Esperiana Band **18**: 39-197 Bad Staffelstein; Schwanfeld, 02. Dezember 2013 ISBN 978-3-938249-04-8

Taxonomic revision of the African *Cyana*-species (Lepidoptera: Arctiidae, Lithosiinae) (plates 15-19)

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Introduction

The small lichen moths of the genus *Cyana* Walker, 1875 occur mainly in the Old World tropics. Some hundred species are already described, but there are still many new species to discover. *Cyana* species are really handsome moths with white, yellow or orange wings and prominent red or brown lines, fasciae or patches and black spots. Most of the species occur in the Oriental region, and these are the most beautiful ones. The African species are often white, with orange, red or brown fasciae in a different arrangement. In the north their distribution extends to the Sahel zone and the southern parts of the Arabian Peninsula, in the south they occur up to the southernmost forestal regions of South Africa.

The first African *Cyana* species were described by Walker (1854) under three different genera: *Bizone delicata*, *Isine trigutta* and *Setina rejecta*. Ten other taxa, published by various authors, followed until the end of the 19th century. Hampson (1900) listed in his catalogue of the Lepidoptera in the collection of the British Museum all species under the genus name *Chionaema* Herrich-Schäffer, 1855, including the Oriental and Australian species. A catalogue of all species known at the time was published about 20 years later by Strand (1922). It is principally identical with that of Hampson (1900). Other African *Chionaema* species and subspecies were described during the first half of the 20th century. A single description followed in 1980 by de Toulgoët. Seitz (1926), included nearly 40 taxa, all very similar in appearance, which were impossible to distinguish from his rather schematic illustrations. Hence, progress of the study of this group has been sluggish.

Roesler (1990) started with a revision of the group in Africa, using the older name *Cyana* Walker, 1854 in place of *Chionaema* for the African species as well as the Oriental species which he had it already revised (Roesler & Küppers, 1976). Unfortunately, his work contains descriptions of only two new African species, and was not continued.

Recently the systematic position of the South East Asian species of *Cyana* Walker, 1854 has been a subject of discussion. *Cyana* was founded on *C. detrita* Walker, 1854 from the Indian region. It is a species which looks a little bit different from the majority of the others, and Czerny (1993), in his paper on the *Cyana* species of the Philippines, isolated *Cyana detrita* from the others and placed all other Asiatic species in the genus *Doliche* Walker, 1854. Unfortunately he gave no indication why *Cyana detrita* should hold such an isolated position and why all the other species form an unit. Holloway (2001) criticized the separation of one species into a separate genus without a careful comparision of the whole group; following a detailed study of many of the Oriental and Australasian species, he retains the genus name *Cyana* for all species. Kaleka (2002a, b) studied *Cyana detrita* and some other *Cyana*, including *C. puella* (Drury, 1773), the type species of *Chionaema* Herrich-Schäffer, 1855. He confirmed Roepke (1946), that there are considerable differences in the colour and pattern of the forewings between *detrita* and *puella* as well as in the genitalia structures (saccular process shorter than cucullus, broad saccus, vesica of the aedeagus with prominent cornuti, only partially sclerotized ductus bursae). Kaleka (2002b) found the structures in *C. puella* similar to those in *C. bellissima* (Moore, 1878), *C. cataorhoda* Hampson, 1897, *C. obliquilineata* Hampson, 1900, *C. dudgeoni* Hampson, 1894 and *C. alborosea* (Walker, 1864). For that reason he revived the genus name *Chionaema* but failed to give a hint whether the name should be available for more than the six mentioned species. Kaleka (2003) added *C. perornata* (Walker, 1854), *C. bianca* (Walker, 1856), *C. arama* (Moore, 1859) and *C. flavicincta* Hampson, 1903 to *Chionaema*. Lourens (2009, 2011) included no reference to Kaleka's papers, but to Czerny (1993), and reintroduced *Cyana* for all species from the Philippines and erected species groups (*Cyana lunulata*-species group, *Cyana geminipuncta*-species group) for species with morphological and structural similarities. None

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of these papers referred to African species, and therefore the new African species described after 2000 are placed provisionally in *Cyana*.

But the problem is complex. With exception of *Isine* Walker, 1854 all genera at present synonymized under *Cyana* Walker, 1854 are described from type species from the Oriental or Australasian region, and the generic position of the African species is an interesting question. In an attempt to find a solution to the problem, males and females of all type species of the genera were examined and dissected for this revision. Only the male of *Gnophrioides flaviplaga* Heylaerts, 1891 was not available and the female of *Exotrocha meyricki* Rothschild & Jordan, 1901 was not dissected. Following the examination of all type species an assignment of the African species to the Oriental or Australian genera was verifiable.

It is not clear why earlier authors synonymised the genera mentioned below with *Cyana* Walker, 1854. Even the diagnosis of *Chionaema* in Hampson (1900) is not really helpful, because it indicates only similarities of the subsumed species but not the differences from other genera. The essential reasons of the previous assignments were probably as follows:

(1) similarities in colouration and pattern (fig. 1);
(2) existence of a so-called lobus on the underside of the forewings of the males. This is a membranous appendage with presumed androconial function. Its structure is variable: in its fully developed or extended form (studied on *Cyana flammeostrigata flammeostrigata* Karisch, 2003, fig. 2, 3) it is a ventral, membranous incavation of the forewing between the costa and the end of the discal cell which forms a sac covering parts of the underside of the forewing (fig. 2) and is filled with long, hairlike scales. The resulting slit opening (fig. 3) is located very near the costa of the upperside of the forewing and covered with many long scales.

In *Cyana* the lobus can be a very small but also a very large construction with dissections. There are also some African *Cyana* without any lobus-like structure, probably a result of reduction.

The existence of a lobus is a synapomorphy in *Cyana* and *Paidia* Hübner, 1819 only (Bendib & Minet, 1999). *Paidia* differs from *Cyana* in the absence of a proboscis and from the majority of them in the tubular M_2-vein on the hind wing. This vein is often obsolescent or absent in *Cyana*. Connate or stalked M_3 and CuA_1 on the forewing, as mentioned in Holloway (2001) for *Cyana* and *Paidia* are not present in all African species groups of *Cyana*. The forewing pattern of *Paidia* resembles that of some African *Cyana*, subgenus *Australisine* subgen. nov. There are also many species within *Cyana* with a very different pattern and coloration, previously placed in the separate genera *Clerckia*, *Sphragidium*, *Gnophrioides* and *Exotrocha*, all of which possess a lobus and have a well developed proboscis.

Because of the many differences in pattern, venation and genitalia structure the only way to avoid an extensive splitting of the species into a numerous separate genera is to follow the broad genus concept in Holloway (2001). However, significant differences in a number of characters (see below) in the African *Cyana* species are recognised here by their placement in subgenera and sometimes additional species-groups. Hence *Isine* Walker, 1854 is used as subgenus-name for a number of smaller species with a complete reduced lobus. The other subgenera are described below. All subgenera of the African *Cyana* are compared with the described and synonymized genera of Oriental and Australian *Cyana*, most of which are proposed for use as subgenera in furtherance of a practicable classification of the Oriental and Australian fauna in the future.

Cyana Walker, 1854, List of the specimens of Lepidopterous Insects in the Collection of the British Museum, Part **II**. Lepidoptera, Heterocera: 528. Type species: *Cyana detrita* Walker, 1854.

Leptothrix Heylaerts, 1892, Annales de la Société entomologique de Belgique **36**: 47. Type species: *Leptothrix tettigonioides* Heylaerts, 1892. Name not available because of preoccupation (Roesler, 1990).

Macronola Kirby, 1892, A synonymic catalogue of Lepidoptera Heterocera (Moths) 1: 528. Nom. nov. pro *Cyana*. Typusart: *Cyana detrita* Walker, 1854. Unnecessary replacement name.

Doliche Walker, 1854, List of the specimens of Lepidopterous Insects in the Collection of the British Museum, Part **II**. Lepidoptera, Heterocera: 529. Type species: *Doliche gelida* Walker, 1854.

Isine Walker, 1854, List of the specimens of Lepidopterous Insects in the Collection of the British Museum, Part **II**. Lepidoptera, Heterocera: 545. Type species: *Isine trigutta* Walker, 1854.

Bizone Walker, 1854, List of the specimens of Lepidopterous Insects in the Collection of the British Museum, Part **II**. Lepidoptera, Heterocera: 548. Type species: *Bizone perornata* Walker, 1854.

Chionaema Herrich-Schäffer, 1855, Systematische Bearbeitung der Schmetterlinge Europas **6**: 100, 101. Type species: *Chionaema puella* Drury, 1773.

Clerckia Aurivillius, 1882, Kongliga Svenska Vetenskap-Akademiens Handlingar (N. S.) **19** (5): 157, 158. Type species: *Clerckia fulvia* Linnaeus, 1758.

Gnophrioides Heylaerts, 1891, Annales de la Société entomologique de Belgique (Bulletin) 35: CCCCXII. Type species: *Gnophrioides flaviplaga* Heylaerts, 1891.

Exotrocha Meyrick, 1886, Proceedings of the Linnean Society New South Wales (2) **1**: 691, 693. Type species: *Exotrocha liboria* sensu Meyrick, 1886 nec Stoll, 1781 = *Exotrocha meyricki* Rothschild & Jordan, 1901.

Sphragidium Butler, 1887, Annales and Magazine of Natural History (5) **19**: 218. Type species: *Sphragidium miles* Butler, 1887.

Australisine subgen. nov., Type species: *Cyana marshalli* (Hampson, 1900).

Caudovulpecula subgen. nov. Type species: *Cyana delicata* (Walker, 1854).

Comorocyana subgen. nov. Type species: *Cyana tripuncta* (de Toulgoët, 1980).

Cornutivulpecula subgen. nov. Type species: *Cyana klohsi* Karisch, 2003.

Cyabarda subgen. nov. Type species: *Cyana torrida* (Holland, 1893).

Frankmuelleria subgen. nov. Type species: *Cyana arenbergeri* Karisch, 2003.

Gigantovulpecula subgen. nov. Type species: *Cyana saalmuelleri* (Butler, 1882).

Idiovulpecula subgen. nov. Type species: *Cyana pretoriae* (Distant, 1894).

Louisia subgen. nov. Type species: *Louisia quentini* Karisch, 2003.

Oblocutora subgen. nov. Type species: *Cyana ruwenzoriana* Karisch, 2003.

Paravulpeculella subgen. nov. Type species: *Cyana pallidilinea* Karisch, 2003.

Strigivulpecula subgen. nov. Type species: *Cyana rufeola* Karisch & Dall'Asta, 2010.

Tomea subgen. nov. Type species: *Cyana rufifrons* (Rothschild, 1912).

Volitivulpecula subgen. nov. Type species: *Cyana ellipsis* Karisch & Dall'Asta, 2010.

Vulpeculella subgen. nov. Type species: *Cyana basisticta* (Hampson, 1914).

As already suggested in Holloway (2001), there will be a need for the erection of some more Oriental or Australian subgenera and species-groups as in Lourens (2009, 2011) in a full revision of the whole species-rich fauna.

The following morphological and anatomical characters were studied during the present revision, and were found to be useful for subdividing the genus *Cyana*: wing shape and pattern; presence or absence and size of the lobus/lobi; venation of the fore-wings; form of the uncus; existence and expression of the fold or bulge at the valva; presence or absence of a brush-field on the valva; shape and thorns of the saccular process; shape and thorns on the tube of the aedeagus; number and form of cornuti in the vesica of the aedeagus; sclerotization of the lamella postvaginalis; sclerotization and shape of the VIIth sternite (females); sclerotization and shape of the ductus bursae; cornuti, sclerites and sclerotizations of the corpus bursae; presence or absence of an appendix bursae; presence of various sclerotizations or special forms of a ductus of the appendix bursae; existence and expression of a signum in the corpus bursae.

Form and size of the palpi, ciliation and colour of the antenna, colouring of the legs, spines on the tibia, colour and pattern of the thorax and abdomen, and sclerotizations of the VIIth segments of the males are variable, but in most of the cases they seem to be of no value in classification of the *Cyana*-species. Surprisingly it applies also to the glandulae of the females (fig. 21). These pheromone glands were studied by Bendib & Minet (1998) because of their phylogenetic importance and discerned as helpful in distinguishing the different phylogenetic lines in Arctiidae. As shown in plates I and II the glandulae of the studied *Cyana* species are far from homogenous. Besides glandulae of the types "q", "s" and "r" (according to Bendib & Minet, 1998) glandulae of the type"o" (f. e. *Oblocutora* subgen. nov., tab. I, figs. 14, 15) and intermediate types between "p" and "s" (f. e. *Vulpeculella* subgen. nov. p. p., tab. II, figs. 50, 55) occur. To some extent the form of the glandulae seems to be variable individually (f. e. tab. I, figs. 7, 8; tab. II, figs. 33, 34). Variation in the glandulae does not coincide with that of other characters, and a differentiation of species on the basis of the glandulae seems impractible.

Only a few comments to the systematic position of *Cyana* will be given here. Doubtless the genus belongs to the subfamily Lithosiinae within the Arctiidae. Bendib & Minet (1999) studied the phylogenetic relationships between the tribes within the Lithosiinae. They stated that the most reliable autapomorphy of the Nudariini is the loss of discrete verrucae (D1) on segments A1 – A8 of the larva. Because of this feature and the markedly elongated basal segment of the antenna, they placed *Cyana* in the tribus Nudariini. Other features of the tribus, the translucent wing vestiture and the presence of veinlets between Sc and costa, are hardly visible in *Cyana*.

The venation in *Cyana* species corresponds basically with that in Nudariini (*Nudaria mundana*, fig. 8), but it shows considerable variation and a distinct sexual dimorphism. The radiales on the forewing to R_1 – R_4 are always reduced, but the males may have further transformations or reductions of veins at the lobus. M1 is lacking in males of *Exotrocha* (fig. 37), *Clerckia* (fig. 33) and *Sphragidium* (fig. 35). M_2 may arise from the middle of the discal cell or approached to M_1, but sometimes it is turned towards M_3 and CuA_1 or is partially

anastomosed with both. The discal cell is partially open in some groups (e.g. *Cornutivulpedula* subgen. nov. (fig. 49), *Idiovulpecula* subgen. nov. (fig. 54), but in the majority the terminal vein is complete. An areola as found in *Lithosia* Fabricius, 1798 (figs. 13, 15) is usually lacking, and is only weakly indicated in a few groups (*Cornutivulpecula* subgen. nov. (fig. 49), *Strigivulpecula* subgen. nov. (fig. 62)).

The venation of the hindwings is rather homogenous. M_2 is often obsolescent and only rarely tubular (e.g. in *Oblocutora* subgen. nov. (fig. 28), *Idiovulpecula* subgen. nov. (fig. 54) and *Bizone* (fig. 67)). M_3 and CuA_1 are always stalked before diverging, only in *Australisine* subgen. nov. do they arise from one point in the anal angle of the cell (fig. 30).

Whereas the venation shows clear resemblances between *Cyana* and *Nudaria* and confirms the position of *Cyana* within the Nudariini, a comparision of the male genitalia (figs. 16, 17 and others) suggests a different direction. The strong and prominent saccular process, the subtriangular structure on the inner surface of the valva between the costa and the sacculus ("fold") and the homogenous tube of the aedeagus with distinct cornuti are reminiscent of *Lithosia quadra* (Linnaeus, 1758) (fig. 19), type species of Lithosiini. *Nudaria mundana* (fig. 18) presents a reversal picture. The cucullus is prolonged into a more strongly sclerotized appendix, and the sacculus is membranous and circular rounded, the fold is absent. The uncus is very prominent and strongly sclerotized. The tube of the aedeagus is weak and has two triangular lobes distally on the apex. The vesica lacks conspicuous cornuti.

The descriptions given above indicate a need for more research to elucidate the tribal structure of the Lithosiinae, using more characters, including genetic ones.

Finally, it should be mentioned, that occasional specimens of an apparently homogenous species are found which show slight differences depending on their origin. On the other hand there are series of *Cyana* which are easy to distinguish externally but show no differences in the genitalia. It is apparent that speciation is often still in progress. Unfortunately, knowledge of the biology and ecology of all *Cyana* species is too little known for clear conclusions to be drawn on the number of different species involved. More research on additional material and using different methods is urgently needed. Furthermore, our knowledge of the distribution of the species is rather incomplete, especially in Western Africa (Guinea, Sierra Leone, Liberia and Togo, Benin, Nigeria) and in Southern Africa (Angola, Zambia).

Key to the genera (males)

1 underside of forewing without lobus; sometimes a small depression of the surface of the forewing **…….**2
1* underside of forewing with lobus **……4**
2 fasciae of forewing absent or red to red brown 3
2* fasciae of forewing present; brown to blackish brown .....*Australisine* subgen. nov.
3 $R_2/R_3/R_4$ as well as M_1/M_2 on forewing stalked, hindwing pink to orange .....*Frankmuelleria* subgen. nov.
3* only R_3/R_4 stalked; hindwing white .....*Isine*
4 lobus consisting of an irregularly scaled patch; aedeagus laterally with a projecting cone .....*Oblocutora* subgen. nov.
4* lobus structured; aedeagus laterally without a projecting cone 5
5 M_1 absent; forewing with coloured bands or coloured with dark margin 6
5* M_1 present; forewing not as above 8
6 sacculus with a small ampulla ..... *Exotrocha*
6* sacculus without ampulla 7
7 CuA_1/M_3 long stalked up to CuA_2; forewing with a broad red band; basal and marginal area blackish .....*Sphragidium*
7* CuA_1/M_3 short stalked up to CuA_2; forewing orange, blackish brown edged .....*Clerckia*
8 forewing underside with an undivided lobus 9
8* forewing underside with two or more lobi or a divided lobus 18
9 tube of aedeagus with a ring of teeth in distal third .....*Idiovulpecula* subgen. nov.
9* tube of aedeagus not as above 10
10 forewing with a red or orange strigula from the postmedian fascia to the costa before apex..... .....*Strigivulpecula* subgen. nov.
10*forewing without such a strigula 11
11 aedeagus slender and very long.....*Caudovulpecula* subgen. nov.
11*aedeagus not as above 12
12 juxta on both sides with bulge, which is covered with delicate thorns; small moths with broad wings

.....*Louisia* subgen. nov.
12*juxta without distinct bulges 13
13 aedeagus with one or a few rows of teeth distally in a clasp; small moths with broad wings
.....*Vulpeculella* subgen. nov.
13*aedeagus not as above; moths larger 14
14 a black spot present above the postmedian fascia towards the costa; comparatively large moths
.....*Gigantovulpecula* subgen. nov.
14*no black spot above the postmedian fascia 15
15 terminal vein of the cell partially obsolescent 16
15*terminal vein of the cell closed 17
16 forewing with red fasciae, sometimes reduced; saccular process only slightly curved; aedeagus
with two fields of strong and long spines in lower numbers .....*Cornutivulpecula* subgen. nov.
16 forewing with greyish brown patches and fasciae; saccular process curved in nearly right angle
over the cucullus; tube of the aedeagus dorsolaterally folded to a small ridge, vesica with
a bundle of delicate spines .....*Cyabarda* subgen. nov.
17 wings long, with broad and irregular orange fasciae; M_1 and M_2 parallel, distance between M_1
and M_2 at the cell the same as between M_2 and M_3; R_2 and R_3 straight; three discal spots,
each containing a white dot .....*Doliche*
17*wings relatively broader; M_1 and M_2 remote at the termen, distance between M_1 and M_2 at the
cell smaller than between M_2 and M_3; R_2 and R_3 bent to the costa; typical pattern with
red fasciae and two black discal spots, which lack white dots .....*Volitivulpecula* subgen. nov.
18 lobi touching each other or lobus split 19
18*lobi remote .....*Cyana* s. str.
19 inner lobus extended proximally just behind the base of CuA_2; forewing with only one discal spot .....*Bizone*
19*inner lobus reaching proximally only the base of CuA_2 or behind; forewing with two or more
discal spots 20
20 inner lobus very small, anal margin curved; outer lobe long stretched oval; three separate discal spots
.....*Chionaema*
20*lobi not as above; not three discal spots 21
21 forewing without discal spots or red fasciae; lobi anastomosed, very large, proximally extended
to just before the base of CuA_2 .....*Tomea* subgen. nov.
21*forewing with discal spots; lobus smaller 22
22 forewing without red fasciae; lobus split in three parts, connected at the basis; M_2 absent at the
forewing .....*Comorocyana* subgen. nov.
22*forewing with red fasciae; lobus split in two parts 23
23 Imago comparatively small; discal spots approximated each other; tube of the aedeagus distally
with ring of teeth or spines .....*Paravulpeculella* subgen. nov.
23*discal spots not approximated; tube of the aedeagus simple
.....*Volitivulpecula natalensis*-species group (*Cornutivulpecula* subgen. nov.)

