Notes on the Genus *Curetis* HÜBNER
(Lepidoptera, Lycaenidae)

J. N. Eliot

Upcott House, Bishop's Hull, Taunton, Somerset TA4 1AQ, England

Abstract  The taxonomic arrangement of *Curetis* HÜBNER, [1819], proposed by Evans (1954), mainly on the basis of dry dissections of the male genitalia, is reviewed and slightly modified. Eighteen species are recognised compared with thirteen recognised by Evans. The male genitalia of the principal taxa are figured, drawn freehand, using preparations in liquid. A list of the species and subspecies is included as an appendix.

Key words  Lepidoptera, Lycaenidae, *Curetis*, taxonomic arrangement, synonymic list.

Status of *Curetis*

The phylogeny and status of *Curetis* has been the subject of much uncertainty and speculation. These matters are currently being examined by Harvey, Robbins, Fiedler and Eliot, among others, and it is hoped that a phylogeny, based on SEM studies of all stages of the life history, will be published in the not too distant future. In the meantime the genus is provisionally considered to form the very small subfamily Curetinae, one of five subfamilies within the family Lycaenidae (s.l.), the other four being Riodininae, Poritiinae (which includes Lipteninae sensu Eliot, 1973), Miletinae (including Liphyrinae sensu Eliot, 1973) and Lycaeninae (including Theclinae, Lycaeninae and Polyommatinae sensu Eliot, 1973).

Taxonomy of the genus

The basis for all work on *Curetis* is the analysis, based on the male genitalia, by Chapman (1915). This was incomplete and contained some misidentifications, but was a most valuable paper. Other early works by Frustorfer (1908), Seitz (1924) and Corbet (1937) are of limited merit and contain many errors. Evans (1954) brought Chapman’s work up-to-date, using many dry dissections of the male genitalia from specimens in the collection of the British Museum (Natural History), hereafter referred to as BMNH. His figures of the male genitalia are diagrammatic, and though they illustrate some of the specific differences they do not show details of the phallus and its included cornuti, and ignore the central plate and juxta. As these characters are of taxonomic importance it was decided to undertake a check of Evans’s arrangement, using fresh preparations of the male genitalia in liquid. The result of this examination has largely confirmed Evans’s arrangement, subject to a few minor changes and
additions which are insufficient to justify a full revision to subspecific level. However it is thought that more detailed figures of the principal taxa will assist in understanding the taxonomy of the genus, while some remarks on some of the component species may help to explain the changes proposed to Evans's arrangement. The female genitalia have not been examined in detail, but the opportunity has been taken to figure the female genitalia of three taxa drawn by Dr. Toshiya Hirowatari.

A list of the species, subspecies and infrasubspecific names is given in an appendix.

The male genitalia

Although Chapman (1915) was the first author to use the male genitalia as the principal character for separating the species he did not compare their structure with that of other genera. The task of making a comparative study fell to Shirôzu & Yamamoto (1957), who gave an admirable account, with clear diagrammatic figures, of the unusual genitalic features. They pointed out that the male genitalia (see Fig. 1) resembled those of the tribe Hamearini of Riodininae in two important respects. Firstly, the dorsum comprises a large hood-like structure, with the sociuncus (su) ending in a more or less pointed uncinal tip and separated from the tegumen (t) by a broad semi-membranous lateral window (lw). Secondly, the valvae are proximally united by a transtilla to which is fixed a strongly sclerotised central plate (cp) above the phallus. A further difference lies in the ring, which in Hamearini may take two forms. Either the vinculum forms a complete ring, as in all Lycaeninae, Miletinae and Poritiinae (except Pentilini), being fused in its upper half to the proximal edge of the tegumen; or the vinculum reaches as far as, and is fused to, the lower edge of the tegumen, so that tegumen and vinculum together form an uninterrupted and rigid ring. In Curetis (Figs. 1, 2) there is no comparable uninterrupted ring. By contrast, the ring can be considered in three parts: the vinculum (v), the tegumen (t) from which a process (tp) descends and a semi-membranous band (smb). The tegumental process descends from the proximo-ventral angle of the tegumen and is strongly sclerotised only in a narrow band along its proximal edge. At its end it is semi-membranously joined to the inner side of the enlarged upper end of the vinculum. This union would appear to be capable of acting as a tergal-sterne l hinge, somewhat as in Pentilini, but movement is prevented by the semi-membranous band, which is looped around the tegumen and the outside of the vinculum, being fused to both along its proximal edge. The reason why so complicated a structure should have evolved to ensure rigidity in place of the usual simple ring defies explanation.

