

F. a. yunnanensis BROOKS, 1933

F. a. excelsa (FRUHSTORFER, 1901)

F. a. masseyeffi BROOKS, 1949.

One more subspecies was described from S.E. Tibet:

F. a. longpoensis HUANG, 2001.

Until recently *Faunis aerope* in Vietnam was known only from the northern regions of the country, however a few years ago this species was discovered in the Central Highland (Kon Tum province) and in the Annamite range in Laos (OSADA et al., 1999) and Vietnam. These findings are the main reason for the current review of this species which demonstrates rather unusual variation in some morphological characters.

Faunis aerope inhabits mountain, forested areas, however the immature stages and the life cycle of this species are unknown.

Wing pattern

Generally, the species is characterized by a rather specific wing pattern and variable size. Depending on the race, the forewing length varies from 38 to 47 mm in the males and from 42 to 54 mm in the females.

The wing pattern of different races exhibits similar characteristics: ground colour, lines (fasciae) and spots on the underside of both wings. The general pattern and abbreviations of particular elements are shown in figure 1.

The specimens examined are preserved in The Natural History Museum (London) (including type material), in Museum National d'Histoire Naturelle (Paris), and were collected in different localities of N. and C. Vietnam.

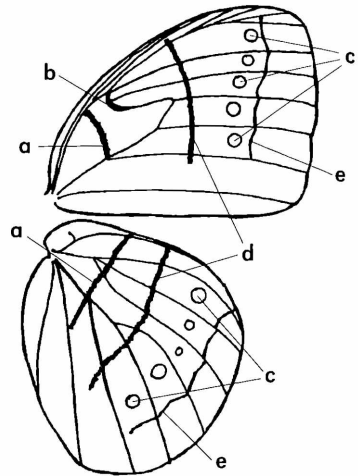


Fig. 1: a subbasal fascia; b cell marking; submarginal spots; d - discal fascia; e - submarginal fascia.

Faunis aerope aerope (LEECH, 1890)
(colour plate I, figs.1, 2)

Clerome aerope LEECH, 1890, Entomol. **23**: 31.

Faunis aerope aerope ab. *indistincta* BROOKS, 1933, Entomol. **66**: 65.

Faunis aerope yunnanensis BROOKS, 1933, Entomol. **66**: 65. **syn. nov.**

Faunis aerope longpoensis HUANG, 2001, Neue Ent. Nachr. **51**: 90 **syn. nov.**

Taxonomic characteristics

I. The females are rather variable. According to BROOKS (1933), all characteristics of *F. aerope indistincta* are similar to those of the female of the nominate subspecies except the fasciae on the underside, which are blurred and faintly indicated. This aberration is known after a single female.

Other forms show variation in the width of the black submarginal area on the forewing. Single female specimens of the types *yunnanensis* BROOKS, 1933 (China: Yunnan) and *longpoensis* HUANG, 2001 (S.E. Tibet) represent the most dark and small forms of the nominate subspecies. The underside of these types is rather identical to that of the type of *aerope* LEECH from Ichang and of the specimens from W. China (Sichuan: Ta-Tsien-lou).

II. The male ground colour on the upperside of both wings is smooth grey; the female ground colour on the upperside of both wings is grey with diffused dark brown marginal and submarginal areas; in both sexes the ground colour of the underside is dark brown.