Key to the genera (females)

1 forewing narrow and long; orange, red or brown with broad brown to black basal, costal and/or
marginal fields 2
1* forewing white or yellow; without dark areas 4
2 M_2, M_3 and CuA_1 stalked, from anal angle of the cell .....*Clerckia*
2* not all three veins stalked 3
3 M_2 and M_3 stalked .....*Exotrocha*
3* all veins from around the anal angle of the cell, but not stalked .....*Sphragidium*
4 appendix bursae absent 5
4* appendix bursae present 6
5 VII. sternite with broad, shell-shaped sclerotizations oblique to the ostium bursae; moths rather small
.....*Paravulpeculella* subgen. nov.
5* VII. sternite without shells; moths small, stout .....*Vulpeculella* subgen. nov.
6 sclerite from the upper part of the corpus bursae to the ductus bursae sclerotized and distally split
.....*Oblocutora* subgen. nov.
6* corpus and ductus bursae without such sclerite.....7

7 VII. sternite with two bag-like excavations, one partially in the corpus bursae and the other in the appendix bursae.....*Cyabarda* subgen. nov.
7* VII. sternite without baglike excavations 8
8 ductus bursae with two lobe-like sclerotizations distally .....*Caudovulpecula* subgen. nov.
8* ductus bursae without such sclerotizations 9
9 ductus bursae sclerotized throughout, broadened distally .....*Bizone*
9* ductus bursae at least partially without sclerotization 10
10 large areas of the ductus bursae strongly sclerotized and covered with many spinules .....*Frankmuelleria* subgen. nov.
10*ductus bursae lacking many spinules 11
11 lamella postvaginalis strongly sclerotized 12
11*lamella postvaginalis not strongly sclerotized 13
12 sclerotization of lamella postvaginalis broad, extended distally and with broad proximal margin . .....*Idiovulpecula* subgen. nov.
12*sclerotization of lamella postvaginalis narrow and hardly extended distally, proximally prolonged triangular into the ductus bursae.....*Cyana* s. str.
13 ductus bursae slender and not sclerotized 14
13*ductus bursae broad, not or partially sclerotized 17
14 corpus bursae with distinct, round and thorny signum .....*Doliche*
14*corpus burae with a small signum or signum absent 15
15 signum small, punctulate; ductus of appendix bursae strongly sclerotized and broad, at the opening to the corpus bursae set with long spines .....*Comorocyana* subgen. nov.
15*signum absent; ductus of appendix bursae without spines at the opening 16
16 appendix bursae a simple protrusion of corpus bursae, without ductus; several sclerotized areas present on corpus bursae; forewings with red fasciae, accompanied by fine black lines .....*Strigivulpecula* subgen. nov.
16*appendix bursae with a distinct sclerotized and folded ductus; corpus bursae without sclerotized areas; small moths with broad forewings with a black or brown pattern .....*Australisine* subgen. nov.
17 corpus bursae with a long and partially sinuate or bent sclerotized area with long thorns ....*Cornutivulpecula* subgen. nov.
17*corpus bursae without such sclerotized area 18
18 corpus bursae with extended field with minute spinules 19
18*corpus bursae without field with minute spinules 20
19 ductus bursae sclerotized only laterally and corpus bursae sclerotized only at one side in the distal part; sclerotization continued laterally at ductus of appendix bursae; forewing with discal spots and often a distinct brown or red pattern .....*Isine*
19*sclerotization of ductus bursae from just below ostium bursae, strongly folded; ductus of appendix bursae membranous; forewings white without fasciae or lines .....*Tomea* subgen. nov.
20 two round fields with hair-like, delicate and dense thorns at opening of appendix bursae; wings broad, small .....*Lousia* subgen. nov.
20*no fields with hair-like thorns in this region 21
21 ductus bursae sclerotized basally; corpus bursae with a smooth sclerotization distally; forewing with only one discal spot .....*Chionaema*
21*ductus bursae not sclerotized; corpus bursae without a smooth sclerotization; forewing with two discal spots 22
22 ductus of appendix bursae very broad and long, more strongly sclerotized basally; corpus bursae with a slightly sclerotized signum with minute thorns .....*Gigantovulpecula* subgen. nov.
22*ductus of appendix bursae short, only sclerotized at the opening; no signum on corpus bursae .....*Volitivulpecula* subgen. nov.

Abbreviations

BMNH	The Natural History Museum London
CAA	private research collection of Leif Aarvik, Ås, Norway
CMNH	Carnegie Museum of Natural History, Pittsburgh
CKDT	private research collection of Timm Karisch, Demitz-Thumitz, Germany
CKP	private research collection of Lars Kühne, Potsdam
CSH	private research collection of Thmas Süssmuth, Halle (Saale)

EMEM	Entomologisches Museum Eitschberger Marktleuthen
MNHN	Museum National d'Histoire Naturelle Paris
MNVD	Museum für Naturkunde und Vorgeschichte Dessau
MRAC	Musée Royal de l'Afrique Centrale Tervuren
MWM	Museum Witt, München
OUM	Hope Museum, University of Oxford
MTD	Staatliches Museum für Tierkunde Dresden
TMB	Magyar Természettudomány Múzeum Budapest
TMP	Transvaal Museum Pretoria
ZfB	Zentrum für Biodokumentation des Saarlandes, Schiffweiler
ZMB	Zoologisches Museum Berlin
ZSM	Zoologische Staatssammlungen München

ex. specimen
wA without abdomen

Acknowledgment

The author is very grateful the following persons and institutions for their kind support of his investigations: Dr. Martin Honey, Dr. Geoff Martin, Dr. Jeremy Holloway, The Natural History Museum London, Prof. Joël Minet, Museum National d'Histoire Naturelle Paris, Dr. Ugo Dall'Asta, Frans Desmet, Musée Royal de l'Afrique Centrale Tervuren, Dr. John E. Rawlins, Carnegie Museum of Natural History Pittsburgh, Dr. Martin Krüger, Transvaal Museum Pretoria, Dr. Wolfram Mey, Museum für Naturkunde Berlin, Dr. Matthias Nuss, Senckenberg Museum für Tierkunde Dresden, Dr. Laszlo Ronkay, Dr. Laszlo Peregovits, Természettudomány Múzeum Budapest, Dr. Axel Hausmann, Ulf Buchsbaum, Zoologische Staatssammlung München, Dipl.-Kaufm. Thomas Witt, Dr. Wolfgang Speidel, Museum Witt München, Dr. Rodolphe Rougerie, formerly Biodiversity Institute of Ontario, University of Guelph, Andreas Werno, Zentrum für Biodokumentation des Saarlandes, Schiffweiler, James E. Hogan, Oxford University Museum of Natural History, Klaus-Rüdiger Beck, Demitz-Thumitz, Dr. Philippe Darge, Clenay, Dr. Ulf Eitschberger, Marktleuthen, Hermann Hacker, Staffelstein, Henri Hoppe (†), Klein Pravtshagen, Dr. Lars Kühne, Potsdam, Jan-Peter Rudloff, Roßlau/Elbe, Dipl.-Biol. Thomas Süssmuth, Halle (Saale), Michael A. Thies, Berlin, Dr. Bernard Turlin, Andrésy, Dr. Twan Rutten, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben. Special thanks are given to Dr. Pierre Viette (†), Montier en l'Isle, who was kind enough to verify all reports from Madagascar, and Barry Goater, Eastleigh, for correcting and improving the English text. The molecular studies were made possible through a grant from Genome Canada and the Ontario Genomic Institute to the international Barcode of Life (iBOL) project.
For permission to collect *Cyana* specimens, gratitude is expressed to the Ministerio de Información, Turismo y Cultura, Malabo (Equatorial Guinea), the Mpumalanga Parks Board (Mr. Blackie Swart), Nelspruit (South Africa), Ministry of Agriculture, Forestry and Food Security Sierra Leone, Wildlife conservation branch (Mrs. Kate Garnett, Mr. K. I. Bangura, Mr. Mohamed Mansaray, Mr. John O. Conteh), the Conservation Society of Sierra Leone (Mr. Daniel D. Saffa, Mr. Edward Aruna) and all other involved authorities.

Taxonomic Part

Genus: *Cyana* Walker, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 528.

Description:
For the purposes of a broader generic concept, *Cyana* Walker, 1854 is characterized by the existence of one or more lobi above the discal cell in ♂ and a well developed proboscis. M_2 of the hind wings is obsolescent. The pattern of the forewing consists of two or more red, brown or grey transverse fasciae and a basal and one or more apical spots.

Distribution: Austral and Oriental regions, Afrotropics.

Type species: *Cyana detrita* Walker, 1854. L. t.: Bangladesh: Silhet.

The description of *Cyana* Walker, 1854 s. str. see below.

Subgenus: *Isine* Walker, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 545.

Description:
Head: Proboscis well developed, but slightly reduced; palpi about 1½ diameter of eye; eyes blackish brown; antennae with bristles and cilia in two rows, scaled on the upper side, cilia about twice as the diameter of the shaft.

Thorax completely white or with an orange patch on 2nd tergite. 1st and 2nd pair of legs orange or brown, white

annulated; 3rd pair white with orange and white annulated tarsi.

Abdomen white with yellow tinge at tip.

Wings:
Venation (male, fig. 22):
Forewing: Sc and R_1 anastomosed at costa; R_3 and R_4 long stalked; M_{1-3} and CuA_1 arising separately; CuA_2 from just behind the half of the discal cell. Lobus absent, sometimes a slight depression with some longer scales present.
Hindwing: Rs and M_1 moderately long stalked; M_2 nearly tubular; M_3 and CuA_1 long stalked; CuA_2 from about 2/3 of the cell.
Venation (female, fig. 23):
Forewing: Sc and R_1 separate; R_3 and R_4 long stalked; M_2 and M_3 shortly stalked; CuA_1 arising separately; CuA_2 from about the half of the cell, basally strongly curved.
Hindwing: Rs and M_1 shortly stalked and splayed at the margin; M_2 reduced; M_3 and CuA_1 moderately long stalked; CuA_2 from about 2/3 of the cell.

Pattern and colour: Forewings relatively short (?o.k. B.) and broad, often with distinct red or brown transverse fasciae; marginal spots red, absent or reduced to few spots; discal spots black, round, distinct and not approximated. Hindwings unmarked, white.
Sexual dimorphism insignificant.

Genitalia ♂: Uncus rather small, short and triangular; tegumen short; valva comparatively slender, bipartite at the end; cucullus tapered rapidly and moderately projecting; sacculus slender, process moderately strong and with a small thorn at the top; fold well developed but less arched, from about 1/3 of the costa; juxta less sclerotized. Aedeagus short, tube without special sclerotizations; vesica with sclerotized plate and a large field with long cornuti, which appears sometimes bipartite due to the folded vesica.
Genitalia ♀: Papillae anales moderately large; ostium bursae membranous; ductus bursae broad and short, membranous; corpus bursae extended sac-like, in the basal half more strongly sclerotized and folded distally, in the upper part of corpus bursae one or two large fields with very small teeth; appendix bursae large, membranous, arising from basal part of corpus bursae, ductus very broad, folded, and basal part laterally sclerotized.

Distribution: From West Africa through the Congo Basin to the East African Rift Valley; in the South reaching Namibia and the northern parts of RSA.

Type species: *Cyana* (*Isine*) *trigutta* Walker, 1854

Isine includes a number of very similar species. For their identification it is necessary to pay attention to a combination of typical features. The classification of the taxa as species or subspecies requires clarification, with the aid of molecular-genetic techniques.

Key to the species

1 forewing without brown or red lines ……..... *Cyana trigutta*
1* forewing with brown or red lines ……..... 2
2 forewing with brown lines ……..... *Cyana africana*
2* forewing with red lines ……..... 3
3 ground colour of forewing pale yellowish; aedeagus without cornuti …… *Cyana pallida* spec. nov.
3* ground colour of forewing white, aedeagus with cornuti …….. 4
4 aedeagus with 24 or more cornuti ……..... 5
4* aedeagus with up to 24 cornuti ……..... 6
5 forewing below apex with delicate dark brown marginal spots; aedeagus with more than 35 cornuti in vesica ……..... *Cyana katanga*
5* forewing below apex often without dark brown marginal spots; aedeagus with 24–30 cornuti in vesica ……..... *Cyana rubristriga*
6 14–18 strong cornuti in vesica of the aedeagus; forewing without marginal spots below apex ……..... *Cyana abyssinica*
6* 18–25 delicate, long cornuti in vesica of the aedeagus; forewing with dark brown marginal spots below apex ……..... *Cyana ignifera* spec. nov.

Cyana (*Isine*) *trigutta* Walker, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 545f., (*Isine*) – Holotype ♀ (BMNH): Sierra Leone, presented by Rev. D. F. Morgan.

= *atrigutta* Walker, 1862

Characters of undescribed Lepidoptera in the Collection of W. W. Saunders, Esq. – Transactions of the Entomological Society London (3) **1**: 77 (*Euproctis*). – without data, type lost.

Kirby (1892): 444 (*atrigutta*), in Hampson (1900) as synonym of *trigutta*.

Material:

(Holo)type: *Isine trigutta* Walker, 1854 ♀: "S[ierra] Leone.", "1. Isine trigutta.", "Type", "1201", "Arct. Br. Mus. slide No. 4789". In BMNH.

Sierra Leone: [without locality], 2 ♂♂ (1 ♂ gen. slide B.M. Arct. 2158) 1 ♀ (BMNH), Moyamba, 1 wA V.[19]03 D. Cator (BMNH);
Guinea: Massadou Nr. Macenta, 1600 ft, 1 ♀ 13-17.V.[19]26, C. L. Collenette (BMNH); Mt. Nimba, 1 ♀ VII.-XII.[19]51 (MNHN);
Ivory Coast: Bingerville, 1 ♀ 13.-15.VI.1915, 1 ♂ 28.-31.VII.1915, 1 ♀ 1.-7.VIII.1915, 2 ♂♂ 7.-11.VIII.1915, 1 ♂ 1.-3.IX.1915, 5 ♂♂ 8.-11.IX.1915, 1 ♂ 11.-15.IX.1915, 1 ♂ 15.X.1915, 1 ♂ X.1915, 4 ♂♂ 1 ♀ (gen. slide B. M. Arct. 4633) 1915, G. Melou (BMNH);
Ghana: Bibianaha, 1 ♀ VI.1912, H. G. F. Spurell (BMNH); Aikoon, 1 ♂ 22.II.1919, G. Harrisson (BMNH); Coomassie 1 ♀, H. Whiteside (BMNH);
Nigeria: Port Harcourt, 1 ♂ 18.IX.[19]55, 1 ♂ 23.VI.[19]57, B. J. MacNutly (BMNH); Ibadan, ca. I.-VI.1954, H. Stenholt Clausen (EMEM); Calabar, 1 ♂ 12.VI.1910, J. J. Simpson (BMNH); Old Calabar, 3 ♂♂ 1 ex wA, F. W. Sampson (BMNH); R. Niger: Sapele, 2 ♀♀, F. W. Sampson (BMNH); Warri 1 ♀ VI.[18]97, Dr. Roth (BMNH); Agberi 1 ♀ 26.VII.[19]01, Ansorge (BMNH); Ogruga 6 ♀♀, (BMNH); Anambara Creek 4 ♀♀, (BMNH);
Cameroon: SW-Province, Bakingili, 6 ♂♂ 1 ♀ (gen. slide 2217, Karisch) 21.-30.VI.1984, 12 ♂♂ 1.-10.VII.1984, 1 ♂ 21.VII.1984, 7 ♂♂ 2 ♀♀ (1 ♀ gen. slide 2215, Karisch) 21.-31.VII.1984, 3 ♂♂ (1 ♂ gen. slide 2214, Karisch) 1.-10.VIII.1984, 4 ♂♂ 1 ♀ 11.-15.VIII.1984, J. E. Rawlins (CMNH); Batanga, 1 ♂ 2.V.1912, 1 ♂ 18.IV.1912, 1 ♀ 15.XI.1911, A. I. Good. (CMNH); Johann-Albrechts-Höhe, Station Kamerun, 1 ♂ 1 ♀ 1898, L. Conradt (BMNH).

Description

(pl. 15, figs. 1, 2)

Wingspan: ♂: 14 – 19 mm, ♀♀ 17 – 24 mm.

Forewing: bright white, without fasciae; costa with small brown patch at base and at about 1/3, and one or two brown marginal spots near apex, these sometimes absent; small basal point and two distinct black discal spots, basal one often oval; fringes white.

Hindwing without any pattern, bright white.

Variation: a few males (Cameroon: Bakingili) with a hint of two brownish transverse lines on forewing.

Genitalia ♂ (fig. 87): Tegumen slender; uncus slightly tapered and rounded; valva broad, cucullus gradually narrowed, fold less developed; saccular process far projecting, with a small thorn at tip. Aedeagus short, with 30 to 40 stout cornuti; vesica with a field of minute teeth.

Genitalia ♀ (fig. 89): Ostium bursae broad; ductus bursae shorter and moderately broad; corpus bursae round, appendix bursae broad and membranous; unsclerotised laterally above appendix; opposite the appendix and lateral fields with many minute thorns. Gland (pl. I, fig. 1) undulated, as type "q" (Bendib & Minet, 1998).

Early stages and biology: In the BMNH are three exuviae from Old Calabar, one fixed on a small piece of wood. The pupae are in a semitranslucent cocoon densly covered with hairs. Aurivillius (1904) stated that the caterpillars of *C.* (*I.*) *trigutta* were found in numbers on a tree trunk, that they correspond with the Lithosiinae-type and the pinacula are densly covered with very long, soft hairs. The pupa is in a wide-meshed cocoon made from plaited hairs of the caterpillar.

Distribution and habitats:

West-African species. From Sierra Leone to Cameroon (pl. VIII, fig. 1). Habitats unknown.

Cyana (*Isine*) *africana* (Holland, 1893) **comb. nov.**

Descriptions of new Species and Genera of West African Lepidoptera. – Psyche **6**: 399, (*Bizone*) – Lectotype ♂ (CMNH): W. Africa: Kangwé, Ogové Riv., A. C. Good.

= *porrima* Holland, 1893

Descriptions of new Species and Genera of West African Lepidoptera. – Psyche **6**: 399, (*Bizone*) – Lectotype ♂ (CMNH): W. Africa: Kangwé, Ogové Riv., A. C. Good.

Synonymized by Strand (1922): 675.

Material:

Lectotype: *Bizone africana* Holland, 1893 ♂ (herewith designated): "*Bizone africana*, ♂ Type Holland, Kangwé, Ogové Riv.,

W. Africa. A. C. Good.“, “Syntype *Bizone africana* Holland, det. J. E. Rawlins“, “Gen.-Präp. 1862, präp. Karisch, 2005“, “Lectotypus ♂, *Bizone africana* Holland 1893, des. Karisch, 2007“. In CMNH.

Paralectotypes *Bizone africana* Holland, 1893: 1 ♀ “*Bizone africana*, Holland, ♀ Type, Kangwé, Ogové Riv., W. Africa. A. C. Good.“; 1 ♂ 1 ♀ “*Bizone africana*, Holl. ♂ [bzw. ♀] Type.“; 2 ♂♂ 3 ♀♀ without labels, 1 ♂ gen. slide 1860 [Karisch, 2005], 1 ♀ gen. slide 1861 [Karisch, 2005], 1 ♀ gen. slide 1895 [Karisch, 2005].
All paralectotypes with the label: “Syntype *Bizone africana* Holland, det. J. E. Rawlins“ an in CMNH.
1 ♀ “Cotype“ “Ogové Valley“. In BMNH.

Lectotype *Bizone porrima* Holland, 1893 ♂ (herewith designated): “*Bizone Porrima*, ♂ Type Holland, Kangwé, Ogové Riv., W. Africa. A. C. Good.“, “Syntype *Bizone porrima* Holland, det. J. E. Rawlins“, “Gen.-Präp. 1863, präp. Karisch, 2005“, “Lectotypus ♂, *Bizone porrima* Holland 1893, des. Karisch, 2007“. In CMNH.

Paralectotypes *Bizone porrima* Holland, 1893: 1 ♀ “*B. Porrima*, ♀ Type Holland, Kangwé, Ogové Riv., W. Africa. A. C. Good.“; 1 ♂ “*Bizone porrima*, Holl., ♂ Type“; 1 ♀ ohne Fundortetikett.
All paralectotypes with the label: “Syntype *Bizone porrima* Holland, det. J. E. Rawlins“ and in CMNH.

Ghana: Bibianaha, 700 ft, 1 ♀ III.1912, H. G. F. Spurell (BMNH); Kumasi, 1 ♀ (without dates) J. D. G. Sanders (BMNH);
Nigeria: Lagos, 1 ♂ (without date) (BMNH);
Gabun: Ogové-River, 1 ♂ (without date), Goode (BMNH);
Dem. Rep. Congo: Sankuru, Lusambo, 1 ♂ 10.VI.1950, 1 ♂ 23.VI.1949, 1 ♀ 13.VII.1950, 1 ♂ 1.VII.1949, Dr. M. Fontaine (MRAC).

Description:

(pl. 15, figs. 3, 4)

Wingspan ♂♂: 14 – 18 mm, ♀♀: 18 – 22 mm

Forewing (upperside): white, fasciae slender, brown; basal fascia only indicated by costal and basal points; antemedian- and postmedian fasciae slightly dentate, postmedian fascia often projecting to the margin below the discal cell; two or three apical patches, especially in females; discal spots black, small, distinct and not approximated; fringes white.
Hindwing bright white.

Genitalia ♂ (fig. 88): Tegumen slender, rather long; uncus rounded; valva broad, cucullus gradually tapered; fold less developed; process far projecting, with a small apical thorn. Aedeagus short, with about 30 stout cornuti; vesica with minute teeth.