The other features of the genitalia may be summarised as follows. The tegumental process is enlarged at its upper end, where it is partially separated from the tegumen by a narrow membranous ventro-proximal window (vpw). The inner sides of the sociuncus are pillose, with particularly long protruding hairs in C. tagalica (shown in Fig. 24, but omitted from other figures). The vinculum has a well-developed saccus (s). The valva is bifid, the lower part or harpe (h) sensu Shirôzu & Yamamoto ending in a long digitate process intensely setose on both sides (for sake of simplicity the setae are omitted from the figures). The ampulla (a) (= harpe sensu Chapman and Evans)
lies above the base of the digitate process of the harpe and bears a thin tuft of long hairs near its base (omitted from the figures); its extremity may be broad and pillose or smooth and horn-shaped. The costa of the valva (c) is strongly arched and sclerotised, with the area between it and the harpe semi-membranous. The phallus has the supra- and subzonal portions subequal, and there is a well developed coecum. The dorsal extremity of the sheath is membranous, and in the thetis group (Fig. 17) bears a detached sclerite, termed the shuttle-piece (sp) by CHAPMAN, which is not displaced when the vesica is everted. The vesica bears cornuti (cor) formed of two bands of minute spinules. The bulbus ejaculatorius (omitted from the figures) is rounded and bright yellow. The central plate (cp) is strongly sclerotised, and sometimes has prominent bilateral ridges (lr). The juxta (j) is more or less T- or Y-shaped, with the stem of the letter lying parallel to the phallus and with the arms of the letter curled upwards.

Here it may be pointed out that the males of all the species possess an unique secondary sexual character comprising a pair of small, erectile, yellow hair pencils which arise from the disto-ventral edge of the second abdominal tergum and are housed at rest beneath a flap on the third abdominal sternum. The hair pencils appear to be identical throughout the genus and so cannot be used to separate the species. The character was discovered and discussed at length, with photographs, by CHAPMAN (op. cit.), but was regrettably overlooked by ELIOT (1973).

**Seasonal variation**

This is strongly marked in monsoon areas by change of wing shape, the dry season forms having the apex of forewing and tornus of hindwing produced and pointed and the termens concave. In addition, the red or white areas are normally somewhat enlarged.

**Species groups**

CHAPMAN divided the species into two sections, the thetis section and the bulis section, with *C. insularis* (in which he confused two distinct species) occupying an intermediate position. EVANS followed CHAPMAN in accepting the thetis and bulis sections, placing *C. insularis* in the latter. In my view the *C. insularis* group is at least as worthy of section status as the other two groups. The characters of the three sections, here termed species groups, as slightly modified from CHAPMAN, are as follows.

*bulis* species group (Figs. 1 - 16)

The terminal half of the ampulla is hard and horn-shaped and is not pillose. The phallus is more or less straight and always serrate on the right side. The brachia are curved. Superficially the species are recognisable by the white underside having a sprinkling of black dots, and by the forewing postdiscal striae being oblique and directed towards the apex.

*thetis* species group (Figs. 17 - 24)

The terminal half of the ampulla is soft and pillose. The phallus is straight, may
be serrate on the right side and the terminal semi-membranous part bears a shuttle-piece. The brachia are curved. The white underside is not sprinkled with black dots and the post-discal striae are parallel to the termen, but those in spaces 4 and 5 on both wings are shifted distal out of line with those above and below them.

*insularis* species group (Figs. 25, 26)

The ampulla resembles that of the *thetis* group. The suprazonal portion of the phallus is bent through a right angle and the subzonal portion ends in a simple pointed process without shuttle-piece or serrations. The brachia are straight. The white underside is unspotted and the postdiscal striae from continuous lines parallel to the termens.

**Key to the species based on external characters**

It is, I think, impossible to produce a key which will identify all individuals of all species without recourse to dissection, since, within each group, some taxa from different locations may fortuitously be very similar in appearance and yet subject to individual and seasonal variation. EVANS'S key is reliable for separating the subspecies once the correct species has been established. However, as far as specific identification is concerned, it is less satisfactory, since a few of the characters used are incorrect or so inconstant as to be of limited value. Furthermore, not all the taxa described up to the present time are included. I have, therefore, attempted a new key, using some of EVANS'S characters and some new ones. It should enable most specimens, and especially females, to be allocated to their correct species even if incorrectly or inadequately labelled. In the case of reliably labelled specimens the difficulty of identification is much reduced, but where sympathy occurs may still be very troublesome in some species of the *bulis* group and in the Sundanian subspecies of *C. regula* and *C. tagalica*.  