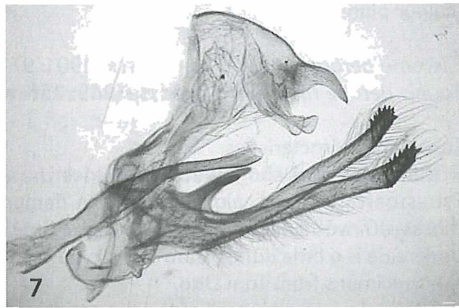
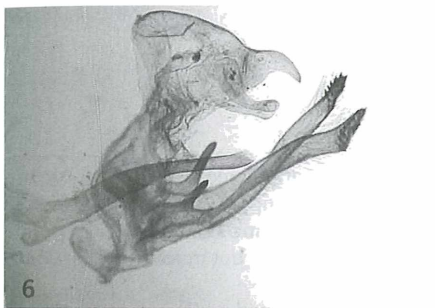
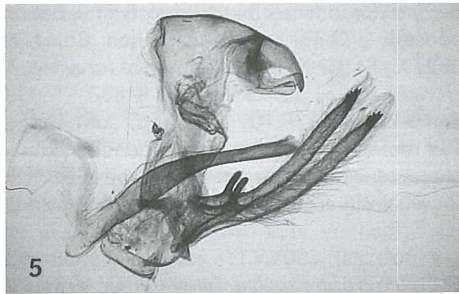
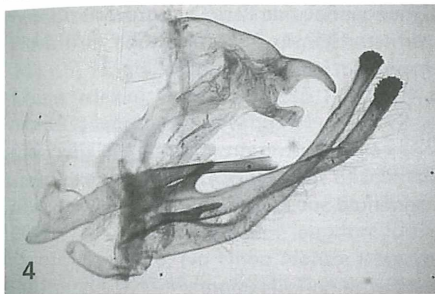
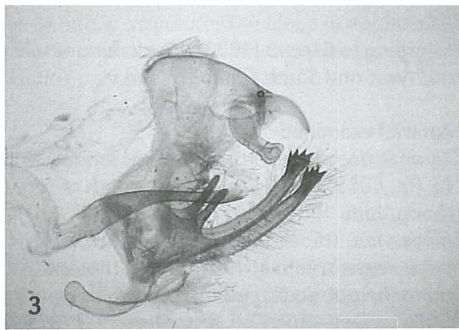
III. Submarginal spots in both sexes are rather small and distinct.

IV. Subbasal fascia on the underside does not touch cell marking (fig. 1).

V. Subbasal and discal fasciae on both wings are rounded.

VI. The specimens are rather small: 38–42 mm in the males and 42–46 mm in the females.

VII. The male genitalia are characterized by short clasps with the apex covered by relatively scarce and large spines (figs. 2, 3).



Figs. 2-8: Genitalia of various specimens of *Faunis aerope*.

Figs. 2, 3: Sichuan: Ta Tsien lou.

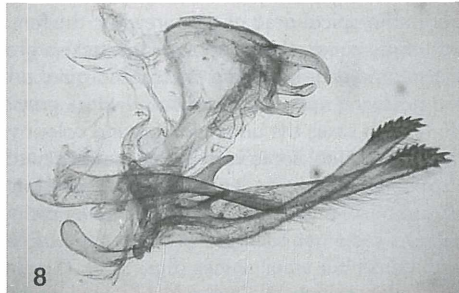
Fig. 4: China septentrionale (N. China).

Fig. 5: N. Vietnam: Tam Dao (Vinh Phuc province).

Fig. 6: N. Vietnam: Than Moi (Type locality of *excelsa* FRUHSTORFER).

Fig. 7: C. Vietnam: Vu Quang (Ha Tinh province).

Fig. 8: C. Vietnam: Ngoc Linh (Kon Tum province).



Distribution

According to BROOKS (1933), the nominate subspecies is distributed at the Tibet border, in Central, West and South China.

Material examined

Clerome aerope LEECH, ♂ syntype, Ichang, June 1888, PRATT coll.; LEECH coll. 1901–73; B.M. No. Rh. 6039; BMNH # 141425; length of forewing 39 mm; *Clerome aerope* LEECH, ♀ syntype, Ichang, June 1888, PRATT coll.; LEECH coll. 1901–173; B.M. No. Rh. 6040; BMNH # 141424; 1 ♂, Ta Tsien lou, Thibet, V.1913. I. TERISSE (coll. MNHN, Paris); length of forewing 42.5 mm; 1 ♂, 1 ♀, China septentrionale, 1898, O. STAUDINGER (coll. MNHN, Paris); length of forewing: 45.0 mm; *Faunis aerope indistincta* BROOKS, holotype ♀, Siao Lou, Chasseurs indigenes du P. DEJEAN, 1903, Ex. OBERTHÜR Coll. Brit. Mus. 1927–3; B.M. Type, No. Rh. 15120 BMNH # 141421; *Faunis aerope yunnanensis* BROOKS, holotype ♀, Bahand, Yunnan, Recu du Pere Ouvrard, Missionnaire apostol., a Oui-si ou Wei-si, Yunnan, Chine, en janvier, 1917, Ex. OBERTHÜR Coll. Brit. Mus. 1927–3; BMNH # 141387; length of forewing: 43 mm.

Remarks

The males from “Chine septentrionale” have a rather distinctive structure of the genitalia, characterized by long clasps and apex densely covered with spines (fig. 4). However, externally these specimens are not really different from the nominate subspecies.