Genitalia ♀ (fig. 90): Ostium bursae rather broad; ductus bursae moderately broad and slender; corpus bursae with a sac-shaped appendix, broad and membranous; with sclerotization laterally above the appendix; opposite the appendix and laterally two fields with many minute thorns. Gland (pl. I, figs. 2, 3) as type “r” (Bendib & Minet, 1998) like that in *C.* (*I.*) *rubristriga*.

Similar species:

Only distinguishable from *Cyana* (*Isine*) *rubristriga* by the brown fasciae. All other features are variable. There is a ♂ from Lusambo (Dem. Rep. Congo) with brown-red fasciae, and it is not impossible that *I. africana* is simply a colour variant of *I. rubristriga*, although the effect might have been caused by killing and conservation substances used at the time.

Early stages and biology:

Unknown.

Distribution and habitats:

Congo Basin and surrounding regions (pl. VIII, fig. 2). Habitats unknown.

Cyana (*Isine*) *rubristriga rubristriga* (Holland, 1893) **comb. nov.**

Descriptions of new Species and Genera of West African Lepidoptera. – Psyche **6**: 399, (*Bizone*) – Lectotype ♂ (CMNH): W. Africa: Kangwé, Ogové Riv[er].

= *brunneistriga* Prout, 1919 **syn. nov.**
XIII. – New and insufficiently-known Moths in the Joicey Collection. – The Annals and Magazine of Natural History, Series IX, Vol. **III** (14): 166, (*Chionaema*). – Holotype ♀ (BMNH): French Congo: Fort Crampel.

Material:

Lectotype *Bizone rubristriga rubristriga* Holland, 1893 ♂ (hiermit festgelegt): “B. rubristriga, ♂ Type Holl., Kangwé, Ogové Riv., W. Africa. A. C. Good.“, “SYNTYPE *Bizone rubristriga*, det. J. E. Rawlins“, “Gen.-Präp. 1864, präp. Karisch, 2005“, “Lectotypus ♂, *Bizone rubristriga* Holland 1893, des. Karisch, 2007“. In CMNH.

Paralectotypes *Bizone rubristriga rubristriga* Holland, 1893: 1 ♂ “*Bizone rubristriga* (*Chionaema*) Holland, ♂ Type.“ “SYNTYPE *Bizone rubristriga*, det. J. E. Rawlins“. In CMNH.

Holotype *Chionaema brunneistriga* Prout, 1919 ♀: “Fort-Crampel, Congo-Français“, “*Chionaema brunneistriga*, ♀ Prout, type“, “Arctiidae ♂ slide No. 283“, “Type HT“. In BMNH.

Sierra Leone: Pt. Lokko, 1 ♂ F. S. Penny (BMNH); Moyxamba, 1 ♀ V.[19]03, D. Cator (BMNH);
Burkina Faso: 10 km SE Tiefora, 1 ♂ 10.II.1984, H. Schreiber, M. Biegel (ZfB);
Guinea: Macenta, 2000 ft., 1 wA 1 ♀ 2.-10., 19.-21.V.[19]26, C. L. Collenette (BMNH).
Côte d'Ivoire: Bingerville, 1 ♂ II.1914, 1 ♀ 1.-4.VI.1915, 1 ♂ 1 ♀ 25.V.-3.VI.1915, 1 ♂ 13.-15.VI.1915, 1 ♂ 14.-17.VIII.1915, 1 wA 23.-31.VII.1915, 1 ♀ 1.-4.VIII.1915, 1 ♂ 5.-7.VIII.1915, 1 ♂ (slide 284) 1.-7.VIII.1915, 1 ♂ 7.-11.VIII.1915, 2 ♀♀ 16.-18.VIII.1915, 1 ♀ 3.-7.IX.1915, 1 ♂ 11.-15.IX.1915, 2 ♂♂ IX.1915, 1 ♂ 10.-12.X.1915, 1 ♂ 15.X.1915, 1 ♂ 1 ♀ X.1915, 3 ♀♀ 1915, G. Melou (BMNH); id., 1 wA [without date], (MNHN); Agboville, 1 ♀ 1.-8.VI.1915, G. Melou (BMNH); Nambonkaha NNE Ferkéssedougou, 1 ♀ 30.VIII.1997, T. Karisch (CKDT); Ferkéssedougou, 1 ♀ 31.VIII.1997, T. Karisch (CKDT);
Ghana: Umgebung Abetifi, 1 ♂ 1 ♀ 16.-27.IV.1997, L. Kühne (CKP); Umgebung Sunyani, 1 ♀ 12.-14.IX.1996, L. Kühne (CKP); Bibianaha, 1 ♂ XI.1911, 1 ♂ 24.-26.X.1911, H. G. F. Spurell (BMNH); Kumasi, 1 ♂ (gen. slide B.M. Arct. 279) 1 ♀ (gen. slide B.M. Arct. 280) 10-15.IX., 4 ♀♀ [without date], J. D. G. Sanders (BMNH); Kumasi, 2 ♀♀ [without date], D. Sander (BMNH); id., Buroburo Rd., 3 wA [without date], A. B. Stam (MRAC); Juaso, 1 ♀ 5.XI.1936, G. S. Cansdale (BMNH);
Nigeria: Ibadan, 1 ♂ (gen. slide 1803, Karisch) I.-VI.1954, H. Stenholt Clausen (EMEM); Ilesha, 1 ♀ [without date], L. E. H. Humfrey (BMNH); Ogruga, 1 ♀ [without date], (BMNH);
Cameroon: Adamaoua, ca. 20 km S von Minim, 1 ♂ (gen. slide 2045, Karisch) 5.II. – 3.III.1980, W. Flacke, P. Nagel (ZfB); Ebolewo, 2 ♂♂ 28.X.1938, (CMNH), 1 ♀ 19.XI.1935, (CMNH); Efulen, 1 ♀ 19.XI.1913, 1 ♂ 20.I.1914, 1 ♀ 29.IV.1914, 1 ♂ 03.II.1917, 1 ♂ (gen. slide 1858, Karisch) 15.XI.1917, 1 ♂ (gen. slide 1875, Karisch) 17.VIII.1918, 1 ♂ 21.X.1918, 1 ♀ 30.XI.1918, 1 ♂ (gen. slide 1857, Karisch) 31.XII.1918, 2 ♀♀ (1 ♂ gen. slide 1872, Karisch), 03.VI.1922, 1 ♀ (gen. slide 1873, Karisch) 19.IX.1922, 1 ♂ (gen. slide 1871, Karisch) 13.XI.1922, 1 ♀ 14.XI.1922, 1 ♂ (gen. slide 1876, Karisch) 12.II.1923, 1 ♂ (gen. slide 1872, Karisch) 1 ♀ (gen. slide 1872, Karisch) 16.II.1923, 1 ♀ 24.III.1923, 1 ♂ 04.IV.1923, 1 ♀ 05.IV.1923, 1 ♀ 06.IV.1923, 1 ♂ 12.IV.1923, H. L. Weber (CMNH); Bitje, Ja-River, 2000 ft., 1 ♀ IX.-XI.1911, 1 ♀ X.-XI.1918, wet season, 1 ♀ dry season, 2 ♀♀ 1913, wet season, 2 ♀♀ 1 wA 1 ♀, wet season, 1 ♂ IV.-V.1913, 1 ♀ IX.-XI.[19]11, 1 ♂ X.-XI. 1919, wet season, 2 ♂♂ X., wet season, G. L. Bates (BMNH); Lolodorf, 1 ♂ 20.II.1895, 1 ♂ 24.II.1895, L. Conradt (BMNH);
Gabun: Ipassa, 1 ♂ 30.III.1973, 1 ♂ 30.IV.1973, J. Pierre & G. Bernardi (MNHN);
Congo: Impfondo, 2 ♂♂ 09.-11.VI.1993, 14 ♂♂ (gen. slides 1856, 1859, 1866, 1867, 1868, 1869, 1870, Karisch) 19.-22. VI.1993, J. Rawlins, R. Davidson (CMNH); N'Odzala National Parc, 5 ♂♂ (1 ♂ gen. slide 1812, Karisch) 29.I.-03. III.1997, S. Murzin, V. Siniaev (MNVD); id., 5 ♂♂ 29.I.-03.III.1997, S. Murzin & V. Siniaev (MWM); Tsinguidi, 3 ♂♂ (1 ♂ gen. slide 1800, Karisch) 07.-12.IV.1981, Mbankoko (EMEM); Lefinie reservation, 1 ♂ 1 ♀ (gen. slide 1801, Karisch) 13.I.1964, Endrödy-Younga (EMEM); Brazzaville, ORSTOM park, 1 ♂ 20.XI.1963, 1 ♀ 21.XII.1963, Endrödy-Younga (EMEM);
Dem. Rep. Congo: Bas-Congo: Matadi, 1 ♂ IV.1937, Darterelle (MRAC); Equateur: Eala, 1 ♀ 9.II.1918 [labeled with: "*Chionaema rubristriga* Holl. (var.? ealicola m.) ♀, Strand det.", in litt. name], R. Mayné (MRAC); id., 1 ♀ 16.II.1939, G. Couteaux (MRAC); id., 1 ♂ VII.1936, J. Ghesquière (MRAC); Likele s/Lomela, 1 ♂ 12.VI.1936, J. Ghesquière (MRAC); Flandria, 1 ♀ 1936, R. P. Hulstaert (MRAC); Bokuma, 1 ♀ 1938, Rév. P. Hulstaert (MRAC); Bamania, 2 ♂♂ 2 ♀♀ 22.I.1941, 1936, R. P. Hulstaert (MRAC); Manghay, 2 ♂♂ 27.X.1921, Verlaine (MRAC); Uele, Paulis, 1 ♂ 30.XII.1952, 1 ♀ 6.V.1956, 1 ♀ 31.XII.1957, Dr. M. Fontaine (MRAC); 1 ♂ 20.IX.1955, 1 ♀ 01.II.1956, Dr. M. Fontaine (MRAC); Stanleyville, 1 ♂ 27.X.1913, L. Burgeon (MRAC); id., 1 ♂ VIII.1925, J. Ghesquière (MRAC); Lusambo, 1 ♂ 24.VI.1949, 1 ♂ 29.VII.1949, 1 ♂ 7.I.1950, 1 ♀ 9.IV.1950, 1 ♀ 25.V.1950, 1 ♀ 19.VI.1950, Dr. M. Fontaine (MRAC); Dimbelenge, 1 ♀ 28.X.1950, 1 ♀ 4.XI.1950, 1 ♀ 6.XII.1950, 1 ♀ 10.I.1951, 1 ♀ 16.IV.1951, Dr. M. Fontaine (MRAC); Katako-Kombe, 1 ♀ 18.V.1951, 1 ♂ 18.V.1952, 1 ♀ 30.VI.1952, 1 ♂ 7.VII.1952, 1 ♀ 9.VII.1952, 1 ♂ 26.VII.1952, Dr. M. Fontaine (MRAC); Sankuru: Bena-Tshiadi, 1 ♀ 19.XII.1950, Dr. Fontaine (MRAC); Sankuru: M'Pemba Zeo (Gandajika), 1 ♀ 1960, Don R. Maréchal (MRAC); Manghay, 1 wA 27.X.1921 L. Verlaine (BMNH); Bena-Dibele, 1 ex. 1.XI.1921, L. Verlaine (BMNH); Matadi, 1 ♂ II.[19]32, 1 ♂ VI.[19]31 (MNHN);
Angola: N'Dalla Tando, 2700 ft., 1 ♂ (gen. slide B.M. Arct. 5949), 30.XI.1980, Dr. W. S. Ansorge (BMNH).

Description:
(pl. 15, figs. 5, 6)

Wingspan: ♂♂ 16 – 20 mm, ♀♀: 18 – 22 mm
Forewings white, with orange or red fasciae; black or red basal point, sometimes lacking in male; antemedian and postmedian fasciae nearly parallel, slightly dentate; antemedian fascia at the costa turned basad; postmedian fascia at the discal cell more or less convex and angled; discal spots not approximated, small, black, the outer one sometimes touching the postmedian fascia. Fringes white.
The dentation of the fasciae is slightly variable. Apical spots are sometimes reduced or absent, but sometimes also prominent with supplementary spots below the apex.
Hindwings white.

Genitalia ♂ (fig. 91): Tegumen rather small and long; uncus tapered and rounded; valva broad, cucullus gradually tapered; process far projecting, with a small apical thorn. Aedeagus short, with about 24 to 30 long cornuti in two approximated fields.

Genitalia ♀ (fig. 93): Ostium bursae rather small; ductus bursae slender and gradually widened into the corpus bursae; bursa copulatrix elongated sac-shaped, appendix bursae broad and membranous, sclerotised laterally

above the appendix up to nearly the end of the bursa; opposite the appendix and laterally two fields with many minute thorns. Gland (pl. I, fig. 4) simple, from type "r" (BENDIB & MINET, 1998).

Similar species:
Cyana (*Isine*) *rubristriga* and *C.* (*I.*) *africana* can only be distinguished on the differences in the colour of the fasciae.

Early stages and biology:
unknown.

Distribution and habitats:
from Western Africa (Sierra Leone) to the Congo Basin and North Angola. Eastwards to the foothills of the Mitumba-Mountains (pl. VIII, fig. 3). From the humid savannas (fig. 24) to the rain forests.

Cyana (*Isine*) *rubristriga ugandana* (STRAND, 1912) **comb. nov.**

Zur Kenntnis äthiopischer Lithosiinae.- Archiv f. Naturgeschichte **1912**, A 7: 189, (*Chionaema*) – Lectotype ♂ (ZMB): Uganda.

Material:

Lectotype *Chionaema ugandana* STRAND, 1912 ♂ (herewith designated): "Uganda, Grauer S. V.", "77224", "Chionaema ugandana m. ♂ Strand det.", "Type", "679a", "genitalia slide No. I". In ZMB.
Paralectotype *Chionaema ugandana* STRAND, 1912: 1 ♀ "Uganda, Grauer S. V.", "77224", "Chionaema ugandana m. ♀ Strand det.", "Type", "Chionaema bei rubristriga Holl.", "Gen.-Präp. 1690, präp. KARISCH, 2002". In ZMB.

Dem. Rep. Congo: Lulua: Kapanga, 1 ♂ II.1934, 1 ♀ IV.1934, F. G. OVERLAET (MRAC); Kasenyi, 1 ♀ VIII.1937, H. J. BRÉDO (MRAC); Pinga, 96 km NW Goma, 1 ♂ 19.VIII.1991, T. KARISCH (CKDT); W of L. Albert, 2 ♀♀ IV., (BMNH); Upper Uele district, Dungu, 1 ♀ VII. [without date], (BMNH);
Uganda: Toro, 1 ♀ [without date], (BMNH); Semliki, 1 ♀, Dr. BOYER (MRAC); Budongo, 1 ♀ VIII.1934, T. H. E. JACKSON (BMNH); Mabera Forest, Kyagive, Mulange, 1 ♂ IV.-VIII.[19]19, R. A. DUMMER (BMNH);
Kenya: Kakamega Forest, Byangu village, 1 ♂ 17.VI.2002, 1 ♂ (gen. slide 317/2004, KÜHNE) 22.XII.2001, L. KÜHNE (CKP); id., 2 ♂♂ 5.-8.V.1997, U. DALL'ASTA (MRAC); Hoeysbridge (5 mile radius), 1 wA IV.-V.1930, E. BARNS (BMNH);
Rwanda: Butaré, 2 ♂♂ 1 ♀ (gen. slide 314/2004, KÜHNE) 14.IX.2002, L. KÜHNE (cKP); id., 1 ♂ 10.-16.IV.[19]73, B. TURLIN (MNHN); Rwankwi, ♂ I. 1948, 1 ♂ (gen. slide 2032, KARISCH, 10.VIII.1947, 1 ♂ 11.XI.1947, J. V. LEROY (MRAC), id., 1 ♂ XII.1958, 1 ♀ 10.V.1949, 1 ♀ XI.1947, Mme. J. V. LEROY (MRAC);
Burundi: Usumbura, 1 wA VI.1934, A. Becquet (MRAC); Kitega, 5 ♂♂ (1 ♂ gen. slide 2032, KARISCH) 5 ♀♀ 1 wA 14.II.1962, 16.XI.1962, 6.II.1963, 8.V.1963, 11.VI.1963, 18.V.1964, 08.III.1966, 7.V.1967, 8.V.1967, 9.V.1967, Dr. M. FONTAINE (MRAC);
[state?]: Bambe[r][i]a, 1 ♂ VII.1937, L. VRYDAGH (MRAC); Iluta, 1 ♂ 21.X.1921, VERLAINE (MRAC);

Description:
(pl. 15, figs. 7, 8)

Wingspan ♂♂: 20 – 23 mm, ♀♀ 21 – 27 mm.

Colour and pattern as in *Cyana* (*Isine*) *rubristriga rubristriga*, but moths in general bigger; discal spots and basal point more prominent. To the East and South of its range, increasing numbers of specimens with dark brown marginal spots below the apex in both sexes.
Costa of the underside of the forewings broadly orange in male.

Genitalia ♂ (fig. 92) as in *Cyana* (*Isine*) *rubristriga rubristriga*, cucullus slightly broader and rounded at the end.

Genitalia ♀ (fig. 94) identical with the nominate subspecies. Gland (pl. I, figs. 5, 6) from type "q" (BENDIB & MINET, 1998).

Note:
From the BMNH, a male (wingspan: 20 mm; gen. slide B. M. Arct. 5907) was located from Mt. Kenya, with a reduced number of long cornuti in the aedeagus and a smaller cucullus of the valva. The status of this specimen is still unclear, because no other material from Mt. Kenya was available.

Early stages and biology: unknown.

Distribution and habitats:
Cyana (*Isine*) *rubristriga ugandana* is the subspecies of the mountains in the equatorial region. It is distributed from the mountains east of the Congo Basin up to the mountains of Kenya in the East and Lake Tanganyika in the South (pl. VIII, fig. 3). In Pinga (Kivu) it was found on the edge of a mountain rain forest (fig. 25).

Cyana (*Isine*) *abyssinica* (Karisch, 2003) **stat. nov.**

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera: Arctiidae). – Atalanta **34** (1/2): 177, figs. 11 a, b, pl. XIVc: fig. 7, (*Cyana*) – Holotype ♂ (EMEM): Ethiopia, Akaki River, Addis Ababa.

Material:

Holotype *Cyana ugandana abyssinica* Karisch, 2003 ♂: " Ethiopia, Akaki River, Addis Ababa", "No. 67, 1980.IX.29, leg. Demeter", "Gen.-Präp. 1714, präp. Karisch, 2003". In EMEM (später in ZSM).
Paratype: 1 ♂ with the same data as the holotype. In EMEM.

Ethiopia: Gojam: Bahir-Dar, 1835 m, 1 ♂ (gen. slide 2034, Karisch) 26.I.1980, 1 ♀ 30.I.1980, 1 ♀ (gen. slide 2035, Karisch) 07.XI.1981, 1 ♂ 18.XI.1981, P.-C. Rougeot (MNHN); Kebré-Mengist, 1800 – 2000 [m], 1 ♂ 13.XI.[19]73 (MNHN); Shoa: Ali-Doro, 2400 m, 7 ♂♂ 24.I.1980, P.-C. Rougeot (MNHN); Addis Abeba, 1 ♂ 20.XI.1978, Dr. Angenstein (ZMB); Addis Ababa, 1 wA VI.1948, 1 ♂ 21.III.1948, (BMNH); Addis Ababa, 1 ♂ 7.VII.[19]48, E. M. Guichard (BMNH); Bale Mts., Umg. Dinsho, 3050 – 3100 m, 1 ♂ 14.-23.V1999, Beck & Hiermeier (MWM); Hararge Hirna, Kara Jara, 2180 m, 2 ♂♂ (1 ♂ gen. slide 2219, Karisch) 2 ♀♀ (1 ♀ gen. slide 2220, Karisch) 20.IV.2006, R. Beck & Tamrat (MWM); Harar 6500 ft., 2 ♀♀ 16.III.1937, T. Wikeley (BMNH); Soubdo, Biahi, 1 ♀ 23.XII. [19]26 (MNHN); Gemu-Gofa, Arba-Minch, 1200 – 1400 m, 1 ♂ 5.II.1978, P.-C. Rougeot (MNHN); Wollo-Ataye, 1 ♂ 27.II.1981, P.-C. Rougeot (MNHN).
uncertain: **Ethiopia**: Arva Minch, 1300 m, 1 ♂ (gen. slide 2036, Karisch), 30.-31.XII.[19]78, Dr. Angenstein (ZMB).

Description
(pl. 15, figs. 9, 10)

Wingspan: ♂♂ 21 – 24 mm, ♀♀ 29 mm
Very large species of the subgenus. Pattern as in *Cyana* (*Isine*) *rubristriga*, but head and frons darker orange; patch on the thorax brownish red und legs, including 3rd pair, with bright orange annulation.
Forewing white, with red or chestnut brown pattern; basal and discal spots large, outer discal spot comma-shaped, in ♀ basal discal spot transversely extended in an ellipise. Underside of the forewing broad brown-red from the costa to the middle in ♂ and with an elongated orange patch on the postmedian fascia.
The coloration of the fasciae varies from orange to chestnut brown.