1 Underside speckled with minute black dots; forewing postdiscal markings inclined towards apex. *bulis* group ................................. 2
- Underside not speckled with black dots; forewing postdiscal markings more or less parallel to termen .................................................. 9

2 ♂ upperwing forewing with a prominent red area. ♀ upperwing hindwing with the red or white area separated from dorsum and tornus by a blackish area, at least in wet season from ................................. 3
- ♂ upperwing forewing brown, with at most very obscure and diffuse reddish area. ♀ upperwing hindwing greyish white area reaching dorsum and tornus. No dry season form .................................................. *C. brunea*

3 Underside hindwing postdiscal stria in space 6 very seldom closer to end-cell bar than to stria in space 5 .................................................. 4
- Underside hindwing postdiscal stria in space 6 closer to end-cell bar than to stria in space 5 .................................................. 5

4 Underside hindwing stria in space 6 nearly central between end-cell bar and stria in space 5. ♀ with red areas ........................................... *C. sperthis*
- Underside hindwing stria in space 6 almost in line with stria in space 5. ♀ with white areas .................................................. *C. siva*
5. Underside forewing postdiscal stria in space 2 at most only a little closer to the origin of vein Cu₁ than to termen; hindwing postdiscal stria in space 6 often nearly central between end-cell bar and stria in space 5 .......................... 6
- Underside forewing postdiscal markings more inclined and nearer mid-dorsum at lower end; stria in space 2 closer to origin of vein Cu₁ than to termen; hindwing stria in space 6 close to, and often in line with, end-cell bar ............... 8
6. ♂ upper forewing red enters base of space 5; hindwing tornal area not broadly darkened. ♀ with red areas ...................................................... 7
- ♂ upper forewing red not into space 5; hindwing tornal area broadly blackish, at least in wet season form. ♀ with white areas ......................... C. bulis
7. Palpi second segment spotted with red ........................................ C. santana
- Palpi second segment white ...................................................... C. felderii
8. ♀ with red areas ................................................................. C. tonkina
- ♀ with white areas ............................................................... C. acuta complex
9. Underside postdiscal series of striae irregular, those in spaces 4 and 5 shifted distad. thetis group .......................................................... 10
- Underside postdiscal series regular. insularis group .......................... 16
10. Legs banded with red .................................................................. 11
- Legs banded with black .................................................................. 12
11. ♀ with white areas. ♂ hindwing hindwing black border less than 1.0 mm ................................................................. C. thetis
- ♀ with red areas. ♂ hindwing border over 1.0 mm ......................... C. saronis
12. Underside striae in spaces 4 and 5 well out of line with those above and below them, at least on hindwing ........................................ 13
- Underside striae in spaces 4 and 5 only slightly out of line ............... C. regula
13. Underside hindwing with dark bar or spot in space 7 above origin of vein 7 usually discernible and may be prominent in worn specimens ........................................ 14
- Underside hindwing no dark bar in space 7 even in worn specimens .......... 15
14. ♂ upper forewing with veins not black-dusted ................................ C. tagalica
- ♂ upper forewing with veins black-dusted for about half their length inwards from border ......................................................... C. venata
15. Underside postdiscal markings distinct. ♀ with red areas, that on hindwing prominent ................................................................. C. nesophila
- Underside postdiscal markings faint and may be very hard to make out, except in subsp. egene. ♀ with white areas, or, if red, the red area on hindwing is absent or very small ................................................................. C. barsine
16. Underside hindwing stria in space 1b shifted basad out of line with striae in spaces 2–6 ................................................................. C. insularis
- Underside hindwing stria in space 1b in line with striae in spaces 2–6 ... C. feda
Remarks on certain species

Curetis bulis (WESTWOOD, [1851]) (Figs. 1–4)

From north India to central Burma there are two rather variable phenotypes: bulis and discalis. Typical bulis has relatively wide red (male) or white (female) areas which, on the hindwing, extend to the costa. In typical discalis the red or white areas are reduced and, on the hindwing, do not reach the costa. In the dissections which I have carried out the male genitalia differ constantly in the phallus. In bulis it is relatively short, curved outwards on the left side and has short unequal cornuti (Fig. 4, f, g), whereas in discalis the phallus is longer, more or less the same width throughout and with long, equal cornuti (Fig. 4, a, b). The bulis phenotype extends southwards and eastwards into Thailand, Indo-China and Yunnan, where discalis apparently does not occur. In Indo-China the phallus is of the same type as in India, but slightly more curved to the left (Fig. 4, h, i). In Hainan a taxon, doxa (EVANS), occurs with the facies of a dark discalis but with the genitalia of Indo-Chinese bulis (Fig. 4, i). If this was the extent of the bulis complex there would be no difficulty in treating Indo-Burmese discalis as a distinct species. However, the position is complicated by the presence in south Burma, Peninsular Thailand and the Malay Peninsula of a third phenotype, stigmata (MOORE), which resembles the wet season from of bulis, but with a slightly different wing shape, the forewing termen being slightly straighter or even convex and the hindwing termen rounded. In its male genitalia the phallus shows a mixture of the characters of bulis and discalis, being most often indistinguishable from discalis, in other cases showing an approach in varying degrees to that of bulis (Fig. 4, c, d, e). As the distribution of bulis and stigmata is continuous there must be a zone of intergradation, and it would be illogical to separate them as distinct species. At the same time there is difficulty in considering discalis as distinct from stigmata in view of the fact that in the majority of Malayan stigmata the male genitalia are virtually identical with those of discalis. The most logical solution is to treat all the above mentioned taxa as conspecific, with discalis as a variety of subsp. bulis.