Faunis aerope excelsa (FRUHSTORFER, 1901)

(colour plate I, figs. 3, 4)

Clerome aerope excelsa FRUHSTORFER, 1901: 97.

Faunis aerope masseyeffi BROOKS, 1949: 256. **syn. nov.**

Taxonomic characteristics

I. The majority of characters of the race *masseyeffi* BROOKS are similar to those in *excelsa* FRUHSTORFER. In particular, BROOKS has demonstrated that the upperside of both wings in *masseyeffi* was similar to the colouring of *excelsa*. A comparison shows that in *masseyeffi* the underside is a little darker than in the type of *excelsa* from Than Moi, but much more similar to the specimens from Tam Dao.

II. The male ground colour of the upperside of both wings is grey with suffused dark grey colour in the apical area of the forewing; the female colour of the upperside forewing is divided into three zones; the basal zone is blackish brown, a little extended out of the cell; the broad discal area is grey-whitish; the submarginal area is bordered by black; most of the surface of the hindwing upperside is uniformly dark greyish.

III. In both sexes the underside ground colour varies from pale brown to very dark brown.

IV. Submarginal spots vary in size, but are much larger than in the nominate subspecies.

V. Subbasal fascia does not touch cell marking (fig. 1).

VI. Subbasal and discal fasciae on the hindwing much straighter than in the nominate race.

VII. The male genitalia are characterized by rather long clasps, the apex of which is covered with dense but small spines (figs. 5, 6). The specimens from the northern part of C. Vietnam (Ha Tinh province: Vu Quang N.R.) reveal high resemblance to ssp. *excelsa* in the wing pattern.

At the same time, they have a rather distinctive genitalia structure. The clasp is much longer and thicker than in *excelsa* and enlarged at the end and densely covered with spines (fig. 7), while the population from the northern Vietnam has only one row of spines.

Distribution

North Vietnam (Tonkin) and northern provinces of Central Vietnam (Ha Tinh, Nghe An), Laos.

Material examined

Faunis aerope excelsa FRUHSTORFER, holotype ♂, Tonkin, Than Moi, Juni–Juli, H. FRUHSTORFER; FRUHSTORFER Coll., B.M. 1937–285; B.M. Type No. Rh. 15118, BMNH # 141389; length of forewing: 48.0 mm; *Faunis aerope excelsa* FRUHSTORFER, allotype ♀, Tonkin, Than Moi, Juni–Juli, H. FRUHSTORFER; FRUHSTORFER Coll., B.M. 1937–285; B.M. Type No. Rh. 15119, BMNH # 141390; length of forewing: 53.0 mm; *Faunis aerope masseyeffi* BROOKS, Holotype ♂, Cochinchina [Tonkin], Chapa, IX, 1935, MASSEYEFF, B.M.1937–658; B.M. Type No. Rh. 15529, BMNH # 141397; length of forewing: 46.5 mm; *Faunis aerope masseyeffi* BROOKS, allotype ♀, Cochinchina [Tonkin], Chapa, IX, 1935, MASSEYEFF, B.M.1937–658; B.M. Type No. Rh. 15530, BMNH # 141399; length of forewing: 54 mm; 1 ♂, 1 ♀; Than Moi, Tonkin, VI.1901, H. FRUHSTORFER. Ex Coll. MNHN (Paris); length of forewing: ♂ 45.0 mm; ♀ 51.0 mm; 2 ♂♂, N. Vietnam, Vinh Phuc Province, Tam Dao Mnt., 21.V.1995; 03.VI.1995; leg. A. MONASTYRSKII; length of forewing: 48.0 mm; 2 ♂♂, N. Vietnam, Lang Son Province, Huu Lien Nature Reserve, 28.vii.2000; 30.VIII.2000; leg. Frontier/Vietnam; length of forewing: 47.5, 47.0 mm; 2 ♂♂, 1 ♀, N. Vietnam, Tuyen Quang province, Na Hang Nature Reserve, Ban Bung sector, 09.–11.V.2003, leg. BUI XUAN PHUONG; 1 ♂, C. Vietnam, Ha Tinh province, Vu Quang Nature Reserve, 1,200 m, 03.VIII.1997, leg. A. MONASTYRSKII, length of forewing 47 mm.

Faunis aerope centrala subspec. nov.

(colour plate I, figs. 5–8)

Holotype ♂: C. Vietnam, Kon Tum Province, Ngoc Linh Nature Reserve, 1,000 m, 06.V.1998, HA VAN HOACH leg.