Genitalia ♂ (fig. 95): Similar to those of *Cyana* (*Isine*) *rubristriga*, but with a broader and shorter tegumen and a shorter aedeagus with only about 14 – 18 short but very strong cornuti.

Genitalia ♀ (fig. 97): Bursa copulatrix shorter and smaller and appendix bursae smaller, sclerotization weaker, ostium bursae, ductus bursae and sterigma broader than in the other species. Gland (pl. I, figs. 7, 8) represents type "q" (Bendib & Minet, 1998).

Note:
Dr. Angenstein (Magdeburg) collected a very small ♂ (17 mm) in Arva Minch (Ethiopia), which resembles *Cyana* (*Isine*) *rubristriga* in pattern. The genitalia place it in C. (*I.*) *abyssinica*, although two cornuti are enlarged extremely. The identity of this specimen remains uncertain.

Early stages and biology:
unknown.

Distribution and habitats:
in lower and middle altitudes of the Ethiopian Mountains (pl. VIII, fig. 3).

Cyana (*Isine*) *ignifera* **spec. nov.**

Holotype: ♂ "Namibia, Varianto, Otavi Moutains, 29.-3.III.2003, leg. W. Mey". In ZMB.

Paratypes:
Namibia: 5 ♂♂ with the same data as the holotype (1 ♂ gen. slide 2041, Karisch) (ZMB); Grootfontaine, Otavi, 1 ♂ 16.-19.II.[19]92, W. Mey (ZMB); Gobiswater Fm., 12 mls. N Grootfontaine, 3 ♂♂ (1 ♂ gen. slide B.M. Arct. 5951) 05.IV.1972, (BMNH); Waterberg Camp, 1 ♀ 05.III.2000, J. B. Fisher (BMNH); Abachaus, 1 ♀ IV.[19]44, A. Hebohm (TMP).

Provisionally assigned:
Angola: Quicolungo, 120 km N of Lucala, 800 m, 1 ♀ IV.1936, B. Braun (BMNH); 7 mls W Gabela, 1 ♂ (gen. slide B.M. Arct 5950) 16-18.III.1972, (BMNH);
Zambia: Chiwefwe, 1 ♀ (gen. slide 2151, Karisch) 25.II.1950, N. Milton (TMP);
Zimbabwe: Harare, Christon Bank, 1 ♂ (gen. slide 2150, Karisch) 24.IV.[19]93, N. J. Duke (TMP); Wankie, 1 ♂ (gen. slide 2149, Karisch) XI.1923, (TMP); Lundi, 1 ♀ 13.-16.III.1964, Vári & van Son (TMP);
South Africa: Transvaal: Sericea Farm, 1 ♂ (gen. slide 2043, Karisch) 28.-30.XI.2004, W. Mey (ZMB); Rustenburg, Natuurreservaat, 1 ♂ 06.-08.X.1975, Potgieter & Scoble (TMP); Pretoria N., 1 ♂ IX.1949, G. van Son (TMP);

Silverton, 1 ♂ 28.I.1968, J. H. Potgieter (TMP); Marieskop, Pilgrims Rest, 1 ♂ 23.-26.II.1962, Vári & Leleup (TMP); Lydenburg, Blouhoogte, 28.I.[19]89, N. J. Duke (TMP); Blyde River, Nature Reserve, 1 ♂ 25.-29.X.1976, Scoble & Scholtz (TMP); Nelspruit, De Hoop, 31.I.[19]89, N. J. Duke (TMP); Wonderkloof, 1 ♀ (gen. slide 2153, Karisch), I. 1939, coll. Janse (TMP). Nord-Transvaal, Zoutpansberg, Shilouvane, 1 ♂ 1906, H. A. Junod (BMNH).

Description:
(pl. 15, figs. 11, 12)

Wingspan: ♂♂: 17 – 23 mm, ♀♀ 21 – 27 mm.

Pattern and coloration as in *Cyana* (*Isine*) *rubristriga*, but head and frons reddish to orange; thorax with a distinctive red patch in the middle. Forewing white, fasciae bright red; especially in ♂♂, with one to three dark-brown marginal patches below the apex and a red costa from the base to the antemedian fascia. Forewing underside with a fine red costa, a broad yellow costal field and a brownish suffusion from the postmedian fascia to the apex in ♂ or a fine red costa and a brown patch at the base of the postmedian fascia in ♀. In both sexes marginal field pale brown with lighter venation.

Genitalia ♂ (fig. 96): smaller than in *C.* (*I.*) *rubristriga*, tegumen shorter and broader; aedeagus very short and with only about 18 – 25 delicate, long cornuti.

Genitalia ♀ (fig. 98): as in *C.* (*I.*) *rubristriga*, but corpus bursae more broadly sac-shaped and with more distinct sclerotization in the bursa copulatrix. Gland (pl. I, figs. 9-11) as types "r" or "q"; from the examined specimen from RSA different from those from Angola and Zimbabwe.

Note:
On the southern border of the area (RSA) the species looks externally like *C.* (*I.*) *rubristriga.* The size of the genitalia and the number of the cornuti remain reduced in male sex. The position of these specimens is not to clearify definitly. A female from "Wonderkloof" differs from ♀♀ of *C.* (*I.*) *rubristriga* from Angola, Namibia and Zimbabwe in the shorter and smaller bursa copulatrix, a longer ductus bursae and a more broadly membranous ostium bursae. If it is conspecific with the examined males from that region, it suggests a further separation of this group of species.

Early stages and biology:
unknown.

Distribution and habitats:
In the dryer regions from Angola to Namibia and Zambia to the Northern RSA (pl. VIII, fig. 3). In the Otavi mountains the species occurs in mixed woodland and savannah biotopes, at Sericea Farm in a savannah.

Cyana* (*Isine*) *katanga Karisch & Dall'Asta, 2010 **stat. nov.**

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal Afrotropical Zoology **6**: 118, figs. 9, 15, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Lubumbashi.

Material:

Holotype: *Cyana rubristriga katanga* Karisch & Dall'Asta, 2010 ♂: " Musée du Congo, Elisabethville, 1-IV-1933, Ch. Seydel". In MRAC.

Paratypes: Dem. Rep. Congo: Elisabethville (= Lubumbashi), 1 ♂ 18.IV.1933, 1 ♂ 20.IV.1934, 1 ♂ 14.X.1936, 1 ♂ XII.1936, 1 ♂ (gen. slide 2037, Karisch) 08.V.1937, 1 ♂ 5.XII.1937, 1 ♂ 24.I.1938, 1 ♂ III.1938, Ch. Seydel (MRAC); id., 1 ♂ V.1930, Dr. Seydel (TMP); id., Bd. Lumumba, 1 wA 8.-9.VI.1968, A. B. Stam (MRAC); Katanga, Kolwezi, 1 ♂ X-1962, V. Allard (MRAC); Katanga: Mwaba, 1 ♂ 3.X.1924, Ch. Seydel (MRAC).

Description:
(pl. 15, fig. 13)

Wingspan: ♂♂: 16 – 20 mm.

Coloration and pattern as in *Cyana* (*Isine*) *rubristriga*, but in general larger. Head, frons and palpi orange; thorax with a distinctive red median patch; legs with smaller annulations. Forewings white with broad red fasciae; basal and discal spots larger; three or four triangular dark-brown marginal spots below the apex.
Genitalia ♂ (fig. 99): similar to those of *C.* (*I.*) *rubristriga*, tegumen bell-shaped, uncus near the apex broader; aedeagus in comparison bigger, with more than 35 longer cornuti.

Female unknown.

Early stages and biology: unknown.

Distribution and habitats:
In the Katanga Province (pl. VIII, fig. 3), probably in savannah areas (Karisch & Dall'Asta, 2009).

Cyana (*Isine*) *pallida* spec. nov.

Holotype ♂: "Obervolta, Bobo Dioulasso, 15.11.82, leg. Dr. Politzar", "*Cyana* (*Isine*) *pallida* Karisch, des. T. Karisch, 2009". In ZSM.

Paratypes: Burkina Faso: Bobo Dioulasso, 1 ♂ 22.IX.[19]82, 4 ♂♂ [2 ♂♂ wA] 15.XI.1982, 1 ♂ [wA] 14.XII.[19]74, 1 ♀ [wA] 9.IX.[19]77, Dr. Politzar (ZSM).

Description:
(pl. 15, figs. 14, 15)

Wingspan: ♂♂: 14 – 18 mm, ♀ 20 mm.
Forewings yellowish white, with brown fasciae; black basal point; antemedian and postmedian fasciae widely separated; antemedian fascia turned to the anal angle just before the inner margin; postmedian fascia angled on M_3; at least in ♂ two dark-brown spots on the outer margin below the apex; discal spots not approximated, small, black, between the fasciae, only occasionally touching; fringes yellowish white.
Forewing underside with a pale costa and a broad dark-brown costal field; marginal field brownish with light venation. In ♀ much paler.
Hindwing ochreous white, slightly darker in the apex.

Genitalia ♂ (fig. 101): Tegumen rather long, dorsally broadened; uncus pointed, with elongated tip; saccus broad; valva broad, cucullus small, rounded; process flat, far projecting, with a stout thorn at the tip; fold well developed, triangular near costa. Aedeagus short, without cornuti.

Genitalia ♀: unknown. The only known female has lost the abdomen.

Similar species:
Similar to *Cyana* (*Isine*) *africana*, but easily to distinguish by the yellowish white ground colour of the wings, the more approximated fasciae of the forewings and the antemedian fascia angled near the inner margin.
The ♂-genitalia differ from all other species of the subgenus in the absence of cornuti in the vesica.

Early stages and biology: unknown.

Distribution and habitats:
Only known from the locus typicus in the Western Burkina Faso (pl. VIII, fig. 4).

Subgenus: *Frankmuelleria* **subgen. nov.**

Description:
Head: proboscis well developed; palpi about 1½ diameter of eye; eyes uniformly brown; antennae with bristles and cilia in two rows, scaled on the upper side, cilia about 1½ diameter of the shaft.
Thorax white with orange, particularly greyish dusted patches on scapulae and tergites. 1st and 2nd pair of legs yellow-orange, orange or brownish-orange, with white annulation; 3rd pair of legs white with only pale orange or yellowish tarsi.

Wings:
Venation (male, fig. 26)
Forewing: Sc and R_1 well separated, R_{2-4} short stalked, R_3 and R_4 divided just before the apex; M_2 turned to M_1 and M_1/M_2 long stalked; M_3 and CuA_1 clearly free; CuA_2 from behind the middle of the cell. Lobus absent.
Hindwing: Rs and M_1 shortly stalked, M_2 obsolescent, M_3 and CuA_1 long stalked and divided just before margin, CuA_2 from about the half of the cell.
Venation (female, fig. 27)
Forewing: Only R_3 and R_4 stalked; $M_{1, 2, 3}$ and CuA_1 free, M_1 curved from just below R_3/R_4; CuA_2 from behind the middle of the cell.
Hindwing: Rs and M_1 rather long stalked; M_3/CuA_1 divided just before the end; CuA_2 from about the half of the cell.
Pattern and colour: Fasciae of the forewings very strongly dentate, orange, particularly greyish dusted or accompanied by a greyish-black line; marginal fascia well developed, orange; discal spots black, round, not approximated, the basal one in particular very small or obsolescent. Hindwings without any pattern, pink to orange, paler in the basal area. Fringes white.

Sexual dimorphism insignificant.

Genitalia ♂: Uncus broad and truncated; valva divided distally, cucullus rather small, process stout, with a simple thorn; fold distinctively triangular and with a large membranous extension to sacculus, arising from ¼ of the costa (which is very arched there) and with a membranous cone; juxta only slightly sclerotized. Aedeagus short, with lateral sclerotization on the apex, which is set with one or more reflexed thorns; fields with minute thorns in the vesica.

Genitalia ♀: Papillae anales large; lamella postvaginalis slightly sclerotized; ductus bursae anteriorly strongly sclerotized and thorn-rich, posterior part more or less membranous; bursa copulatrix reduced and sclerotized, with fields of thorns; ductus of the appendix bursae partially sclerotized; appendix bursae large and membranous.

Distribution: East Africa.

Etymology: Named after Dr. Frank Müller, Dresden, who accompied the author during several trips in Africa and provided the investigations with information on the botany.

Type species: *Frankmuelleria arenbergeri* Karisch, 2003

Key to the species

1 All fasciae of the forewing simple, orange …… *Cyana* (*Frankmuelleria*) *arenbergeri*
1* Antemedian and postmedian fasciae of the forewing orange-brown with an additional greyish line ……..... *Cyana* (*Frankmuelleria*) *aarviki* spec. nov.

Cyana (*Frankmuelleria*) *arenbergeri* Karisch, 2003

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera, Arctiidae). – Atalanta **34** (1/2): 144 f., fig. 2, pl. XIVc, fig. 1, (*Cyana*). – Holotype ♂ (EMEM): Tanzania: Mt. Meru, Usa-Forest.

Material:

Holotype *Cyana arenbergeri* Karisch, 2003 ♂: "30.VI.1988, Tanzania, Mt. Meru, Usa-forest (Primärwald)", "Lichtfang 20/88, 160 W Mischlicht", "leg. Arenberger", "Tanzania Expedition 1988, M. u. E. Arenberger, E. M. u. M. Lödl", "Gen.-Präp. 1709, präp. Karisch, 2003", "*Cyana arenbergeri* spec. nov., HOLOTYPUS ♂, des. Karisch, 2003". In EMEM.

Tanzania: Muheza District, Amani, 900-950 m, 1 ♂ (gen. slide 2333, Karisch) 1 ♀ (gen. slide 2334, Karisch) 12.XII.1992, L. Aarvik (CAA).

Description:

(pl. 15, figs. 16, 17)

Wingspan: ♂: 17 – 21 mm, ♀ 18 mm.

Antennae honey-coloured, orange and white scaled, basal segments annulated.

Forewing white, fasciae orange-brown; basal fascia dentate from costa to dorsum, not quite reaching inner margin; antemedian fascia rather broad, dentate and formed into two semicircles; postmedian fascia dentate, angulated to the margin at M_3 and continued obliquely to the anal angle; marginal fascia orange, well developed from apex to tornus, consisting of triangular and crescent-shaped patches; discal spots black, round, not approximated, the basal one very small. Fringes white, at the apex yellowish.
Forewing (underside) white, pink dusted; costal field in ♂ broad yellow between antemedian fascia and apex. Hindwing pale pink to orange, marginal field darker; without any pattern.

Genitalia ♂ (fig. 100): Tegumen rather broad and short; uncus broad, truncated; valva rather broad, distally very small and rather far projecting; fold distinctively triangular; sacculus broad, process with a simple, long, thorny tip; saccus broad. Aedeagus broad, short, with two fields of long spines and a reflexed thorn at the lateral sclerotization of the vesica.

Genitalia ♀ (fig. 102): Papillae anales large; lamella postvaginalis slightly sclerotized; ductus bursae with exception of a small field around the ostium bursae very strongly sclerotized and thorn-rich, to the ostium with two bag-shaped excavations laterally; bursa copulatrix reduced and sclerotized, with two smaller fields of thorns and with a signum with strong thorns; ductus of appendix bursae partially sclerotized; appendix bursae large, spherical and membranous.

Similar species:
Distinguished from *Cyana* (*Frankmuelleria*) *aarviki* spec. nov. by the simple orange fasciae, the smaller discal spots and the more orange-coloured hindwings.
In ♂ genitalia only one reflexed thorn at the lateral sclerotization in the aedeagus and a longer uncus.

Early stages and biology:
Unknown.

Distribution and habitats:
Mountains and their foothills in Northern Tanzania (pl. VIII, fig. 5).

Cyana (*Frankmuelleria*) *aarviki* spec. nov.

Holotypus ♂: "Malawi Central Region, Lilongwe District: Ntchisi Forest Reserve, 1560 m 18.ii.2004, leg. L. Aarvik", "Gen.-Präp. 2335, präp. Karisch, 2007". In CAA.
Paratypus: Malawi: 1 ♂, 1 ♀ with the same data as the holotype (CAA).

Distribution and habitats:
Central Malawi (pl. VIII, fig. 5).

Description:
(pl. 15, figs. 18, 19)

Wingspan: ♂♂: 20 – 21 mm.

Antennae honey-coloured, basally paler.

Forewing white, fasciae orange-brown; antemedian and postmedian fasciae with an additional grey line; basal fascia dentate from costa to just before dorsum; antemedian fascia rather broad and forming two semicircles; postmedian fascia dentate, at M_3 angled and continued obliquely into the anal angle; marginal fascia orange, clearly visible from apex to tornus, consisting of triangular spots; distinct black discal spots, round, distant from each other, nearly of the same size. Fringes white, at the apex yellowish.
Forewing (underside) white, pink dusted; costal field small, yellow between antemedian fascia and apex.
Hindwing without pattern, upper- and underside pale pink, slightly paler towards base.

Genitalia ♂ (fig. 117): Tegumen rather broad, short; uncus short, broad and truncated; tip of valva very small; fold distinct, triangular; sacculus broad, process with a simple elongated tip; saccus very broad. Aedeagus broad, short, with two fields of long spines and two reflexed thorns at the ventral sclerotization of the vesica.

Genitalia ♀ (fig. 149): Papillae anales large; lamella postvaginalis broad, but longitudinally not very expanded; ductus bursae in places more strongly sclerotized, with fields of strong thorns; bursa copulatrix reduced, strongly sclerotized, with two strips of longer, strong thorns; appendix bursae long, sac-shaped, membranous.

Similar species:
See *Cyana* (*Frankmuelleria*) *arenbergeri.*

Early stages and biology:
Unknown.

Subgenus: *Oblocutora* **subgen. nov.**

Description:
Head: Proboscis fully developed; palpi nearly as long as diameter of eye; eyes brownish. Antennae with bristles and cilia in two rows, scaled on the upper side, cilia about 1½ diameter of shaft.

Thorax white with red patches on every tergite and on scapulae. 1st and 2nd pair of legs orange to reddish-orange, white annulated; 3rd pair white with orange tarsi. Abdomen white or yellowish white.

Wings:
Venation (male, fig. 28)
Forewing: Sc and R_1 anastomosed at costa; R_3 and R_4 long stalked; M_{1-3} and CuA_1 free; CuA_2 from about the middle of the cell. Lobus reduced to an irregular scaled and slightly curled patch, but largely extended with hair-like scales from costa to the wing between lobus and apex and extended to R_4.
Hindwing: Rs and M_1 short stalked; M_2 tubular; M_3 and CuA_1 long stalked; CuA_2 arising from about the half of the cell.

Venation (female, fig. 29)
Forewing: Sc and R_1 approximated but free; R_3 and R_4 stalked; M_{1-3} and CuA_1 free; CuA_2 from about the half of the cell.
Hindwing: Rs und M_1 short stalked and spreaded at the margin; M_2 obsolescent to the cell; M_3 and CuA_1 long stalked; CuA_2 from about $^2/3$ of the cell.
Pattern and colour: Forewing white or yellowish white with distinct red and less dentate transverse fascia; marginal spots absent or red and limited to only few ones at the apex; distinct black discal spots, round, not approximated.
Hindwing without any pattern, white.

Sexual dimorphism insignificant.

Genitalia ♂: Uncus long, narrowed and pointed; valva divided on the end, end of the valva quite broad and rather far projected; process strong, with a robust thorn at the tip; fold well developed, but flat and with a small membranous process to the sacculus; fultura slightly sclerotized. Aedeagus short, with lateral sclerotization having a strong thorn which extends nearly right-angled; vesica with a long lateral lamellar sclerotization and a bundle of cornuti.

Genitalia ♀: Papillae anales comparatively small; VII. sternite enlarged and like a curtain; ostium bursae membranous and significantly enlarged; ductus bursae and caudal part of the bursa copulatrix with a broad sclerite which is forked to the ostium and continued in the corpus bursae into a lamellar sclerite with long thorns; corpus bursae with a large thorny signum; appendix bursae very small, membranous.

Distribution: Mountain massifs to the West of the East African Rift Valley.

Etymology: oblocutor = contradictioner (because of the presence of unique characters like tubular M_2 in hindwing and absence of a lobus apparently, contrary to *Cyana* s. l.)

Type species: *Cyana* (*Oblocutora*) *ruwenzoriana* Karisch, 2003

Key to the species

1 ♂-genitalia with a long and broad lateral sclerotization in vesica, in ♀ with two scissor-like tips of a sclerite in the ductus bursae ……..... *Cyana* (*Oblocutora*) *ruwenzoriana*
1* ♂-genitalia with a long, but slender lateral sclerotization in vesica, in ♀ without such prolongations of a sclerite in the ductus bursae …..... *Cyana* (*Oblocutora*) *hecqi*

Cyana (*Oblocutora*) *ruwenzoriana* (Karisch, 2003)

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera, Arctiidae). – Atalanta **34** (1/2): 150, fig. 8, pl. XIVc, fig. 4, (*Cyana*). – Holotype ♂ (ZSM): Ruwenzori.