C. felderi DISTANT, 1884 (Fig. 7)

As pointed out by EVANS (1954), the male genitalia of this species are similar to those of C. santana except that the ampulla is broader and blunter and is often shouldered before its tip. A similar shoulder may appear sporadically in other species and may in some cases be a constant character of a population. However, as pointed out by CHAPMAN, it cannot be employed as a specific character in view of its inconstancy. CHAPMAN's figs. 37 and 38 of C. bulis var. santana are certainly C. felderi, as are his correctly identified figs. 39 and 40.

An often overlooked difference between C. santana and C. felderi essential for separating their females, is that the palpi of the former are always speckled with red dots, whilst those of C. felderi are pure white. Here it may be mentioned that CORBET (1937) mistakenly treated C. felderi as a subspecies, gabrieli CORBET, of C. santana. His male holotype of gabrieli is C. felderi, but his female allotype has red speckled palpi, and is a misidentified C. santana malayica.
C. acuta Moore, 1879 complex

Chapman considered that C. acuta and C. dentata Moore were conspecific but Evans separated them on the basis of differences in the ampulla, that of dentata being “short, stout and blunt” and that of acuta “long, slender, pointed”. Evans’s description of the ampulla of acuta is rather misleading, except in the case of the taxon he named C. acuta naga (Fig. 10, d, e, f, g). In the other taxa which Evans placed under acuta the harpe is hardly longer than in dentata, but it does taper evenly to a blunt, rounded tip (Figs. 8, 10, h, i, j), whereas in dentata it is more or less the same width throughout except when shouldered (Figs. 11, 12).

Evans dealt with variable populations from south China including Hainan, named dentata Evans, and from Tonkin, named fortunatus sensu Evans, as subspecies of C. dentata, but conceded that the males had more restricted red areas and that the genitalia of fortunatus more nearly resembled those of C. acuta.

The case of dentata is far from straightforward. A series of both sexes from Hainan in BMNH hardly differ from nominate dentata except in larger size. The males have red entering the base of space 5 on the forewing and the females of the wet season have the usual extensive white areas. The genitalia (Fig. 11) would also pass as dentata. Similar males occur rarely in south China, and the type of dentata from Canton only differs in having the red confined to base of space 4. However, in Hong Kong and elsewhere in south China, males are very variable, in some examples the red barely entering the base of space 4 and the veins dark-dusted across the red areas. The corresponding females are very different from those of Hainan, with the pale areas reduced to a small blue-grey patch on the forewing and a still smaller greyish area on the hindwing, so that they are inseparable from females of acuta of the summer form found in Japan and Taiwan. The majority of the population are intermediate in appearance. The same applies to the male genitalia, at one extreme acuta-like (Fig. 9) and at the other extreme similar to the Hainan type. The Tonkin population is generally similar to the south China population, with the examples dissected by Evans and myself having acuta type genitalia (Fig. 10, a, b, c). I conclude that Tonkin and south China constitute a very broad zone of intergradation between acuta and dentata and that the two taxa are conspecific. The type of fortunatus Fruhstorfer, judged by its appearance, seems more likely to be an example of C. bullis than of hybrid acuta / dentata; unfortunately it has lost its abdomen, so that a positive identification cannot be made. In the circumstances I think it best to treat fortunatus as a nomen dubium, and to use dentata for the hybrid populations of south China and Tonkin. On the other hand the Hainan population should be treated as a local race of dentata of large size.

The form flying in the Naga Hills and in north-east Burma, named C. acuta naga by Evans, have genitalia nearest to those of nominate acuta from central and western China, and there is logic in Evans’s view that these two taxa are conspecific. However their appearance is very different, naga males of the wet season being of a much purer and less sullied red, whilst males of the dry season are yellower than anything else in Curetis. There is no evidence of any intergradation between naga and the sympatric dentata, so that it seems best to treat naga as a species in its own right.
C. sperthis (C. & R. Felder, [1865]) (Figs. 13, 14)

The male genitalia are distinctive in the very long pointed ampulla and protruding tip of the phallus. Throughout Sundaland and in south Burma and Thailand the male phenotype is rather constant, with the red area nowhere reaching the hindwing termen. In Indo-China a taxon occurs in which the male genitalia are of the same type, though differing in some details. This was named C. tonkina metayei INoué & KAWAzoé, and was also figured by Morishita (1978, fig. 24) as an unnamed species. Despite a different male phenotype, in which the red reaches the hindwing costa, I think it best to treat metayei as a subspecies of C. sperthis.