Paratype: 1 ♀, C. Vietnam, Kon Tum Province, Ngoc Linh Nature Reserve, 1,800 m 08.V.1998, HA VAN HOACH leg.

Description

Male (col. pl. I, figs. 5, 6)

Upperside: the ground colour of both wings is grey; the distinct dark grey subapical area on the forewing is extended to the end of vein 2; there is a broad dark grey border along the marginal and tornal edges of the hindwing; there are well visible white-scaled dots in spaces 2–6 on both wings.

Underside: the ground colour is dark brown. The subbasal fascia confined to the cell touches the cell marking; the subbasal fascia is joined to the lower border of cell a little above the base of vein 2; the discal fascia is bended at the outer margin from vein 6; subbasal and discal fasciae on the hindwing are more or less straight; the submarginal spots on both wings are slightly larger than in *excelsa*.

Length of forewing 48 mm.

Female (col. pl. I, figs. 7, 8)

Upperside: The blackish brown basal area of the forewing does not reach the end of the cell; the whitish grey discal area on the forewing is extended into the cell; the black submarginal border is wide, distinct and reaches the tornus; the ends of veins in front of the inner edge of the submarginal border are scaled by black. The hindwing has dark greyish ground colour with more pale subcostal and a part of discal areas; there is a broad and distinct black submarginal border, stretching from the costa to the tornus. On both wings there are a few indistinct submarginal dots scaled by white.

Underside: The ground colour and pattern are rather similar to those of the male. Length of forewing 54 mm.

The main differences between the new and other known taxa are as follows

In the female of the new taxon the dark basal area on the forewing is not extended to the whole cell;

- Hindwing with distinct dark submarginal border;

Underside of forewing with subbasal fascia touching the cell marking; discal fascia on the underside of both wings is straight; submarginal spots are larger than in other races.

Male genitalia (fig. 8).

The general pattern of the armature is somewhat similar to that of *excelsa*, however the valvae much longer, more robust; the apex of valvae is densely covered with large spines.

Discussion

In view of the new subspecific order of the taxa of *Faunis aerope* cited above, it is reasonable to divide them into two distinctive groups.

The first group includes relatively small individuals belonging to the nominate subspecies bearing the series of small whitish submarginal spots on the underside of both wings; the male genitalia are characterized by short clasps with a single row of large spines. This group is distributed in the continental China.

Amongst known variations the most remarkable are the females with a wide black border on the upperside of both wings (aberrations *yunnanensis* BROOKS and *longpoensis* HUANG) and also the females with the fasciae on the underside of both wings which are blurred and faintly indicated. These variations are quite rare and are not associated with a certain geographic area. They were found in different regions of the nominate subspecies range.

The second group includes larger individuals of the subspecies *F. a. excelsa* and *F. a. centrala* characterized by a series of large submarginal spots on the underside; the male genitalia have long and robust clasps, the apex of which bears some rows of large or small densely packed spines. The populations of males from different localities of the northern Vietnam (Tonkin) are characterized by small but constant differences in the apex of the clasp. These taxa are distributed from the northern to the central mountain areas of the Indo-Chinese Peninsula.

In the new geographical race, *F. a. centrala*, both sexes have more dark marginal area on both wings; subbasal fasciae on the underside of the forewing touch the cell marking and the discal fasciae have a rather unusual bend in the costal area towards the apex. The males of this isolated population have rather broad clasps the apex of which is covered by several rows of relatively large spines.

The second group of taxa is characterized by a number of rather distinctive characters and may be treated as a good species, *excelsa*, along with *aerope*. If the accuracy of such a supposed treatment is proved in future, the new taxon *centrala*, revealing high similarity to *excelsa*, will be considered as its good subspecies.

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Explanation of colour plate I (p. 153):

Fig. 1: *Faunis aerope aerope* (LEECH, 1890): *Clerome aerope* ♂ B.M. Type No Rh 6039.

Fig. 2: Id. underside.

Fig. 3: *Faunis aerope excelsa* (FRUHSTORFER, 1901): ♂ B.M. Type No Rh 15118.

Fig. 4: Id. underside.

Fig. 5: *Faunis aerope centrala* subsp. nov., holotype ♂, C. Vietnam, Kon Tum Province.

Fig. 6: Id. underside.

Fig. 7: *Faunis aerope centrala* subsp. nov., paratype ♂, C. Vietnam, Kon Tum Province.