Material:

Holotype *Cyana ruwenzoriana* Karisch, 2003 ♂: "Africa or., Mt. Ruwenzori, ob[ere] Waldzone, 17.I.[19]61, leg. H. Löffler", "Holotypus ♂, *Cyana ruwenzoriana* Karisch, Karisch, 2003". In ZSM.
Paratypes: 3 ♂♂ with same data as the holotype, among them 1 ♂ gen. slide 1644 (Karisch) in MNVD, all others in ZSM.

Uganda: Ruwenzori Range, Nyinabitaba, 8650 ft., 2 ♂♂ 3 ♀♀ (1 ♀ gen. slide B.M. Arct. 5944) 7.-13.VII.1952, D. S. Fletcher (BMNH) [recorded as *Ch. delicata pretoriae* in Kiriakoff, 1958]; Ruwenzori Range, Mahoma River, 6700 ft., 1 ♂ 13.-16.VII.1952, D. S. Fletcher (BMNH); Ruwenzori Range, Namwamba Valley, 6250 ft., 1 ♀ XII.1934-i.1935, F. W. Edwards (BMNH).

Description:
(pl. 15, figs. 20, 21)

Wingspan: ♂♂: 27 – 32 mm, ♀♀: 33 – 34 mm.
Forewing quite broad, cream-white with vermilion fasciae; basal fascia only from costa to middle of the wing; antemedian fascia quite straight and nearly right-angled to the costa; postmedian fascia rather broad, narrowed at cell, from there to dorsum slightly convex; one to three red triangular spots at the margin below apex; discal spots black, quite large and not approximated; costa between base and antemedian fascia red; fringes cream -white.
Forewing (underside) in ♂ with a broad orange-red costal field between base and antemedian fascia, an orange-red patch at the postmedian fascia; lobus small, oval, orange-red dusted.

Hindwing without any pattern, cream-white, including fringes.

Genitalia ♂ (fig. 103): Tegumen quite broad and long; uncus long, lance-shaped tapered; valva broad, cucullus long, margins nearly parallel and rounded distally; fold distinct; sacculus broad and distally strongly sclerotized, with a process with a large thorn; vinculum broad, saccus small. Aedeagus not especially long, broad, with a distinct lateral sclerotization, at tip with an outwardly directed thorn; furthermore a broad and long lateral thorn-like sclerotization and three aggregated small spines in the vesica.

Genitalia ♀ (fig. 105): Papillae anales large; apophyses posteriores long and slender; lamella postvaginalis broad and small; VII. sternite large and membranous around the ostium bursae; ductus bursae rather long, extending into a long and narrow bursa copulatrix with two small appendices; caudal part of the bursa copulatrix with a sclerite, which is divided in two long tips in the ductus bursae and covered with small thorns and minute teeth and an elongated field with irregular stout thorns; signum with small but not approximated teeth. Gland (pl. I, fig. 13) as type "o" (Bendib & Minet, 1998).

Similar species:
Cyana (*Oblocutora*) *ruwenzoriana* is larger than *C*. (*O.*) *hecqi*, with a long and broad lateral sclerotization in the vesica (♂) and a large sclerite with two long, scissor-like tips in the ductus bursae (♀).

Early stages and biology: unknown.

Distribution and habitats:
Ruwenzori (pl. VIII, fig. 6). In montane rain forests (Fletcher, 1958). Kiriakoff (1958) listed the specimens from Nyinabitaba as *Ch. delicata pretoriae*.

Cyana (*Oblocutora*) *hecqi* Karisch & Dall'Asta, 2009

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal Afrotropical Zoology **6**: 118f., figs. 4, 6, 16, 18, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Nyamunyunye.

Material:

Holotype: *Cyana hecqi* Karisch & Dall'Asta, 2009 ♂: "coll. Mus. Congo, Kivu: Nyamunyunye (Mulungu), 7-I.1956, J. Hecq", "Gen.-Präp. 2006, präp. Karisch, 2006", "Holotypus ♂ *Cyana hecqi* spec. nov., des. Karisch & Dall'Asta, 2009". In MRAC.
Paratype: ♀ (Gen.-Präp. 2002, Karisch): same locality as Holotypus, 9-I.1956, J. Hecq. In MRAC.

Supplementary Material:

Rwanda: Wincka, 2500 m, 1 ♂ (gen. slide 1815, Karisch) 16.IV.[19]77, 1 ♀ (gen. slide 2013, Karisch) 18.V.[19]74, B. Turlin (ZSM).

Description:
(pl. 15, figs. 22, 23)

Wingspan: ♂♂: 24 – 27 mm, ♀♀: 26 – 30 mm

Forewings white with red fasciae; antemedian fascia in ♂ broader than postmedian fascia; antemedian and postmedian fasciae broadened at costa; postmedian fascia first parallel to antemedian fascia, then slightly convex; costa between base and antemedian fascia red; one or two red marginal spots below the apex; discal spots black, round, not approximated, the outer one touching the postmedian fascia only in ♂; fringes white. Forewing (underside) with a broad orange-brown costal field between base and antemedian fascia in ♂ and only a few orange scales in ♀; lobus very small, as an oval depression, yellowish orange.
Hindwing without pattern in ♂ from Rwanda with some orange scales at end of discal cell on upperside and some brown scales in same place on underside.

Genitalia ♂ (fig. 104): Tegumen rather broad, short; uncus very small, long, lance-shaped and relatively pointed; valva broad, cucullus long, parallel, rounded at tip; fold quite strong; sacculus broad, strongly sclerotized, process projecting to tip of cucullus, ventrally tapered to a long thorny tip and dorsally with short fold. Aedeagus stout with a broad and strong cornutus in upper half of shaft laterally; a long and small lateral sclerotization of vesica and a group of about five long and slender spines and some other stout spines in vesica.

Genitalia ♀ (fig. 106): Papillae anales large; apophyes posteriores long, slender; VII. sternite extended, membranous around ostium bursae; ductus bursae rather short; bursa copulatix small; ductus bursae and basal part of bursa copulatrix with ductus bursae and bursa copulatrix enlarged, thorny in the proximal half and caudally very strongly sclerotized; corpus bursae weak sclerotized laterally, with a sclerite with many long and fine throns. Gland (pl. I, fig. 14) as type "o" (Bendib & Minet, 1998).

Note:
The fasciae of the ♂ from Rwanda are broader, and those of the ♀ from Rwanda are deeper red. Furthermore the ♂ from Rwanda has in the costal part of the cell a paler brown squamation on the underside of the forewing. The sclerite in ductus and bursae is more strongly sclerotized but less thorny in ♀-genitalia. Too few specimens are available from this locality to be sure whether they come within the range of variability of the nominate form or whether they represent a different subspecies.

Similar species:
See *C*. (*O*.) *ruwenzoriana*.

Early stages and biology:
unknown.

Distribution and habitats:
Mountain areas around Lake Kivu (pl. VIII, fig. 6). In Wincka collected on a top in a mountain rain forest (Turlin, i. l. 2010).

Subgenus: *Australisine* subgen. nov.

Description:
Head: Proboscis fully developed; palpi just 1½ diameter of eye; eyes greyish-brown, with black patches; antenna with bristles and cilia in two rows, scaled on upper side, cilia about 1½ diameter of shaft.
Thorax whitish, grey or yellowish dusted. 1st and 2nd pair of legs greyish-brown, with some white spots or annulation; 3rd pair whitish, spurs and tarsi greyish-brown. Abdomen white with a slightly yellowish tip.

Wings:
Venation (male, fig. 30):
Forewing: R_2 reduced; R_3 and R_4 shortly stalked; M_{1-3} and CuA_1 free; CuA_2 from about ¾ of cell. Lobus just an ill-defined depression.
Hindwing: Rs and M_1 very shortly stalked; M_2 tubular; M_3 and CuA_1 arising from same point at anal angle of cell; CuA_2 from near middle of cell.
Venation (female, fig. 31):
Forewing: R_3 and R_4 stalked, together with M_1 from upper angle of cell; CuA_2 from about 2/3 of cell.
Hindwing: Rs and M1 as well as M_3 and CuA_1 very shortly stalked; M_2 weak; CuA_2 from about 2/3 of cell.

Pattern and colour: Forewings broad and rounded; white with brown pattern. Fasciae between costa and discal cell very broad, continued then only as rows of spots to dorsum; marginal spots absent or ill-defined as greyish-brown apical patches; marginal field sometimes greyish dusted; discal spots black, round to oval, not approximated. Hindwing without any pattern, white.

Sexual dimorphism insignificant.

Genitalia ♂: Uncus small and pointed; valva small, divided distally, cucullus quite broad and only shortly projecting; process rather strong, long and with an apical thorn; fold well developed but flat and with a small membranous projection to the sacculus, strongly angled at costa. Aedeagus short, without distinctive sclerotizations on shaft, vesica with sclerotized plate and two bundles of strong cornuti.

Genitalia ♀: Papillae anales rather large; apophyses anteriores slightly shortened; ductus bursae rather small, broadened towards ostium bursae, membranous and folded longitudinally; corpus bursae ovoid; ductus of appendix bursae arising from upper half of corpus bursae, sclerotized and folded longitudinally, together with the membranous corpus of appendix bursae in the shape of a sock or boot.

Distribution: South Africa.

Etymology: australis = southern.

Type species: *Cyana* (*Australisine*) *marshalli* (Hampson, 1900)

Key to the species

1 ground colour white, greyish-brown squamation in the marginal area of forewing, no delicate pink line in antemedian fascia …….....*Cyana* (*Australisine*) *marshalli*
1* ground colour shiny white, no greyish-brown squamation in the marginal area of the forewing,

but with a delicate pink line in antemedian fascia ……*Cyana* (*Australisine*) *rhodostriata*

Cyana (*Australisine*) *marshalli* (Hampson, 1900) **comb. nov.**

Catalogue of the Lepidoptera Pahlaenae in the British Museum II (Arctiadae: Nolinae, Lithosianae): 325f., plate XXVII, fig. 26, (*Chionaema*) – [Holo]type ♂ (BMNH): South Africa: Natal, Malvern.

Material:

Holotype: *Chionaema marshalli* Hampson, 1900 ♂: "Malvern, Natal, 24.9.97, G. A. K. Marshall, 98-62", "Type", "*Cyana marshalli*, type ♂, Hmpsn". In BMNH.

South Africa: Transvaal: Bronkhorstspruit Distr., Renosterpoort, 1 ♀ 17.II.1975, Potgieter & Scoble (TMP); Louis Trichard, Soutpansberg, 1 ♀ 19.II.1960, R. F. Lawrence (TMP); Tshakoma, XI.1931, G. van Son (TMP); Woodbush, 1 ♀ XII.1924, G. v. Dam (TMP); Satara, K.N.P., 1 ♀ [wA] 29.IV.1960, F. Neubecker (TMP); Lydenburg Dist., 1 ♂ 2 §§ IV.1921, Blackmore (TMP); Mahubas Kl[oo]f, 1050 m, 1 ♂ 16.I.[19]25, A. J. T. Janse (TMP); Pilgrims Rest, Skea, 1 ♀ 16.III.[19]20, A. J. T. Janse (TMP); Duiwelskloof, 1 ♂ 14.-17.XI.1971, (TMP); Blyde River, 1 ♂ 10.XI.1925, G. van Dam (TMP); id., 1 ♀ 25.-29.X.1976, Scoble & Scholtz (TMP); Pilgrimsrus, 1 ♀ 10.-11.III.1967, Potgieter & Goode (TMP); Marieskop, 1 ♀ (gen. slide 2147, Karisch) 15.-24.III.1965, Potgieter & v. Son (TMP); Ofcolaco, Cyprus Farm, 1 ♂ 24.-28.IX.1961, L. Vári (TMP); Ofcolaco, Malta Forest, 1 ♀ 19.IX.1960, van Son & Vári (TMP); Wyllie's Poort, 1 ♂ 24.-26.I.1988, N. J. Duke (TMP); Politsi, Westfalia Ests., 1 ♀ 14.-28.II.1968, H. Geertsema (TMP); Waterval onder, 1 ♂ 24.XI.1910, A. J. T. Janse (TMP); Elandshoek, 1 ♂ (gen. slide 2146, Karisch) XI.1947, A. Capener (TMP); Barberton, 1 ♂ (without date), P. Rendall (BMNH); id., 1 ♀ 3.I.1911, A. J. T. Janse (TMP); White River, 1 ♂ II.1919, A. T. Cooke (BMNH); Natal: 1 [wA], (BMNH); Ingwavuma, Gwaliweni, 1 ex 7.-14. IV.1961, D. W. Rorke (TMP); Oakford Priory Nat., 1 ♂ 15.XI.1955, C. G. C. Dickson (TMP); Pietermaritzburg, 1 ♂ (gen.slide B.M. 5969) VIII.[18]99, P. Richards (BMNH); Malta, Ptbg., 1 ♀ 1.II.1927, G. v. Son (TMP); Durban, 1 ♀ 23.IX.1954, C. Dickson (ZSM); id., 1 ♀ 10.XII.1954, C. G. C. Dickson (TMP); Dududu, 1 ♀ 23.IX.1975, I. Bam[p]ton (TMP); Ladysmith N. P., 1 ♀ 11.XII.1930, A. J. T. Janse (TMP); Umkomaas, 1 ♂ 24.I.1914, A. J. T. Janse (TMP); Pondoland, Port St. John, 1 ♂ 1.-17.III.1924, 3 ♀♀ XII.1923, 2 ♂♂ 1 ♀ IX.1923, 2 ♀♀ X.1923, 1 ♀ 1.-15.IV.1924; E. E. Turner (BMNH); Estcourt, 1 ♂ [without date], J. M. Hutchinson (BMNH); Eastern Cape: Transkei, 1 ♂ 1 ♀ [without date], Mrs. Barrett (BMNH); Port St. Johns, 1 ♀ 20.I.1953, C. G. C. Dickson (TMP); Belvedere, 1 ♂ V.1921, Dr. H. G. Breijer (TMP); Hogsback, 1 ♂ 10.-11.XII.1956, v. Son & Martin (TMP).

Swaziland: Nsoko, Ndzevane Area, 1 ♂ 23.I.2007, J. Rudloff (CKDT).

Description:
(pl. 15, figs. 24, 25)

Wingspan: ♂♂: 21 – 30 mm, ♀♀: 22 – 31 mm.

Forewing white, fasciae blackish-brown; basal fascia only as a costal patch; small black basal point; antemedian fascia from costa to the middle of cell broad and straight, then nearly right-angled inwards and once more slightly angled to dorsum, between cell and dorsum very fine and partly interrupted; postmedian fascia curved from costa to dorsum; no marginal fascia, but marginal area more or less greyish-brown dusted; discal spots small, not approximated, in ♂ more brownish, in ♀ blackish. Fringes white.
Forewing (underside) in ♂ extended brownish-grey dusted, venation, marginal area and costa from antemedian fascia pale; lobus invisible, only some erected scales.
Hindwing without pattern white.

Genitalia ♂ (fig. 107): Tegumen rather long and slender; uncus bulbous at the base, long tapered at the tip; valva quite small, cucullus nearly triangular and rounded at the end; sacculus broad, with a long process, tapered gradually and with a thorny tip, reaching nearly the end of the cucullus; saccus median domed; juxta very broad, consists of two trapezoid wings. Aedeagus stout, vesica with sclerotized small plate, a field with minute teeth and two widely separated bundles of cornuti.

Genitalia ♀ (fig. 109): Papillae anales large; apophyses comparatively long and slender; ostium bursae broad; ductus bursae rather long, small and folded; corpus bursae ovoid to sac-shaped, with a broad and strong sclerotized and folded ductus of appendix bursae, which is broader than corpus of appendix bursae. Gland (pl. I, figs. 15, 16) derived from "r"-type (Bendib & Minet, 1998) with undulated caudal margin and secondary lobes. Sometimes the postmedian fascia is broken into spots at the veins and antemedian fascia is obsolescent. There is also some variation in the amount of greyish-brown squamation in the marginal area and in the brown squamation on underside of forewing.

Similar species:
Cyana (*Australisine*) *marshalli* is very similar to *C.* (*A.*) *rhodostriata*. For the differences see under that species.

Note:
In the BMNH there are three specimens in which both forewings and hindwings are grey. It is uncertain whether these are variations or artefacts.

Early stages and biology:
unknown.

Distribution and habitats:
Eastern and South-Eastern South Africa (pl. IX, fig. 1) from the subtropical rain forests along the coast to the bushland of the mountains of Natal and Transvaal (fig. 32). Flight period mainly between October and May.

Cyana (*Australisine*) *rhodostriata* (Hampson, 1914) **comb. nov.**

Catalogue Lepidoptera Phalaenae in the Collection of the British Museum, Suppl. **1**: 634, pl. 33, fig. 31, (*Chionaema*). – [Holo]type ♂ [wA] (BMNH): South Africa: Natal: Maritzburg.

Material:

Holotype: *Chionaema rhodostriata* Hampson, 1914 ♂: "Natal Mus., Maritzburg". Im BMNH.

South Africa: Natal: Balgowan, 1 ♀ (gen. slide 2165, Karisch) 1.III.1950, K. Pennington (TMP); Balgowan, Yellowwoods, 1 ex 18.-28.II.1960, G. van Son (TMP); Mont-aux-Sources, Natal Nat. Park, 1 ♂ 1.II.1955, F. Pardoe (TMP); Umkomaas, 1 ♂ (gen. slide 2163, Karisch) 1.I.1914, A. J. T. Janse (TMP); Umzinto, 1 ♀ (gen. slide 2167, Karisch), Janse (TMP); Umdoni Park, 1 ♂ 30.IV.-2.V.1982, Scoble & Lawrenson (TMP). Eastern Cape: Baziya Forest, 1 ♀ 8.-9.XII.1981, D. H. Jacobs (TMP); Umtata, 1 ♂ 17.X.1988, N. J. Duke (TMP); The Haven, 1 ♂ 26.XII.1981, N. J. Duke (TMP).

Description:
(pl. 15, figs. 26, 27)

Wingspan: ♂♂: 23 – 32 mm, ♀♀: 29 – 33 mm

Forewing shiny white, fasciae blackish or blackish-brown; basal fascia just a single costal dot; small black basal point below; antemedian fascia broad and dentate from costa to dorsal vein of cell, and at costal vein of cell, especially in ♂, with a very delicate pink transverse line; antemedian fascia angled below discal cell and extending to dorsum at an acute angle; postmedian fascia between costa and discal cell broad, than fine and often broken into spots on the veins, forming a large curve to dorsum; sometimes a few brown triangular apical spots; discal spots black, not approximated, the outer one more oval, in ♀ somewhat quadrate; marginal area not greyish dusted. Fringes white.
Forewings (underside) shiny white, costa between base and antemedian fascia and at postmedian fascia brown-red to blackish-brown; cell often with subtle brown suffusion, sometimes extended to other parts of the wing. Hindwing without any pattern, shiny white.

Genitalia ♂ (fig. 108): Tegumen slender and long; uncus pointed; valva quite small, cucullus rather broad and irregularly rounded; sacculus rather broad and tapered in a long process with a tip; sacculus quite broad. Aedeagus stout, laterally on the shaft with delicate, scale-like thorns, a sclerotized plate, a field with minute teeth and two well separated bundles of spines on vesica.

Genitalia ♀ (fig. 110): Papillae anales large; apophyses quite long and slender; ostium bursae broad; ductus bursae rather long, small, folded and rippled; appendix bursae small, sac-shaped, with a very broad ductus, forming together a boot-shaped structure. Gland (pl. I, fig. 17) from "s"-type (Bendib & Minet, 1998) with a few secondary lobes.

Cyana (*Australisine*) *rhodostriata* is not very variable. Specimens with a slight greyish suffusion between postmedian fascia and apex are rare. Antemedian and postmedian fasciae are commonly interrupted, but exceptions occur.

Similar species:
Cyana (*Australisine*) *rhodostriata* and *C.* (*A.*) *marshalli* are very similar. Specimens with a typical pattern are more easily distinguished externally. Attention should be paid to the shiny white ground colour, the lack of greyish-brown squamation in the marginal area, a more distinct black pattern and the delicate pink transverse line in the antemedian fascia in *C.* (*A.*) *rhodostriata.*

The ♂-genitalia are very similar. The uncus of *C.* (*A.*) *rhodostriata* is not enlarged in the basal part and the end of the process of the sacculus is commonly shorter than in *C.* (*A.*) *marshalli*.
The ductus of the appendix bursae in *C.* (*A.*) *rhodostriata* is distinctively broader than in *C.* (*A.*) *marshalli*.

Hence, the structure formed by bursa copulatrix and appendix bursae in *C*. (*A*.) *rhodostriata* is more like a boot, but in *C*. (*A*.) *marshalli* it resembles a sock.

Early stages and biology:
unknown.

Distribution and habitats:
Cyana (*Australisine*) *rhodostriata* is only known to occur between the Eastern Cape Province and southern Natal (pl. IX, fig. 2), but reaches higher altitudes in the mountains than *C. marshalli*. Subtropical woodland along the coast to mist belt forests in the mountains (Janse 1933–1935, Mucina & Rutherford, 2006).