C. tonkina EVANS, 1954 (Fig. 6)

Evans somewhat tentatively separated C. tonkina from C. bulis and its allies mainly on the basis of the triangular end of the phallus. Unfortunately I have not been able to examine the genitalia of this species in an undamaged state, as only incomplete and broken examples dry-dissected by EVANS were available. From these I conclude that species status is justified. The male genitalia show that C. tonkina is nearest to C. santana, with a similar long, thin phallus bearing long cornuti, but with the tip differing as stated by EVANS. In addition there are minor differences in the shorter ampulla and in the juxta and central plate.

EVANS pointed out that the orange-red colour of male tonkina was yellower than bulis, and the same difference applies to santana. A further difference is that on the underside of the forewing the postdiscal striae are more strongly inclined and nearer the wing base at their lower end; in this respect tonkina resembles C. acuta.

In his key EVANS assumed that the female of tonkina would be white. However, there is in BMNH an orange female from Tonkin with the same data as two of the six males forming the type-series. It was identified by EVANS as C. santana malayica, but it differs in the same way as tonkina, namely by a yellower orange-red on the upperside and by more inclined postdiscal striae on the underside of the forewing. In my opinion it is unquestionably the female of tonkina. There is no evidence that C. santana occurs as far north as Tonkin, although EVANS recorded two males from there. One of these is a misidentified C. sperthis metayei, whilst the other, which is indeed santana malayica, is labelled Lang Biam Plateau, which is not in Tonkin, lying only some 130 miles north-east of Ho Chi Minh City (Saigon) and some 600 miles south of the locality from which tonkina is known.

C. thetis (Drury, [1773])

EVANS included in this species a range of taxa occurring from Sri Lanka to the Solomon Is. In my view the great differences in the male genitalia, which fall into three separate patterns, and the allopatric distributions make this opinion untenable. I have, therefore, adopted the following arrangement: C. thetis (Fig. 17), with red-banded legs and a white female, confined to Sri Lanka and peninsular India; C. saronis Moore (Fig. 18), also with red-banded legs but with a red female, flying from Assam to Sundaland; and C. barsine (C. Felder) superspecies (Figs. 19-22), which I
further subdivide into three species (perhaps semi-species would be better) flying in the Philippines, Sulawesi and the Papuan sub-region, respectively.

*C. barsine* (C. Felder, 1860) superspecies (Figs. 19–22)

The male genitalia are all of similar pattern, but in matters of detail can be separated into three sub-types to which I have provisionally accorded species status. This can also be justified by different phenotypes in one or both sexes, so that I think inter-breeding, could it occur in nature, would be unlikely.

The most distinctive species, *C. venata* FrüHstorfer (Fig. 20), is found in Sulawesi, with a subspecies in Salayer I. The male is distinctive in the black-dusted veins crossing the red areas. The female is of the red type. Both sexes have the underside markings very pronounced, including a prominent bar, sometimes divided into two, in mid-space 7 of the hindwing. This bar, though frequent throughout the genus, is absent in the remaining taxa of the superspecies. In the male genitalia the phallus is spined on the right side, and the shuttle-piece is spined only at its end; the central plate is relatively narrow and laterally ridged.

The Philippine species, *C. nesophila* (C. & R. Felder) (Fig. 19), also with a red female, is closely allied to *C. venata*. Judged by a single dissection, the male genitalia differ as follows. The ampulla is relatively narrow, the central plate is wide, unridged and stepped in the middle, the phallus is strongly spined, as in *venata*, but the shuttle-piece is smaller.

*C. barsine*, flying throughout the Papuan sub-region, is subdivided into numerous subspecies with remarkably different phenotypes. On the underside the markings are very faint, except in the north Moluccan subspecies, *egena* (C. & R. Felder). The female is of the white type except in the Bismarcks and Solomons, where it is red. This colour difference is not sufficient to justify treating the Bismarcks taxon *solita* Butler (Fig. 22) as a distinct species bearing in mind the parallel case of *C. tagalica*, which has a red female in most areas, but a white female in others. The male genitalia differ from the Wallacean species mainly in the phallus, which is normally unspined, though one or two minute spines may be present in *solita*; in addition the shuttle-piece is spined laterally.