Fig. 8: Id. underside.

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Colour plate I

MONASTYRSKII, A. L.: Intraspecific variation in *Faunis aerope* (LEECH, 1890) and the description of a new subspecies from Central Vietnam (Lepidoptera, Nymphalidae, Amathusiinae). *Atalanta* 35 (1/2): 37–44.

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Fig. 2: Id. underside.

Fig. 3: *Faunis aerope excelsa* (FRUHSTORFER, 1901): ♂ B.M. Type No Rh 15118.

Fig. 4: Id. underside.

Fig. 5: *Faunis aerope centrala* subsp. nov., holotype ♂, C. Vietnam, Kon Tum Province.

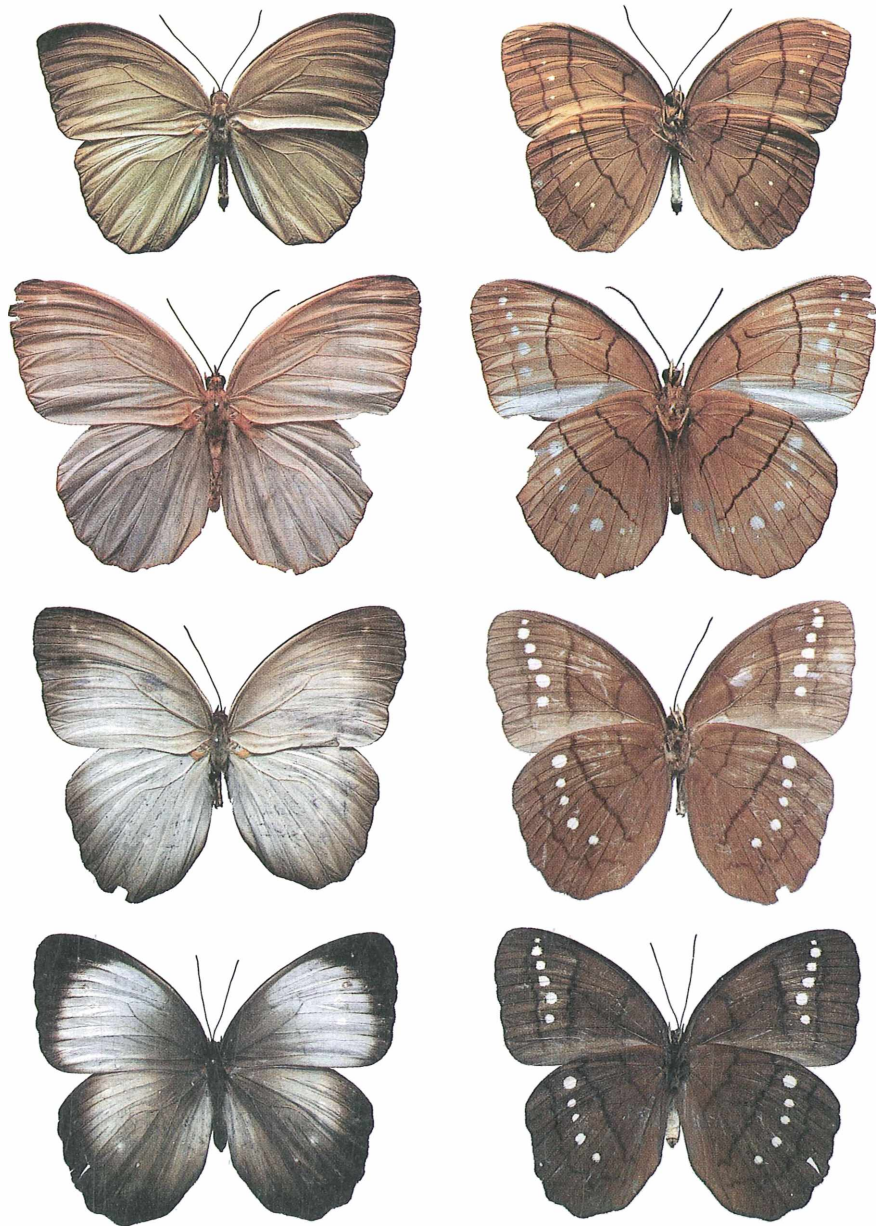
Fig. 6: Id. underside.

Fig. 7: *Faunis aerope centrala* subsp. nov., paratype ♂, C. Vietnam, Kon Tum Province.

Fig. 8: Id. underside.

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Colour plate I



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