Subgenus: ***Clerckia*** Aurivillius, 1882

Recensio critica Lepidopterorum Musei Ludovicae Ulricae quae descripsit Carolus A Linné. – Kungliga Svenska Vetenskapsakademiens Handlingar. Stockholm (Nov. Ser.) **19** (5): 157, 158
= *Gnophrioides* Heylaerts, 1891
Heterocera Exotica, nouveaux genre et espèces des Indes orientales neerlandaises (suite). – Annales de la Société entomologique de Belgique (Bulletin) **35**: CCCCXIIf.
Type species: *Gnophrioides flaviplaga* Heylaerts, 1891. L. t.: Java: Préanger.

Description:
Head: Proboscis well developed; palpi about as long as diameter of eye; eyes greyish-brown to blackish; antenna with bristles and cilia in two rows, scaled on upper side, cilia about as long as diameter of shaft.
Thorax black or dark brown; some segments partially coloured on the upper- or underside. All legs black or brown. Abdomen black or brown, ventrally and caudally coloured in places.

Wings:
Venation (male, fig. 33):
Forewing: Radiales partially anastomosed; R_3 and R_4 free from beyond lobus; M_1 absent; cell terminal ill-defined; M_3 and CuA_1 from one point at anal angle of cell; CuA_2 from about ^{5}/6 of cell. Lobus well developed, rounded, moderate in size, positioned at apical angle of discal cell.
Hindwing: Rs and M_1 as well as M_3 und CuA_1 stalked; M_2 ill-definied; CuA_2 from about ^{4}/5 of cell.
Venation (female, fig. 34):
Forewing: Radiales free; discal cell terminally open, terminal vein very faint, especially in costal part; R_5 and M_1 from same point in apical angle of cell; CuA_1/M_2/M_3 shortly stalked, after separation of CuA_1 M_2 and M_3 shortly stalked; CuA_1 and CuA_2 approximated; A_1 tubular at least basally.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 stalked; discal cell with a distinct terminal boundary; M_2 very weak; CuA_2 from about ^{4}/5 of cell.

Pattern and colour (pl. 15, figs. 28, 29): Forewing very long and slender; blackish-brown, whole of median area of wing orange-yellow fasciae, terminal and discal spots absent. Hindwings rich yellow, with broad blackish border.

Sexual dimorphism insignificant.

Genitalia ♂ (figs. 111a, 111b): Uncus long and slender; valva quite broad and divided at tip, cucullus sharply tapered and far projecting; process rather strong and thorny tapered; fold or bulge not distinct, slightly raised towards sacculus. Aedeagus rather short, without any special sclerotization on shaft; vesica with two fields with teeth in several rows and additional minute thorns.

Genitalia ♀ (fig. 113): Papillae anales small; glandulae long pointed laterally; apophyses anteriores reduced; ductus bursae broad and sclerotized in many parts; corpus bursae round, with two larger signa with teeth or thorns.

Distribution: from Java to the Papuan region.

Type species: *Cyana* (*Clerckia*) *fulvia* Linnaeus, 1758. L. t.: Indonesia.

Subgenus: ***Sphragidium*** Butler, 1887

Descriptions of new species of Bombycid Lepidoptera from the Solomon Islands. – Annals and Magazine of Natural History, series 5, **19**: 218

Description:

Head: Proboscis well developed; palpi about equal to diameter of eye; eyes greyish-brown to blackish; antenna with bristles and two rows of cilia, scaled on upper side, cilia about as long as diameter of shaft.
Thorax black, first segment ventrally reddish. All legs unmarked, black. Abdomen black, in ♂ with orange-red tip.

Wings:
Venation (male, fig. 35):
Forewing: Radiales partially anastomosed; R_3 and R_4 from one point behind lobus; M_1 absent; discal cell terminal open, only costal with a convex vein; M_3 and CuA_1 long stalked; CuA_2 from about the half of the wing; Lobus distinct and large, oval.
Hindwing: Rs and M_1 stalked; M_2 absent; M_3 and CuA_1 long stalked; CuA_2 from about ¾ of cell.
Venation (female, fig. 36):
Forewing: Radiales free, R_3 and R_4 long stalked; discal cell terminal ill-defined; M_1 approximated to R_3/R_4 and arising just below; M_3, M_3 and CuA_1 very closely approximated, but free; CuA_2 from about $^5/6$ of the discal cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 stalked; M_2 obsolescent; CuA_2 from about $^4/5$ of cell.

Pattern and colour (pl. 15, figs. 30, 31): Forewings very long and narrow, in male enlarged behind the lobus to the apex; black with broad orange-red medial fascia, but without other transverse lines or fasciae, spots or patches.
Hindwing blackish-brown, yellow at base.
Sexual dimorphism insignificant.

Genitalia ♂ (figs. 112a, 112b): Uncus very long and slender; valva rather small, divided distally; cucullus strongly tapered and far projecting; process strong and with a terminal thorn; fold distinct, particulary at sacculus. Aedeagus rather short, without special sclerotization on shaft; vesica with two small fields with teeth and large areas with minute teeth.

Genitalia ♀ (fig. 114): Papillae anales very small; apophyses anteriores reduced, broadly strap-like; ductus bursae very broad and largely sclerotized; corpus bursae spherical, slightly sclerotized near ductus bursae and with a large and a small thorny signum.

Distribution: Solomon Islands.

Type species: *Cyana* (*Sphragidium*) *miles* Butler, 1887. L. t.: Solomon Islands: Alu.

Subgenus: ***Exotrocha*** Meyrick, 1886

Revision of the Australian Lepidoptera. – Proceedings of the Linnean Society of New South Wales, series 2, **1**: 691, 693

Description:
Head: Proboscis well developed; palpi about equal to diameter of eye; eye blackish; antenna with bristles and cilia in two rows, scaled on the upper side; cilia about as long as diameter of shaft.
Thorax black, tergite with supplementary brown squamation, sternite brown spotted. All legs unmarked, black. Abdomen black, segments yellow annulated ventrally and also dorsally towards tip.

Wings:
Venation (male, fig. 37):
Forewing: Radiales partially anastomosed; R_3 and R_4 sinuous behind lobus and approximated; M_1 absent; M_2 from about the half of the cell, costal curved at lobus; M_3 and CuA_1 from the same point at the anal angle of cell; CuA_2 from about $^5/6$ of cell. Lobus round, medial size; hairy squamation of the costal area behind lobus at R_3 extended into the wing.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 rather shortly stalked; branch behind the discal cell slightly curved to apex; M_2 absent; CuA_2 from about $^4/5$ of cell.
Venation (female, fig. 38):
Forewing: Radiales separate, R_3 and R_4 shortly stalked, behind the terminal vein of cell stalked with M_1; M_2 and M_3 long stalked, arising from above the anal angle of cell; CuA_1 from the anal angle; CuA_2 from about $^7/8$ of cell, nearly straight.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 stalked, branch of M_3/CuA_1 slightly curved to apex; M_2 absent; CuA_2 from about $^5/6$ of cell.

Pattern and colour (pl. 15, figs. 32, 33): Forewing very long and narrow; brown, terminal area blackish-brown, without fasciae, patches or spots. Hindwing blackish-brown, in the medial area with yellow patches.

Sexual dimorphism insignificant.

Genitalia ♂ (fig. 115): Uncus very long and slender, truncated; valva rather small, divided at tip; cucullus rounded, far projecting; process strong and tapered to a thorn; sacculus with a small, cone-like projection (ampulla) into the valva; fold or bulge almost imperceptible. Aedeagus short, without any special sclerotization on the shaft; vesica with a small field with teeth and thorns and large areas with minute teeth.

Genitalia ♀: not studied.

Distribution: Australia.

Type species: *Cyana* (*Exotrocha*) *liboria* sensu Meyrick, 1886, nec Stoll, 1781 = *Cyana* (*Exotrocha*) *meyricki* Rothschild & Jordan, 1901. L. t.: Australia.

Subgenus: ***Doliche*** Walker, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 529

Description:
Head: Proboscis well developed; palpi about 1½ of diameter of eye; eye blackish-brown, black spotted; antenna with bristles and cilia in two rows; scaled on the upper side; cilia slightly longer than diameter of shaft.
Thorax white, brown and yellow spotted. 1st and 2nd pair of legs orange, with white annulation; 3rd pair of legs whitish, outer tibial spurs short, equalling width of tibia.
Abdomen whitish, pink tipped.

Wings.
Venation (male, fig. 39):
Forewing: R_1 and R_2 above the lobus transformed; R_3 and R_4 below lobus shortly stalked; M_1 and R_4/R_5 closely approximated at base; M_1 – M_3 nearly parallel; CuA_1 arising just before terminal margin of discal cell; CuA_2 from about half the cell. Lobus small, oval, situated between costa and apical angle of cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 shortly stalked; M_2 absent; CuA_2 from about ¾ of cell.
Venation (female, fig. 40):
Forewing: Radiales separate; R_3 and R_4 long stalked, from the apical angle of the cell with a common branch with M_1; M_2 and M_3 approximated basally; CuA_1 clearly arising before end of cell; discal cell with a ill-defined terminal vein; CuA_2 from about the half of the cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 stalked; M_2 weak; CuA_2 from about ¾ of the cell.

Pattern and colour (pl. 16, figs. 34, 35): Forewing white; fasciae very broad and partially anastomosed dorsally; terminal fascia very broad and different in colour from the other transverse fasciae; three rather indistinct discal spots with central white dots.
Hindwing orange, white along costa; without pattern.

Genitalia ♂ (fig. 116): Uncus very long and slender; valva rather small, distally divided, cucullus small; process long and rather small, with a thorny tip; fold less developed, particulary at the costa triangular. Aedeagus rather short, apically slightly tapered and more strongly sclerotized; without any special structures in the vesica.

Genitalia ♀ (fig. 118): Papillae anales rather small; apophyses small and rather short; ostium bursae broadened; ductus bursae very small and short, folded longitudinally; bursa copulatrix large, potato-shaped, with a broad ductus of appendix bursae in upper half; appendix bursae spherical, rather small and membranous; corpus bursae with a distinct, round signum with delicate thorns. With exception of the signum the whole structure membranous.

Distribution: Northern India to China, Vietnam and Thailand.

Type species*: Cyana* (*Doliche*) *gelida* Walker, 1854. L. t.: Bangladesh: Silhet.

Subgenus *Volitivulpecula* subgen. nov.

Description:
Head: Proboscis slightly reduced; palpi slightly longer than diameter of eye; eye dark brown; antenna with bristles and cilia in two rows, scaled on the upper side, cilia about as long as diameter of shaft.
Thorax white with red spots on tergites and the scapulae. 1st and 2nd pair of legs orange, with white annulation or spotted; 3rd pair of legs white with pale orange tarsi.

Abdomen white or yellowish-white.

Wings:
Venation (male, fig. 41):
Forewing: Radiales separate; R_3 and R_4 stalked; M_{1-3} free; M_3 and CuA_1 closely approximated, but free; terminal margin of discal cell rather straight; CuA_2 just from behind half of the cell. Lobus quite small, kidney-shaped.
Hindwing: Rs and M_1 long stalked, branches strongly spread; M_2 weak; M_3 and CuA_1 stalked; CuA_2 from about ¾ of cell.
Venation (female, fig. 42)
Forewing: R_4, R_5 and M_1 long stalked; M_3 arising from discal cell closer to M_2 than to CuA_1; CuA_2 from just behind half of cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 shortly stalked; Rs and M_1 strongly spread at the margin; M_2 more distinct towards discal cell; CuA_2 from about ¾ of cell.

Pattern and colour: Forewing rather broad and strongly rounded at apex and termen; white, with distinctive red and less dentate transverse fasciae, the postmedial fascia often strongly convex; terminal spots absent or fuzzy and restricted to the apex; distinct black discal spots, approximated in male; the inner one oval, the outer slightly so.
Hindwings without any pattern, white.

Sexual dimorphism moderate. Females larger than males and without approximated discal spots.

Genitalia ♂: Uncus very short, triangular; valva broad, distally divided; cucullus very short, rounded and less projecting; process very strong, short, with a stout thorn or thorny tip; fold well developed; juxta entirely membranous. Aedeagus short, without special sclerotization on shaft; vesica with a sclerotized small plate, a bundle of longer spines and a sclerotized field covered with many shorter or longer teeth and thorns.

Genitalia ♀: Papillae anales very large; apophyses strong; VIII. broad; ostium bursae slightly broadened, membranous; lamella postvaginalis slightly but fuzzy sclerotized; ductus bursae broad, short, membranous; bursa copulatrix small, with two protrusions; ductus of appendix bursae quite broad and membranous; appendix bursae large, also membranous; corpus bursae laterally below and beside base of ductus of appendix bursae a slight sclerotization, which extends into ductus bursae.

Distribution: Mountain regions in the Western African Rift Valley.

Etymology: volito = flying around; vulpecula = little fox.

Type species: *Cyana* (*Volitivulpecula*) *ellipsis* spec. nov.

Key to the species

1 lobus single, undivided ……..…….....2
1* lobus divided into two uniform structures ……..…….....4
2 basal discal spot oval in shape ……..…….....*Cyana* (*Volitivulpecula*) *ellipsis*
2* basal discal spot round ……..…….....3
3 in ♂ red fasciae on forewing approximated towards dorsum; cucullus short ……..…….....
.....*Cyana* (*Volitivulpecula*) *paramargarethae*
3* in ♂ red fasciae not approximated; cucullus longer….....*Cyana* (*Volitivulpecula*) *margarethae*
4 fasciae broader; in ♂ genitalia cucullus slender, but longer projected, spines in vesica longer;
in ♀ broad membranous structure around ostium bursae ……*Cyana* (*Volitivulpecula*) *venusta* spec. nov.
4* fasciae smaller; membranous structure around ostium bursae in ♀-genitalia slender.....5
5 in ♂ genitalia cucullus slightly longer and saccular projection slender; in ♀ discal spots smaller.....
……..…….....*Cyana* (*Volitivulpecula*) *exprimata* spec. nov.
5* in ♂ genitalia cucullus slightly shorter and saccular projection broader; in ♀ discal spots larger
and ductus of the appendix bursae more basally located …*Cyana* (*Volitivulpecula*) *natalensis* spec. nov.

Cyana (*Volitivulpecula*) *ellipsis* Karisch & Dall'Asta, 2010

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal Afrotropical Zoology **6**: 120, figs. 5, 7, 17, 20, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Paulis.

Material:

Holotype: *Cyana ellipsis* Karisch & Dall'Asta, 2009 ♂: "Coll. Mus. Congo, Uele: Paulis, 29-X-1959, Dr. M. Fontaine", "Holotypus

♂ *Isine ellipsis* spec. nov., des. Karisch, 2007". In MRAC.

Paratypes: Dem. Rep. Congo: Uele: Paulis, 1 ♂ (gen. slide 2073, Karisch), 2.III.1957, 1 ♀ (gen. slide 2072, Karisch) 08.VII.1956, Dr. M. Fontaine. In MRAC.

Congo: Odzala Nat. Park, 400–500 m, 1 ♂ (gen. slide 2358, Karisch) 29.I.-03.III.1997, Siniaev & Murzin (MWM);
Dem. Rep. Congo (Zaire): Sankuru: Katako-Kombe, 1 ♂ (gen. slide 2071, Karisch) 24.I.1952, 1 ♂ 24.V.1952, Dr. M. Fontaine (MRAC); Weko near Yangambi, 1 ♂ (gen. slide B.M. Arct. 5958), 1 ♀ (gen. slide B.M. Arct. 5959) XII.1974, S. L. Sutton (BMNH).

Description:
(pl. 16, figs. 36, 37)

Wingspan: ♂♂: 21–25 mm, ♀: 30–32 mm.

Forewings white, fasciae red; basal fascia faded before dorsum; antemedian fascia slightly sinuous and curved outwards; postmedian fascia from costa projecting in direction of the anal angle, then strongly curved at CuA_1 and reaching dorsum before the tornus; red terminal fascia at and below the apex; distinct black discal spots, not approximated, the basal one laterally oval, in ♀ very elongated, the terminal spot round or comma-shaped. Fringes white.
Forewings (underside) with a orange costa from base to antemedian fascia and a pale orange costal area in ♂; lobus small, whitish to yellow-orange.
Hindwing without any pattern, white.

Genitalia ♂ (fig. 119): Tegumen broad, short; uncus broad, shortly pointed; vinculum very broad; saccus small; valva broad, cucullus short, margins parallel, rounded at the end; fold distinct; sacculus broad, process rather broad and suddenly tapered, tip short. Aedeagus stout; with a small sclerotized plate and with two fields with spines, one of a few very approximated, longer thorns and the other nearly round and consisting of small and stout spines, reduced in size to the apex.

Genitalia ♀ (fig. 122): Papillae anales large; lamella postvaginalis broad, only weak sclerotized; ostium bursae broad, membranous; ductus bursae short, broad; corpus bursae long stretched, small and at the first bulb with a lateral appendix bursae, at the base of the appendix bursae lateral stronger and more extensively sclerotized; corpus of the appendix bursae small and more round. Gland (pl. I, fig. 18) as type "r" (Bendib & Minet, 1998), but surface very much undulated.

Similar species:
Cyana (*Volitivulpecula*) *ellipsis* is distinguished from C. (*V.*) *paramargarethae* spec. nov. by the antemedian and postmedian fasciae not approximated at dorsum of the forewing, the not depressed postmedian fascia at the discal cell and the elongated oval basal discal spot. In ♂-genitalia *C.* (*V.*) *ellipsis* differs from *C.* (*V.*) *paramargarethae* spec. nov. by the longer cucullus, the smaller field with longer spines and the broader stout cornuti in the aedeagus.

Early stages and biology:
unknown.

Distribution and habitats:
Congo Basin (pl. IX, fig. 3). Habitats unknown.

Cyana* (*Volitivulpecula*) *paramargarethae Karisch & Dall'Asta, 2010

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal Afrotropical Zoology **6**: 120ff., figs. 8, 22, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Rwankwi.

Material:

Holotype *Cyana paramargarethae* Karisch & Dall'Asta, 2009 ♂: "Coll. Mus. Congo, N. Lac Kivu: Rwankwi, IV-1948, Mme J. V. Leroy", "Gen.-Präp. 2070, präp. Karisch, 2006" "Holotypus ♂ *Isine paramargarethae* spec. nov., des. Karisch, 2007". In MRAC.
Paratypes: Rwanda: Rwankwi, 1 ♂ (gen. slide 2004, Karisch), XII. 1951, J. V. Leroy. In MRAC.

Description:
(pl. 16, fig. 38)

Wingspan: ♂♂: 24 mm.

Forewing white, fasciae red; antemedian and postmedian fasciae approximated, basal fascia faded below the middle; antemedian fascia concave between discal cell and dorsum; postmedian fascia between M_3 and dorsum convex; below the apex a very faint red terminal fascia; discal spots rather large, approximated, black, the basal one round, the terminal one comma shaped. Fringes white.
Forewing (underside): costa from base to postmedian fascia broad bright orange. Lobus small, oval, orange. Hindwing white, without pattern.

Genitalia ♂ (fig. 121): Tegumen broad, rather short; uncus broad, truncated; valva broad, cucullus short, subtriangular, rounded distally; fold not very distinct; sacculus broad, process projecting long triangular and longer than cucullus, gently tapered; vinculum very broad, sacculus rather broad. Aedeagus stout, with a nearly triangular sclerotized plate and two fields with spines, one with few and longer, not approximated thorns and the other with basal longer spines basally and shorter ones towards apex.
♀ unknown.

Similar species:
C. (*V.*) *paramargarethae* differs from *C.* (*V.*) *margarethae* in the approximated antemedian and postmedian fasciae and the approximated discal spots. In genitalia *C.* (*V.*) *paramargarethae* has a smaller number of cornuti in the vesica, and a shorter cucullus. For differentiation from *C.* (*V.*) *ellipsis* see above.

Early stages and biology:
unkown.

Distribution and habitats:
Western Rwanda (pl. IX, fig. 4). Habitats unknown.

Cyana (*Volitivulpecula*) *margarethae* (Kiriakoff, 1958) **comb. nov.**

Arctiidae. – Ruwenzori Expedition 1952, 1 (2): 5, figs. 12, 70, (*Chionaema*). – Holotype ♂ (BMNH): Uganda: Semliki Forest.

Material:

Holotype *Chionaema margarethae* Kiriakoff, 1958 ♂: "UGANDA Ruwenzori Range, Semliki Forest, 2,850 ft., 22.viii.-3. ix.1952, D. S. Fletcher", "Arctiidae genitalia slide No. 278", "S. G. Kiriakoff det. 1955, Chionaema margarethae spec. nov.", "Ruwenzori Exped. B. M. 1952 - 566". In BMNH.

Kenya: S. Kavirondo, Suna, 1 ♂ (gen. slide B.M. Arct. 281) 1 ♀ I.-IV.1932, W. Feather (BMNH); Kakamega Forest, Udo's campsite, 1 ♂ (gen. slide 313/2004, Kühne) 10.XII.2001, L. Kühne (CKP);
Malawi: Lilongwe District, Dzalanyama Forest Lodge, 1270 m, 2 ♂♂ (1 ♂ gen. slide 2329, Karisch) 14.II.2004, L. Aarvik (CAA);

Description:
(pl. 16, fig. 40)

Wingspan: ♂♂: 21–25 mm, ♀: 24 mm.