*C. tagalica* (C. & R. Felder, 1862) (Fig. 24)

The species exhibits two interesting characters. Firstly, the female is always white in Palawan and in Sabtang I. (Batanes group, north of Luzon), elsewhere red except that in south Luzon white females are found as great rarities (TREADAWAY, pers. comm.). This is the only known case in the genus where a dimorphic female is found within a single subspecific area. Secondly, in some areas males occur in two dimorphs. Typically, the male has a rather narrow border which is angled below the forewing apex; the other form has a wider border which is evenly rounded below the forewing costa. The narrow bordered form is the dominant form throughout the Philippines and appears exclusively in Palawan, south Vietnam and the islands of the South China Sea. The broad bordered form occurs less commonly in parts of the
Philippines and exclusively in nearly all Sundaland, and in Sulawesi and Talaud I. In BMNH there are a number of the narrow bordered form just labelled Borneo or Brunei, and EVANS assumed that these were taken in Labuan I. As there are no intergrades between the two forms among the Bornean material in BMNH, EVANS's assumption may be correct. CHAPMAN also treated both forms as conspecific, but CORBET (1936: 225) considered that they were distinct species, C. tagalica and C. hera FRUHSTORFER, on the basis of small differences in the male genitalia. He stated that in tagalica the phallus was shorter and that the harpe (clasp) was longer and much broadened centrally (as in Fig. 24a). In my experience the difference in the harpe does apply as an average value, but its shape is so inconstant that it has little value, even as a subspecific character. I therefore consider that the two forms, when overlapping, should be treated as varietal.

A possible explanation of the two forms and their present distribution is that the initial dispersion of the common ancestor led to the evolution of a narrow bordered form in the Philippines and a broad bordered form in Sundaland. The former may have reached Indo-China during a low sea-level phase of the Ice Ages and radiated thence to the islands of the South China Sea and possibly to the western seabord of Borneo. Subsequent or simultaneous dispersals may have enabled the broad bordered form to invade Wallacea, leading to partial intergradation in the Philippines.

During his revision CORBET examined the type of tagalina FRUHSTORFER, which he said agreed with the narrow bordered form found in Tioman I. It is hardly conceivable that the specimen in question was other than the taxon later renamed as labuana by EVANS, who stated that the type assigned in BMNH to tagalina did not agree with FRUHSTORFER's description which applied to insularis. It is correct that the specimen now labelled as the type of tagalina is an example of C. insularis, but FRUHSTORFER's original description cannot possibly apply to this species, whereas it can well apply to the narrow bordered form of tagalica. I suspect that during rearrangement of the collection FRUHSTORFER's type label was inadvertently transferred from one specimen to another. But as some doubt must remain I think it would be best, in the interests of continuity, to preserve EVANS's name labuana for the narrow bordered form found in Borneo etc, and to treat tagalina as a nomen dubium.

Acknowledgements

I thank the Trustees and staff of BMNH, and especially Mr. P. R. ACKERY and Mr. C. SMITH, for loan of material and the use of the collection in their charge. I am also grateful to Dr. Toshiya HIROWATARI for dissecting and drawing the female genitalia of three taxa figured at Figs. 27–29.

References


Fig. 1. Male genitalia of Curetis bulis stigmata Moore, Malay Peninsula. A. Lateral view of left side of armature less phalix; B. Dorsal view of left valva and central plate; C. Lateral and dorsal view of phallus; D. Dorsal view of tip of sociuncus; E. Ventral view of juxta. Abbreviations as follows: su = sociuncus; lw = lateral window; r = ridge of lateral process of tegumen; t = tegumen; tp = tegumental process; vpw = ventro-proximal window; smb = semi-membranous band; v = vinculum; s = saccus; b = brachium; j = juxta; c = costa; cp = central plate; ap = ampullar process; h = harpe; cor = cornutus.
Figs. 2, 3. Male genitalia. 2. Curetis bulis bulis (Westwood), north Bengal. Dorso-distal aspect of ring, viewed slightly laterally, to show hinged union of tegumental process with vinculum; 3. Curetis bulis bulis (Westwood), Tonkin.

Fig. 4. Curetis bulis (Westwood), phalli. a. C. bulis bulis var. discalis Moore, Sikkim; b. C. bulis bulis var. discalis, north Bengal; c. C. bulis stigmata Moore, Malay Peninsula; d. C. bulis stigmata, Langkawi I.; e. C. bulis stigmata, Malay Peninsula; f. C. bulis bulis i. angulata Moore, India: Mussoorie; g. C. bulis bulis, north Bengal; h. C. bulis bulis, Tonkin; i. C. bulis doxa Evans, Hainan.
Notes on *Curetis*

Figs. 27–29. Female genitalia. 27. *Curetis saronis sumatrana* CORBET, Singapore; above, internal reproductive organs, left lateral aspect; below, terminalia, ventral aspect; 28. *C. acuta denta* EVANS, Hong Kong; 29. *C. acuta paracuta* de NICÉVILLE, Japan. By courtesy of Dr. Toshiya HIROWATARI.
Appendix