Forewing white with red fasciae; basal fascia formed of two red patches; antemedian fascia slightly curved, postmedian fascia more strongly curved outward; below the apex three larger, bright red triangular marginal spots; discal spots blackish-brown, approximated, the outer one larger and more comma-shaped. Fringes white. Forewing (underside) with a broad pale yellow-orange costal field in ♂. Lobus small, oval, only slightly furrowed, orange.
Hindwing without pattern white.

Genitalia ♂ (fig. 120): Tegumen long and slender; uncus basal broad, pointed and tapered; valva quite small, cucullus only shortly round projecting; fold weak, more developed at the costa; sacculus rather small, distally more strongly sclerotized and tapered into a broad process with a short but broad tip; vinculum and saccus quite small. Aedeagus short, broad, with two bundles of spines, a longer one consisting of many shorter and medium-long thorns and the other broader and consisting of many short thorns, becoming smaller apically.

Genitalia ♀: unknown.

Cyana (*Volitivulpecula*) *margarethae* is only slightly variable in the development of the red spots on the termen and the shape of the outer discal spot.

Similar species:
The quite small valva and the typical fields of spines in the aedeagus distinguish *Cyana* (*Volitivulpecula*)

margarethae from superficially similar species. For differences from *C.* (*V.*) *paramargarethae* see above.

Note:
The genitalia of a ♂ (gen. slide 2328, Karisch) from Tanzania (Muheza District, Kwamgumi Forest Reserve, 170 – 220m, 22.VII.1995, S. H. McKamey, CAA) differ slightly from those of other studied specimens of *C.* (*V.*) *margarethae*. The significance of this remains uncertain.

Early stages and biology:
unknown.

Distribution and Habitats:
From Uganda and Kenya to Malawi (pl. IX, fig. 4). In the Kakamega Forest L. Kühne collected the species in a secondary forest (fig. 43).

Cyana (*Volitivulpecula*) *natalensis*-species group

Cyana (*Volitivulpecula*) *natalensis* spec. nov. and the following two closely related species of the subgenus have been placed in this group, because of the similarity of their genitalia. They differ only in that the protrusions of the bursa copulatrix are less prominent; the lamella postvaginalis in ♀ and the fultura in male are more strongly sclerotized.

Superficially, species of the *C.* (*V.*) *natalensis*-group have a more pointed forewing apex in the male, and more distinct division of the lobus, with two uniform structures side by side instead of one. The discal spots are smaller and not very approximated. In ♀ R4/R5 and M1 arise from one point at the end of the discal cell, but only R4 and R5 are stalked.

Cyana (*Volitivulpecula*) *natalensis* spec. nov.

Holotype ♂: "Durban, ex coll. Clark, A. J. T. Janse", "Dban, 4/3/09". In TMP.

Paratypes:
South Africa: Natal: Durban, 9 ♂♂ 5 ♀♀ (1 ♀ gen. slide B.M. Arct. 6194, 1 ♂ gen. slide B.M. Arct. 5918) 1903, ex Oberthür coll. (BMNH); Durban, 3 ♂♂ 1 §, G. [F.] Leigh (BMNH).

Additional material:
South Africa: Kwazulu-Natal: Dukuduku, Nat. 1 ♂ (gen. slide 2154, Karisch) 22.-24.III.1968, Potgieter & Goode (TMP); Dukuduku Forest, 1 ♂ (gen. slide 2158, Karisch) 29.VI.1979, N. J. Duke (TMP); Mtunzini District, Ngoya Forest, 1 ♀ (gen slide 2155, Karisch) 19.-21.III.1968, Potgieter & Goode (TMP); Mbazwana, 1 ♀ (gen. slide 2160, Karisch) 22.III.1982, N. J. Duke (TMP).

Description:
(pl. 16, figs. 40, 41)

Wingspan: ♂♂: 26–32 mm, ♀♀ 38–41 mm.

Forewing: white, fasciae rather narrow, red; basal fascia strongly curved to the base, not reaching the dorsum; antemedian and postmedian fasciae nearly parallel, slightly convex; antemedian fascia angled outward before dorsum; postmedian fascia often (especially in ♀♀) stronger curved before the dorsum; one or two red terminal spots at the apex; distinct and rather large, black discal spots, in ♀ round, in ♂ the outer one slightly oval, only slightly approximated. Fringes white.
Forewings (underside): In ♂ costa from base to median area orange or orange-brown, in ♀ much smaller. Lobus comparatively large, egg-shaped, white with some yellow-orange scales.
Hindwing: without any pattern, white.

Genitalia ♂ (fig. 123): Tegumen broad, quickly tapered; uncus short, tapered tip; valva broad, cucullus broad and irregularly rounded; fold well developed; sacculus very broad and well sclerotized; process broad, round, quickly tapered and with elongated tip; vinculum very broad. Aedeagus short, broad, with a small but strong sclerite, a field with apically reduced, small cornuti and a longer field with medium long spines in the vesica.

Genitalia ♀ (fig. 125): Papillae anales broad; apophyses posteriores long, strongly sclerotized; apophyses anteriores broad, short, more weakly sclerotized; lamella postvaginalis weakly butterfly-like sclerotized; ostium bursae broad, sternite gathered there; ductus bursae short, not tapered; bursa copulatrix extended basally; ductus of appendix bursae tapered, corpus egg-shaped. Corpus bursae with a distinct, laterally located sclerite at

ostium of appendix bursae. Gland (pl. I, fig. 23) as type “r” (Bendib & Minet, 1998), but caudal margin undulated.

Similar species:
Cyana (*Volitivulpecula*) *natalensis* spec. nov. is very similar to *C.* (*V.*) *exprimata* spec. nov. Superficially, the ♂♂ are indistinguishable, but the ♀ has smaller forewings and larger discal spots. In ♀ genitalia, ductus of appendix bursae is more basally located, the membrane at the VII. sternite is less gathered at the ostium bursae and apophyses anteriores are longer. The ♂ genitalia of *C.* (*V.*) *natalensis* spec. nov. are characterized by a shorter cucullus and saccular projection in comparison with *C.* (*V.*) *exprimata* spec. nov.

Note:
2 ♂♂ and 2 ♀♀ from Zululand were studied. The females had smaller forewings in comparison with specimens from Durban (fig. 44), a more strongly angled postmedian fascia, a more extended protrusion of the appendix bursae and a less sclerotized sclerite in the corpus bursae. The gland of the female from Mbazwana (pl. I, fig. 20) corresponds to type “o” (Bendib & Minet, 1998) and is very different from that of females from Durban. The status of these specimens remains uncertain.

Early stages and biology
unknown.

Distribution and habitats:
Subtropical coastal monsoon forest area from Natal to Zululand (pl. IX, fig. 5).

Cyana (*Volitivulpecula*) *exprimata* spec. nov.

Holotype: ♂: “Gimson, N. Rhodesia, 1908“, “Joicey Bequest. Brit. Mus. 1934-120.“ “gen. slide B.M. Arct. 6192“, “Holotypus ♂ *Isine exprimata* spec. nov., des. Karisch, 2007“. In BMNH.
Paratype: ♀ (gen. slide B.M. Arct. 6193) with the same data as the holotype. In BMNH.

Description:
(pl. 16, figs. 42, 43)

Wingspan: ♂: 28 mm, ♀: 36 mm.

Forewing dull white, fasciae small, red; basal fascia strongly curved basally and not reaching dorsum; antemedian fascia not dentate; postmedian fascia in ♂ evenly convex, in ♀ with depression at the discal cell and angled at the dorsum; red spots present at apex and termen; discal spots small, distinct (♂) or very small (♀), hardly approximated. Fringes white.
Forewing (underside): costal field in ♂ orange from base to antemedian fascia, in ♀ paler and smaller. Lobus quite large, round, whitish.
Hindwing without pattern, dull white.

Genitalia ♂ (fig. 124): Tegumen broad, quickly tapered; uncus short, tapered; valva broad, cucullus far projecting, tapered and distally small rounded; fold quite strong; sacculus broad and well sclerotized, process long, tapered and with a strong, flat terminal thorn; vinculum very broad. Aedeagus short and broad; vesica with a strong small plate, a bundle of longer cornuti and a bundle of smaller and broader ones.

Genitalia ♀ (fig. 126): Papillae anales large; apophyses posteriores long and strong; apophyses anteriores very short and broad; VII. sternite broad and tall, inverted at the ostium bursae; ductus bursae short and broad; corpus bursae small; appendix bursae arising from ductus bursae, thence with a lateral sclerotization which extends into corpus bursae. Gland (pl. I, fig. 21) between types “r” and “s” (Bendib & Minet, 1998), but lateral lobes short.

Similar species:
Similar to *Cyana* (*Volitivulpecula*) *natalensis* spec. nov. (see above).

Early stages and biology:
unknown.

Distribution and habitats:
Zambia (pl. IX, fig. 5). Habitats unknown.

Cyana (*Volitivulpecula*) *venusta* spec. nov.

Holotype: ♂: "Nyasaland, Mt. Mlanje, 22.XII.1913, S. A. Neave. 1914-171". In BMNH.
Paratypes: Malawi: Mt. Mlanje, 1 ♂ (gen. slide B.M. Arct. 5942) 26.I.1914, 1 ♂ 16.I.1913, 1 ♀ (gen. slide B.M. Arct. 5943) 23.I.1913, 1 ♀ 12.V.1913, S. A. Neave. In BMNH.

Additional material:
Malawi: Limbe, 1 ♂ (gen. slide B.M. Arct. 5932) I.+II.1928, H. Barlow (BMNH);
Mozambique: Amatongas, 1 ♂ 21.-23.IV.1971, R. H. Jones (TMP).

Description:
(pl. 16, figs. 44, 45)

Wingspan: ♂♂: 25 – 31 mm, ♀♀: 36 – 40 mm.

Forewing white, fasciae broad, brick-red; basal fascia dentate, faded before dorsum; antemedian fascia nearly straight; postmedian fascia slightly convex and basally curved at the costa; in ♂ three or four red fused marginal apical spots; large black discal spots, the inner one rounded, the outer one erected oval. Fringes white.
Forewing (underside): white, with some red scales at the outer discal spot; costal field in ♂ more or less orange from base to antemedian fascia, ♀ with orange line confined to costa. Lobus quite large, rounded, terminally white, reddish scaled dorsally and basally.
Hindwing without any pattern, white.

Genitalia ♂ (fig. 127): Tegumen broad and short; uncus small triangular, pointed; valva quite broad, cucullus small and gradually tapered, rounded at tip; fold distinct; sacculus broad, process broad and long, tapered into a delicate tip; vinculum broad; saccus small. Aedeagus short and broad, with a small sclerotized plate with an irregular margin and two groups of spines (an oval field with small and broad, apically reduced thorns and a longer field with quite long and fine spines).

Genitalia ♀ (fig. 129): Papillae anales large; apophyses anteriores short, broad; ostium bursae broad, with arched margin on VII sternite; sterigma broad and quite small; lamella postvaginalis weakly sclerotized; ductus bursae broad, short and gradually continuing into corpus bursae; ductus of appendix bursae arising from upper part of corpus bursae; a sclerotized field laterally at ductus of appendix bursae and corpus bursae. Gland (pl. I, fig. 22) between types "r" and "s" (Bendib & Minet, 1998).

Similar species:
Cyana (*Volitivulpedula*) *venusta* spec. nov. is simlar to *C*. (*V*.) *natalensis* spec. nov. and *C*. (*V*.) *exprimata* spec. nov., but the fasciae are broader and the 1st pair of legs are more broadly annulated. The ♂-genitalia have a smaller but longer projected cucullus, a slightly larger aedeagus with a larger field with longer spines, and the ♀-genitalia have a less extended sclerotized field at the corpus bursae, a slightly smaller ostium bursae and a more extended gathered area around the ostium.

Early stages and biology:
unknown.

Distribution and habitats:
Malawi and Mozambique (pl. IX, fig. 5). Habitats unknown.

Subgenus: *Gigantovulpecula* subgen. nov.

Description:
Head: Proboscis fully developed; palpi about 1½ diameter of eye; eye dark brown with small black spots; antenna with bristles and cilia in two rows, scaled on the upper side, cilia about as long as diameter of shaft. Thorax white, with red transverse fascia and a large red patch on 2nd and 3rd tergites. 1st and 2nd pair of legs orange, white annulated; 3rd pair of legs white, tibiae on the inner side with an orange patch and tarsi pale orange. Abdomen white, with some orange-red scales at tip.

Wings:
Venation (male, fig. 45):
Forewing: Radiales separate, R_3 and R_4 shortly stalked; M_1 below the lobus, M_3 from about the middle between M_2 and CuA_1; terminal vein of the discal cell quite straight; CuA_2 from about half of cell. Lobus large, round, pouch-like across wing.
Hindwing: Rs and M_1 stalked, branches spread; M_2 obsolescent; M_3 and CuA_1 stalked; CuA_2 from about half

of cell.
Venation (female, fig. 46):
Forewing: R_4, R_5 and M_1 shortly stalked; M_2 more approximated to M_3 than M_3 to CuA_1 at the cell; CuA_2 from about half of cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 shortly stalked; Rs and M1 far spread at the margin; M_2 rather distinct: CuA_2 from just behind half of cell.

Pattern and colour: Forewings large, quite broad and rounded apically; white, with distinct, red, slightly dentate and curved fasciae; terminal fascia only from apex to the middle of the termen and consisting of red triangular or crescent-shaped patches; above the postmedian fascia above M_1 a black spot formed by bundles of long scales; in ♂ a field with long white scales above the outer discal spot; distinct black discal spots, in ♂ approximated, the outer one elongated, in ♀ not approximated and the outer one shorter.
Hindwing without any pattern, white, partially pink to orange coloured in the marginal area.

Genitalia ♂: Tegumen slender; uncus long, tapered; valva quite broad, divided distally, cucullus tapered triangular, quite far projecting; process strong, long and with a stout thorn at tip; fold well developed; fultura slightly sclerotized. Aedeagus short, broadened apically, without special sclerotization on shaft; vesica with sclerotized small plate and two bundles of numerous longer spines.

Genitalia ♀: Papillae anales not very large; apophyses slender, slightly shortened; VIII. tergite broad; ostium bursae slightly extended and with a sclerotized transverse band; ductus bursae rather short, membranous, constricted above corpus bursae; corpus bursae sac-shaped, with a quite large but weakly sclerotized signum (thorny depression), basally with a broad ductus of appendix bursae, which is tapered and ends in the small, round corpus, and is slightly sclerotized basally and in the middle.

Distribution: Madagascar.

Etymology: giganteus = gigantic; vulpecula = little fox.

Type species: *Cyana* (*Gigantovulpecula*) *saalmuelleri* (Butler, 1882)

Key to the species

1 discal spots very much approximated …….....*Cyana* (*Gigantovulpecula*) *grandis*
1* discal spots not approximated …….....*Cyana* (*Gigantovulpecula*) *saalmuelleri*

Cyana (*Gigantovulpecula*) *saalmuelleri* (Butler, 1882) **comb. nov.**

Descriptions of new species of Heterocerous Lepidoptera from Madagascar. – Cistula **III** (XXVI): 3f., (*Bizone*). – Lectotype ♀ (BMNH): Madagascar: Ankafana [recte Ankafina].

Material:

Lectotype *Bizone saalmuelleri* Butler, 1882 ♀ (herewith designated): "Type", ♀, "Madagascar, Betsileo, 82 - 26", "Arctiidae genitalia slide No. 264", "Bizone saalmuelleri Butler, Type ♀" (BMNH).

Paralectotype ♀: with the same data as the Lectotype, but only with the name on the label, not with the indication "Type" (BMNH).

Madagascar: **North**: massif du Tsaratanana, en dessous de l'Andohanisambirano, matsabory, 1900 m, 4 ♀♀ déb. XII.1964, 7 ♂♂ 17 ♀♀ III.1965, P. Soga (MNHN); id., 1 ♀ III.1965, P. Soga (ZSM); id., 1 ♀ III.1965, P. Soga (MRAC); massif du Tsaratanana, Andohananalila, 1850 m, 12 ♂♂ 1 ♀ déb. III.1967, P. Soga (MNHN); id., 2 ♂♂ déb. III.1967, P. Soga (MRAC); massif du Tsaratanana, vallée de l'Andavaka, 1850 m, 1 ♂ 11.-13.IX.1966, P. Soga (MNHN); Région Tsaratanana, N.W. de Mangindrano, Analabana, 2 ♂♂ 10.-20.IV.1964, P. Soga (MNHN); Montagne d'Ambre, est du lac Texier, 855 m, 1 ♂ 1.-3.V.1970, P. Griveaud (MNHN); Sambava, R. N. XII, Marojejy, Andasy II, 1300 m, 4 ♂♂ 5 ♀♀ IV.1961, P. Soga (MNHN); **Centre**: Mahatsinjo près Tananarive, 1 ♂ [without date](BMNH); Ankazobe, forêt Ambohitantely, 4 ♂♂ + 1 ♂ (f. *suberythraea*, see text) 2 ♀♀ 18.-19.III.1955, P. Griveaud & R. Vieu (MNHN); id., 1 ♂ (f. *suberythraea*, see text) 27.-28.III.1968, P. Griveaud (MNHN); La Mandraka, 2 ♂♂ 26.II.1955, P. Griveaud & R. Vieu (MNHN); id., 1 ♀ IV.-V.1966, Don C. Herbulot (MRAC); id., 2 ♂♂ (f. *suberythraea*, see text) 4.IV.1965, C. Moinier, ex coll. J. Plante (MNHN); Andrangoloaka, forêt a l'Est du lac de Mantasoa, 1 ♂ 27.II.-6.III.1970, P. Griveaud (MNHN); env. d'Ambohimahasoa, canton de Tsarafidy, forêt d'Ankafina, 1400 m, 2 ♂♂ III.1967, P. Griveaud (MNHN); O. du lac Alaotra, route d'Andriamena, forêt d'Andranobe, 1250m, 1 ♂ 29.I.-6.II.1970, P. Griveaud (MNHN); **East**: Route d'Anosibe, km 57, 1 ♂ 16.II.1955, 1 ♂ 18.II.1955, P. Viette (MNHN); id., km 52, 1 ♀ 15.X.1955, P. Griveaud & R. Vieu (MNHN); Périnet, 30 ♂♂ 2 ♀♀ (1 ♀ gen. slide B.M. Arct. 266), III.1935, N. & G. Olsoufieff (BMNH); Périnet, 950 m, 1 ♂ 11.-19.III.1955, H. de Toulgoët (ZSM); id., 4 ♂♂ 11.-19.III.1955, H. de Toulgoët (MNHN); env. de Périnet, forêt d'Analamazoatra, 3 ♂♂ 1 ♀ V.1956, R.

Vieu (MNHN); env. Moramanga, Périnet, 1 ♂ (MNHN); env. Moramanga, 1 ♀ [without date], R. Decary (MNHN); District d'Ifanadiana, env. de Ranomafana, 700 m, 4 ♂ 11.-19.III.1955, P. Viette (MNHN); Anjanaharibe, 50 km ouest Andapa, 1600 m, 1 ♂ III.[19]61, P. Soga (MNHN); 6 km NW Fanovana, 1 ♂ 18.-22.II.1955, P. Griveaud & R. Vieu (MNHN); Route de Vondrozo, col de Madiorano, 750 m, 2 ♂♂ 1 ♀ (yellow-orange form, see text) V.1973, A. Peyrieras (MNHN); Ambodiriana, route de Lakato, km 10, 1050 m, 1 ♂ 3 ♀♀ III.1957, P. Griveaud & R. Vieu (MNHN); Ambatovositra, Andranomalaza, Réserve nat. III. 5 ♂♂ (1 ♂ gen. slide 2051, Karisch) II., III., IV.1957, P. Soga (MNHN).

Description:
(pl. 16, figs. 46–50)

Wingspan: ♂♂: 32 – 38 mm, ♀♀: 44 – 50 mm

Forewing white, fasciae crimson and broad; basal fascia only as red costal patch; antemedian fascia from costa outwardly projecting, then nearly right-angled and slightly curved to dorsum; postmedian fascia only slightly curved from costa to dorsum, in ♂ often narrowed at costa and cell; some terminal red spots in apex and below; black basal point; distinct black discal spots, in ♂ approximated, the inner one circular, the outer one elongated, linear in ♂ and more or less oval in ♀; in ♂ an additional black patch above the postmedian fascia near the costa. Fringes white.
Forewing (underside) white, in ♂ costal field from base to the middle of the wing bright orange, than faded to the postmedian fascia; in ♀ costa from base to antemedian fascia as well as at postmedian fascia orange. Lobus large, circular, orange scaled within and at costa.
Hindwings without any pattern, white, in ♂ with more or less marginal field. Fringes white.

Genitalia ♂ (fig. 128): Tegumen slender; uncus long, slender, pointed; valva rather small, cucullus long and gradually tapered, tip rounded; fold distinct; sacculus quite broad, process far projecting, slender, with a long tip; vinculum broad; saccus broad. Aedeagus short and broad, with two fields with numerous longer cornuti and with an arched sclerite below these fields.

Genitalia ♀ (fig. 130): Sterigma broad and small; ostium bursae slightly enlarged; ductus bursae quite broad, strongly gathered and extending into bursa copulatrix; broad ductus of appendix bursae from proximal part of corpus bursae; appendix bursae small, round; ductus of appendix bursae sclerotized and with a small field with minute thorns; corpus bursae ovoid to bag-shaped; wrinkled on surface. Gland (pl. I, figs. 24, 25) corresponding with type "r" or "s" (Bendib & Minet, 1998), but sometimes with numerous secondary lobes.