A synonymic list of Curetis

CURETIS HÜBNER, [1819]
PHAEDRA HORSFIELD, [1829]
ANOPS BOISDUVAL, [1836]

1. *thetis* (DRURY, [1773]) Peninsular India, Sri Lanka
   *cinyra* (CRAMER, 1779)
   *phaedrus* (FABRICIUS, 1781)
   *aesopus* (FABRICIUS, 1781)
   *terricola* (HORSFIELD, [1829])
   *thetys* (MOORE, [1858])
   *arcuata* MOORE, 1883

2. *saronis* MOORE, 1877
   *saronis* MOORE, 1877  Andaman Is.
   *gloriosa* MOORE, 1883  Assam – south Burma
   *indosinica* FRUHSTORFER, 1908  Thailand, Vietnam
   *sumatrana* CORBET, 1937  Sumatra, Malay Peninsula
   *obscura* EVANS, 1932  Car Nicobar
   *nicobarica* SWINHOE, 1890  central Nicobar Is.
   *kondula* EVANS, 1954  south Nicobar Is.

   *brazilana* FRUHSTORFER, 1908

4. *venata* FRUHSTORFER, 1908
   *venata* FRUHSTORFER, 1908  Sulawesi
   *salayerensis* CHAPMAN, 1915  Salayer I.

5. *barsine* (C. FELDER, 1860)
   *barsine* (C. FELDER, 1860)  South Moluccas
   *egena* (C. & R. FELDER, [1865])  North Moluccas
   *ebetalda* FRUHSTORFER, 1908  Key Is.
   *ribbei* RÖBER, 1886  Aru Is.
   *galinthias* FRUHSTORFER, 1908  Waigeu
   *menestratus* FRUHSTORFER, 1908  West Irian, Papua New Guinea, Mefor I., Schouten Is.
   *limbatus* ROTHSCHILD, 1917
   *fergussoni* CHAPMAN, 1915  Fergusson I.
   *solita* BUTLER, 1882  Bismarck Arch., Solomon Is.
   *georgiana* RIBBE, 1899
   *shortlandica* RIBBE, 1899
   *bougainvillei* CHAPMAN, 1915
6. _tagalica_ (C. & R. Felder, 1862)
   _tagalica_ (C. & R. Felder, 1862) Philippines, less Palawan and Sibutu I.
   _obsoleta_ (C. & R. Felder, 1862)
   _aurantiaca_ Fruhstorfer, 1900
   _izabella_ Fruhstorfer, 1900
   _camotina_ Fruhstorfer, 1908
   _jolana_ Fruhstorfer, 1908
   _takanamii_ Schroeder & Treadaway, 1989 Sibutu I.
   _palawanica_ Staudinger, 1889 Palawan
   _labuana_ Evans, 1954 Borneo, Labuan I., Natuna Is., Tioman I., P. Aur, P.
   Pemanggil, south Vietnam
   _vietnamica_ Inoué & Kawazoe, 1965 syn. n
   _celebensis_ (C. & R. Felder, [1865]) Sulawesi
      _eos_ Röber, 1887
      _dohertyi_ Chapman, 1915
      _kalawaru_ Ribbe, 1926
      _itamus_ Ribbe, 1926
      _talaudensis_ Chapman, 1915 Talaud I.
      _brunnescens_ Ribbe, 1926 Banggai I., Sula Is.
      _jopa_ Fruhstorfer, 1908 Malay Pen., Sumatra, Borneo, Java, Bali
      _eda_ Fruhstorfer, 1908
      _hera_ Fruhstorfer, 1900 Nias
   7. _regula_ Evans, 1954 south Burma, Malay Pen., Sumatra, Borneo, Java
   8. _insularis_ (Horsfield, [1829])Java, south Burma, Thailand, Malay Pen., Sumatra,
   Borneo
      _pseudoinsularis_ Fruhstorfer, 1908
   9. _freda_ Elliot, 1959 Malay Pen., Sumatra, Borneo
   10. _sperthsis_ (C. & R. Felder, [1865])
       _sperthsis_ (C. & R. Felder, [1865]) Malay Pen., Burma, Thailand, Sumatra,
       Borneo, Banka I.
       _minima_ Distant & Pryer, 1887
       _semilimbata_ Fruhstorfer, 1908 Java
       _latipicta_ Fruhstorfer, 1908
       _javana_ Chapman, 1915
       _niasica_ Fruhstorfer, 1900 Nias
       _kiritana_ Doherty, 1891 Sumba, Sumbawa
       _kawazoei_ Okubo, 1983 Tioman I.
       _metayei_ Inoué & Kawazoe, 1965 Vietnam, Cambodia
   11. _siva_ Evans, 1954 south India
   12. _felderi_ Distant, 1884 Malay Pen., Sumatra, Borneo
       _gabrieli_ Corbet, 1937
13. *santana* (Moore, [1858])
   *santana* (Moore, [1858]) Java  
   *argentata* Toxoetus, 1935
   *malayica* (C. & R. Felder, [1865]) Malay Pen., Burma, Thailand, south Vietnam, Sumatra, Banka I., Borneo
   *honest* Fruhstorfer, 1908
   *ge* Fruhstorfer, 1900 Nias
15. *bulis* (Westwood, [1851])  
   *bulis* (Westwood, [1851]) north India, Burma, Thailand, Vietnam, Yunnan  
   *discalis* Moore, 1879
   *angulata* Moore, 1883
   *nisia* Fruhstorfer, 1908
   *doxa* Evans, 1955 Hainan I.
16. *acuta* Moore, 1877  
   *acuta* Moore, 1877 central and west China
   *paracuta* de Nicéville, 1902 Japan  
   *japonica* Fruhstorfer, 1908
   *tsushimana* Fruhstorfer, 1908
   *albida* Esaki & Nakahara, 1930
   *classica* Murayama, 1943
   *denta* Evans, 1955 south China, Tonkin
   *formosana* Fruhstorfer, 1908 Taiwan
   *dentata* Moore, 1879 India, Burma, Thailand, south Vietnam, Hainan I.
17. *naga* Evans, 1954 Naga Hills, Assam, N. E. Burma
18. *brunnea* Wileman, 1909 Taiwan
   *lucifuga* Fruhstorfer, 1909

Nomina dubia
   *tagalina* Fruhstorfer, 1908
   *fortunatus* Fruhstorfer, 1908
ウラギンシジミ属（鱗翅目、シジミチョウ科）に関する研究（J. N. ELIOT）

ウラギンシジミ（Curetis）属に関する分類学的研究はCHAPMAN（1915），FRIHSTORFER（1908），SEITZ（1924），CORBET（1937），EVANS（1954）などがあるが，総合的な研究はEVANS以来なされていない。本稿では雌交尾器の形態を中心にウラギンシジミ属の分類学的再検討を行い，大筋においてEVANS（1954）の体系を支持する結果を得るとともに若干の変更点を提案した。


本稿では新種の記載は含まれていないが，筆者が提案する分類体系は本文末尾のリストに示したとおりである。EVANS（1954）ではウラギンシジミ属は13種であったが，その後に記載されたfreda ELIOT，1959と今回の変更点を合わせて18種を認めた。EVANS（1954）の体系からの主な変更点を以下に示す。（1）スリランカからソロモン諸島まで分布するもentedactylusを義のthesis（スリランカとインドの半島部）, saronis（アッサム～スンダランド）, “superspecies barsine”（スラウェシ～ソロモン諸島）に分類した。さらに“superspecies barsine”をvenata（スラウェシ），nesophila（フィリピン），barsine（マルターニーガニア，ソロモン諸島）の3種に分類した。（2）独立種をされていたentedactylusをacutaの亜種とした。（3）acutaの亜種nagaを独立種とした。（4）tonkinaの亜種として記載されたmetayellをspathesの亜種とした。

EVANS（1954）は，本属をtheses sectionとbulsis section（insularisを含む）の2群に分類したが，ここではinsularisを1つのグループとして認め，以下の3群に分類した。

1. thetis群（theses，saronis，nesophila，venata，barsine，tagalica，regula）
   雌交尾器のphallusの末端は右側面が鋸歯状となることもあるが，背面の半膜質部はshuttle-pieceと呼ばれる骨片を常に有する；brachiaは曲がる；翅の裏面には微細な黒点が散布されず，前翅裏面の中室外側の条線（postdiscal striae）は外縁に平行に走る。

2. bulbis群（SPATHES，siva，felderi，santana，tonkina，bulis，acuta，naga，brunnea）
   Phallusの末端は右側面に鋸歯状となる；brachiaは曲がる；翅の裏面全体に微細な黒点が散布される；前翅裏面の中室外側の条線は外縁と平行でなく翅頂部に向かう。

3. insularis群（insularis，freda）
   Phallusは後半部が曲がっており，末端は鋸歯，shuttle-pieceのいずれも持たず1つの尖った突起となる；brachiaは直線状；翅の裏面は微細な黒点が散布されず，前翅の中室外側の条線に平行に連続に走る。

（文責 編集部）
（Received 18 January 1990）

Published by the Lepidopterological Society of Japan, c/o Ogata Hospital, 3-2-17 Imabashi, Chuo-ku, Osaka, 541 Japan