Two interesting forms of *Cyana* (*Gigantovulpecula*) *saalmuelleri saalmuelleri* are known:
(1) Specimens with particularly pink hindwings and extended red colouration on the forewings (fig. 49, f. *suberythraea* de Toulgoët, 1971, Bulletin de la Société entomologique de France **76**: 85, fig. 6), collected in Central Madagascar.
(2) Small specimens with orange-red hindwings, broad fasciae on forewings and a broad, orange to reddish terminal fascia (figs. 48, 50), known only from Eastern Madagascar (Route de Vondrozo, col de Madiorano) in a few specimens; in genitalia identical to those of nominate form. At present, it is uncertain whether this is a only local form or a separate species or subspecies. According to J. Minet (oral comm., 2008) both alternatives are possible.

C. (*G.*) *saalmuelleri saalmuelleri* also varies in the width of the red fasciae, the degree of the development of a terminal fascia and the red squamation at the marginal area of the hindwing.

Early stages and biology:
unknown.

Distribution and habitats:
Madagascar; mountain areas in the Eastern, Central and Northern parts (pl. IX, fig. 6). Humid mountain rain forests, at higher altitudes in the North and East with many ferns, and in dense mountain rain forests with many epiphytic plants in the Centre (Viette, 1962).

Cyana (*Gigantovulpecula*) *saalmülleri pauliani* (De Toulgoët, 1954) **comb. nov.**

Arctiides nouveaux de Madagascar et de l'Ile Maurice. – Mémoires de l'Institut scientifique de Madagascar, Série E, Tome **V**: 194ff., fig. 15, pl. X, figs. 1, 2, (*Chionaema*; as spec.). – Holotype ♂ (MNHN): Madagascar: massif de l'Ankaratra.
As subspecies of *Cyana* (*Gigantovulpecula*) *saalmuelleri* in de Toulgoët (1956).

Material:

Holotype ♂: "Holotype", "Madagascar Centr., massif de l'Ankaratra, Manjakatompo", "Forêt d'Ambahona, Alt. 1850 m, P.

Viette, 21/XII. 1951“. In MNHN.

Paratypes: Madagascar: Madagascar Central, massif de l’Ankaratra, Manjakatompo, forêt d’Ambahona, 1 ♂ 26.XII.1951, 1♂, 1 ♀ 20.XII.1951, 1 ♂ 21.XII.1951, 1 ♂ 18.XII.195(?), 2 ♂♂ 30.XI.1951, P. Viette. (BMNH); id., 1 ♂ 26.II.1951, 6 ♂♂ 20.XII.1951, 4 ♂♂ 17.XII.1951, 14 ♂♂ 18.XII.1951, 1 ♀ 20.XII.1951, 2 ♂♂ 1 ♀ 21.XII.1951, 1 ♂ 28.[X]II.1951, 1 ♂ 30.XII.1951, 1 ♀ 24.I.1952, P. Viette (MNHN); id. 3 ♂♂ 1951, P. Viette (MRAC).

After de Toulgoet (1954) additional paratypes in MRAC, Smithsonian, I. R. S. M. Antananarivo, and Forschungsinstitut und Museum Senckenberg.

Madagascar: Centre: Massif de l’Ankaratra, forêt d’Antarivady, 2130 m, 1 ♀ 10.-14.I.1967, P. Griveaud (MNHN); Massif de l’Ankaratra, Manjakatompo, forêt d’Ambahona, 1 ♂ 17XII.1951, P. Viette (MNHN); id., 3 ♂♂ 1951, P. Viette (MRAC); Forêt Vakoana, Ambalamarovandana, Andringitra-Ambalavao, 1530 m, 2 ♂♂ 22.I.[19]53, 2 ♂♂ 21.I.[19]58, 2 ♂♂ 1 ♀ 16.-21.I.1971, P. Griveaud (MNHN); Plateau Soaindrana, Andringitra-Ambalavao, 2070 m, 1 ♂ 15.I.[19]58, P. Griveaud (MNHN); Massif de l’Itremo, 1615 m, 1 ♂ 7.-12.I.1973, P. Griveaud (MNHN).

Description:
(pl. 16, figs. 51, 52)

Wingspan: ♂♂: 35 – 38 mm, ♀♀: 42 – 47 mm.

Colouration and pattern as in nominate subspecies, but fasciae narrower, terminal fascia only as a few red apical spots, in ♀ obsolescent; hindwings without pink colouration. Gland in ♀-genitalia (pl. I, fig. 26) very different from nominate subspecies, as type “q” with reduced lateral lobes (Bendib & Minet, 1998).

Hardly variable, only slightly so in the development of the terminal patches.

Early stages and biology:
unknown.

Distribution and habitats:
Central mountain ridge of Madagascar (pl. IX, fig. 6). Status as subspecies requires genetical verification. Massif de l’Ankaratra only in some fragments of forest in an area where the original vegetation has been completely lost. Found also in the massif de l’Andringitra, in a fragmented shrub-rich forest (Viette, 1962).

Cyana (*Gigantovulpecula*) *grandis* (Mabille, 1879) **comb. nov.**

Lépidoptera Madagascariensis, species novae. – Bulletin de la Société Philomathique de Paris (7) **3**: 136, (*Bizone*). – [Holo] type ♂ (after Hampson, 1900 in coll. Mabille in BMNH, 2006 not found): Madagascar.

The author was unable to locate the holotype or an other specimen of this interesting large species (pl. 16, fig. 53). However, it is well characterized by the existing descriptions and illustration (Hampson, 1900). Here, the description by Mabille (1879) is quoted:

“10 Bizone grandis, n, spec. 42 millim. o. albus; alae anticae quatuor fasciis sat latis, vix obliquis, perpallide luteolis ornatae; prima basilaris est; secunda et tertia in media ala parallelae includunt duo puncta nigra elongata; tertia adhuc puncto nigro exterius in costa notata est; quarta marginalis est et latior. Alae posticae pure albae.

Subtus alae albidae; anticae ad basim subluteae et ad costam singulare illud glomus offerunt quod Walker obiter tuberculum vocat; in nostra specie glomus illud e tomento luteo constat, tripartito, elongato.

Corpus album: dorsum in quatuor annulis intermediis luteo-roseum. Anus albus; palpi articulo extremo nigro; thorax pallide lutteo vittatum.

Inter multa heterocera olim a Goudot e Madagascar allata speciem reperimus (1 ♂ Coll. P. Mabille).“

With a similar pattern to that of *Cyana* (*Gigantovulpecula*) *saalmuelleri saalmuelleri*, and therefore allocated to the same subgenus.

Distribution and habitats:
Only one specimen known, from Madagascar.

Subgenus: *Comorocyana* subgen. nov.

Description:
Head: Proboscis well developed; palpi nearly twice as long as diameter of eye; eye dark grey, black spotted; antenna with bristles and cilia in two rows; scaled on the upper side; cilia nearly twice as long diameter of shaft.

Thorax white, without patches or spots. 1st and 2nd pair of legs orange, white annulated; 3rd pair of legs white, last joints of tarsi orange.
Abdomen white, slightly yellowish at tip.

Wing.
Venation (male, fig. 47):
Forewing: Sc shortened; R_1 conducted around the opening of lobus and obsolescent; R_2 and R_3 stalked; R_4 and R_5 approximated, curved into apex; M_1 absent; M_2 nearly straight from terminal vein of cell to termen; M_3 and CuA_1 short stalked and branches gradually divergent; CuA_2 arising from about 2/3 of cell and strongly curved near base; lobus very large, divided into a smaller basal, a larger central and a smaller, sac-like outer part, all parts connected at base; below and around lobus a transformed oval area of wing surface with no venation but only a slight undulation.
Hindwing: Rs/M_1 and M_3/CuA_1 stalked and branches divergent at margin; M_2 absent; terminal vein of cell obsolescent in the middle; CuA_2 from about 2/3 of cell.
Venation (female, fig. 48)
Forewing: Sc rather short; R_4 and M_1 from apical angle of cell; M_2, M_3 and CuA_1 approximated at base; CuA_2 from just behind half of cell.
Hindwing: Rs/M_1 and M_3/CuA_1 stalked, branches of Rs and M_1 divergent at margin; M_2 very weak; CuA_2 from about 2/3 of cell.
Forewing quite broad, in male, costa slightly depressed at lobus.

Pattern and colour: ground colour silky white, without fasciae; a large black basal point; discal spots large, round in ♀, somewhat angular and closely approximated in ♂; costa in ♂ pale orange.
Hindwing without any pattern, white. Fringes white.

Sexual dimorphism is expressed in the shape of the forewing and the position of the discal spots.

Genitalia ♂: Uncus triangular, pointed; tegumen slender; valva narrow, divided at tip; cucullus rather narrow, far projecting; fold narrow; sacculus rather slender; with a very long process, projecting just behind tip of cucullus, with a long thorn at the tip; vinculum slender; saccus broad. Aedeagus rather short and broad, with two connected groups of longer spines and fields with minute teeth in vesica.

Genitalia ♀: Papillae anales large; apophyses very slender; ostium bursae rather small, membranous; ductus bursae short, broadened into corpus bursae; corpus bursae sac-shaped, ovoid; ductus of appendix bursae arising from median part of corpus bursae, broad and very strongly sclerotized, partially covered with small thorns; long spines present around opening of ductus bursae into corpus bursae; corpus bursae covered with many thorns laterally at ductus of appendix bursae and basally; appendix bursae long, sac-like, membranous.

Distribution: Only on Grande Comore.

Etymology: Named after the Comoro Islands.

Type species: *Cyana* (*Comorocyana*) *tripuncta* (de Toulgoët, 1980)

Cyana* (*Comorocyana*) *tripuncta (de Toulgoet, 1980) **comb. nov.**

Description de nouvelles Arctiides de la région Malgache (Lépidoptères). Archipel des Comores (23e Note). – Nouvelle Revue d'Entomologie **X** (4): 344ff, figs. 5, 6, 8, (*Chionaema*). – Holotype ♂ (MNHN): Grande Comore: Bandalamadji.

Material:

Holotype ♂: " Grande Comore, 4/5 km Est de Nioumbadjou, Bandalamadji, 640m, 15/18-III-80, P. Viette". In MNHN.
Paratypes: Comoro Islands: Grande Comore: piste Capitaine-Dubois, après Boboni, Djadjou, 800 m, 1 ♀ [allotype] 13.-15. IV.1980, P. Viette (MNHN); id., 4 ♂♂ 5.-7.IV.1980, P. Viette (MNHN); 4 km Est de Nioumbadjou, Bandalamadji, 640 m, 2 ♂♂ 11.-18.III.1980, P. Viette (MNHN); Hantsongoma, 1000 m, 2 ♂♂ 12.VIII.1989 (MNHN).

Comoro Islands: Grande Comore: 2 ♂♂ 2 ♀♀ 1884, 8 ♀ ♀ (1 ♀ gen. slide 1898, Karisch) without date, L. Humblot (BMNH); 1 ♂ (gen. slide 1897, Karisch), bred 26.VIII.[19]21, 1 ♀ bred 25.VIII.[19]21, G. F. Leigh (BMNH); Hantsongoma, Karthala, 1000m, 1 ♂ 20.VI.1988, B. Turlin (MNHN); Hantsongoma, Karthala, 1000 m, 1 ♂ 13.VIII.1989, B. Turlin (MNHN).

Description:
(pl. 16, figs. 54, 55)

Wingspan: ♂♂: 23 – 25 mm, ♀♀: 26 – 30 mm.

Forewing silky white; a large black basal point and two large black discal spots, approximated in ♂ and

arranged in ♂ parallel to dorsum, in ♀ parallel to costa; in some ♀♀ brown scales at costa above basal point. Fringes white.
Forewing (underside): white, discal spots translucent; lobus large, nearly round, positioned between the discal spots.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 131): Tegumen slender, rather long; uncus broad, conical to triangular; valva rather narrow; cucullus narrow and slightly curved; fold distinct; sacculus rather slender; process slender, far projecting and with a long, fine tip; vinculum and saccus rather broad. Aedeagus short and broad; with a sclerotized portion of the vesica and two fields with strong spines in different length.

Genitalia ♀ (fig. 133): Papillae anales large; apophyses posteriores very slender and long; ostium bursae not extended; ductus bursae conducting into the corpus bursae; corpus bursae and appendix bursae formed as described for the subgenus.

Cyana (*Comorocyana*) *tripuncta* is slightly variable in the size and shape of the discal spots. According to the description in de Toulgoët (1980), the costal field on the underside of the forewings as well as the apical field on the upperside of the forewings is sometimes pale yellow tinged.

Early stages and biology:
unknown.

Subgenus: *Cornutivulpecula* subgen. nov.

Description:
Head: Proboscis well devoloped; palpi about as long as diameter of eye; eye greyish-brown, black spotted; antenna with bristles and cilia in two rows; scaled on the upper side; cilia about 1½ to twice diameter of shaft. Thorax white with a red transverse fascia, a red spot on 2nd tergite (absent in the species or forms without any red pattern on wings) and occasionally a red spot on 3rd tergite. Abdomen white, tip yellowish. 1st and 2nd pair of legs orange and white annulated; 3rd pair white, tarsi pale orange.

Wings.
Venation (male, fig. 49):
Forewing: Radiales separate, R_2 faint near lobus; R_3 and R_4 rather long stalked; M_1 angled below lobus to $R_{4/5}$ and forming apical part of discal cell; between M_1 and M_2 cell open; M_2, M_3 and CuA_1 about equidistant from cell; CuA_2 from about half of cell. Lobus small, oval, situated above angle of M_1; stronger squamation between lobus and costa.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 stalked; branches of Rs and M_1 distinctively divergent at margin; M_2 very weak; CuA_2 from about ²/3 of cell.
Venation (female, fig. 50)
Forewing: R_3/R_4/M_1 short stalked, R_3/R_4 longer stalked; upper angle of cell acute; terminal margin of cell right-angled below middle; areole weakly indicated; M_2, M_3 and CuA_1 approximated near base, but free; CuA_2 from middle of cell.
Hindwing: Rs and M_1 as well as M_3 and CuA_1 long stalked; Rs and M_1 distinctively divergent at the margin; M_2 very weak; CuA_2 arising from about ¾ of cell.

Pattern and colour: forewing rather narrow, rounded apically; white, with distinctive red, curved or sometimes dentate fasciae, often somewhat obsolescent; marginal fascia absent or represented by a few triangular red apical spots; discal spots black, distinctive, not approximated; round to oval.
Hindwing without any pattern, white.

Sexual dimorphism insignificant.

Genitalia ♂: Uncus broad and truncated; valva broad and distally divided; cucullus rather short and often projecting only insignificantly; sacculus with a short but very strong process, with one or two very short apical thorns; fold well developed, but narrow and with a membranous projection to sacculus. Aedeagus rather long, with two bundles of few but very strong cornuti.

Genitalia ♀: Papillae anales large; Apophyses long and strong; VIII. tergite broad; Ostium bursae large, membranous; ductus bursae slender and rather long, membranous; bursa copulatrix more or less spherical, depressed; corpus bursae with a long and thorny, strip-like sclerotization; ductus of appendix bursae from base of corpus bursae, broad, membranous; appendix bursae rather small, bag-shaped, membranous.

Distribution: From Equatorial Guinea (Bioko). and Cameroon to the Mountains in the Eastern and South-Eastern Africa.

Etymology: cornuti = thorns; vulpecula = little fox.

Type species: *Cyana* (*Cornutivulpecula*) *klohsi* Karisch, 2003

Key to the species

1 forewings white or yellow, lacking transverse red fasciae ……..2
1* forewings with red fasciae ……..4
2 forewing ground colour dark yellow ……..*Cyana* (*Cornutivulpecula*) *rejecta*
2* forewing white ……..3
3 black discal spots large ……..*Cyana* (*Cornutivulpecula*) *heidrunae*
3* black discal spots minute ……..*Cyana* (*Cornutivulpecula*) *meyi* spec. nov.
4 red postmedian fascia broad and sigmoid curved ……..*Cyana* (*Cornutivulpecula*) *heidrunae*
4* red postmedian fascia not sigmoid curved ……..5
5 postmedian fascia faded and interrupted ……..6
5* postmedian fascia not interrupted ……..7
6 ♂ with a long and thorny digitus of valva ……..*Cyana* (*Cornutivulpecula*) *innocua* spec. nov.
6* ♂ without a long and thorny digitus of valva ……..*Cyana* (*Cornutivulpecula*) *nyasica*
7 postmedian fascia strongly angled at M_3 ……..8
7* postmedian fascia not strongly angled at M_3 ……..10
8 margin of forewing orange, apical area of hindwing pale red-orange ……..*Cyana* (*Cornutivulpecula*) *aberrans* spec. nov.
8* margin of forewing not orange, apical area of hindwing white ……..9
9 discal spot elongated oval ……..*Cyana* (*Cornutivulpecula*) *nussi* spec. nov.
9* discal spot ……..*Cyana* (*Cornutivulpecula*) *usambara* spec. nov.
10 hindwing orange ……..*Cyana* (*Cornutivulpecula*) *ochrata* spec. nov.
10*hindwing white ……..11
11 ♂ with a long, thorny digitus on valva ……..*Cyana* (*Cornutivulpecula*) *innocua* spec. nov.
11*♂ without thorny digitus on valva ……..12
12 discal spots widely separated, ♀ with broader forewings and darker red fasciae ……..*Cyana* (*Cornutivulpecula*) *speideli* spec. nov.
12*discal spots not widely very widely separated, ♀ forewing narrow, fasciae more or less blazing red ……..*Cyana* (*Cornutivulpecula*) *klohsi*

Cornutivulpecula klohsi Karisch, 2003

Eine neue *Cyana*-Art vom Nyiragongo - Lambillionea **CIII**, p. 401f., (*Cyana*) – Holotype ♂ (CKDT): Zaire: Station Rumangabo nr. Goma.

Material:

Holotype *Cyana klohsi* Karisch, 2003 ♂: "ZAIRE Prov. Kivu, Umgebung Goma, ca. 2000 mNN, Stations Rumangabo 15 km WNW Ort, 1°34' s. Br., 29°16' ö. L., 26.VIII.1991 LF 125 W HQL, T. Karisch legit", "verbuschter, gelichteter ehem. Bergnebelwald", "Gen.-Präp. 1710, präp. Karisch, 2003", "Gen.-Präp. 1710, präp. Karisch, 2003", "Holotypus ♂ *Cyana klohsi* Karisch 2003, des. Karisch 2003". In CKDT.

Paratypes: 1 ♀ (allotype) with the same data like the holotype, but gen.-slide 1711 (Karisch). In CKDT.

Rwanda: Nyungwe 2000 m, 1 ♂ (gen. slide 2012, Karisch) 8.III.[19]75, B. Turlin (ZSM); Butare, Guesthouse University, 1 ♂ (gen. slide 321/2004 [Kühne]) 14.IX.2002, L. Kühne (cKP).

Description:

(pl. 16, figs. 56, 57)

Wingspan: ♂♂: 25 – 28 mm; ♀ 29,5 mm.

Thorax with interrupted transverse fascia.

Forewing white with red fasciae, in ♂ slightly more orange; basal fascia interrupted; antemedian fascia rather straight; postmedian fascia weakly outcurved, broadened at costa, with two or three triangular red spots below

apex; discal spots small, round, not approximated; costa in ♂ from base to antemedian fascia red.
Forewing (underside): white; in ♂ with a red tinged costal field and with an orange-red patch on costa at postmedian fascia and a red spot on basal fascia; lobus pale yellow.
Hindwing white, without any pattern.

Genitalia ♂ (fig. 132): Tegumen rather narrow; uncus broad, truncated; valva broad, cucullus broad and tapered; sacculus broad, process as long as cucullus, with two apical thorns; vinculum broad; saccus strong. Aedeagus rather long, tapered distally, with two bundles of long cornuti, but in one group, cornuti are only ½ as long as those in the other group. sclerite on VIII. segment basally http://www.kis-badstaffelstein.net/mediapool/43/432564/resources/31180179.jpg broad and lancet-like tapered.

Genitalia ♀ (fig. 134): VII. sternite rather narrow; ostium bursae rather broad; ductus bursae slender, crisped; bursa copulatrix large, round, with extensive sclerotization, distally with very strong thorns. Gland (pl. II, fig. 27) as type "s", but lateral lobes short.

Note:
One specimen from Rwanda (gen. slide 2012, Karisch) has only one cornutus in the bundle of smaller cornuti, but apart from that the genitalia are identical to those of the holotype. Specimens from different localities vary slightly in the expression of the red fasciae and discal spots. Provisionally, this is treated as intraspecific variation in *C. klohsi*.

Similar species:
Similar to *Cyana* (*Cornutivulpecula*) *speideli* spec. nov. (see below).

Early stages and biology:
unknown.

Distribution and Habitats:
Only known from the Virunga volcanoes and southern Rwanda (pl. X, fig. 1). At the locus typicus the species was found on the edge of an anthropogenically influenced mountain rain-forest at the foot of the Nyiragongo (fig. 51).

Cornutivulpecula speideli spec. nov.

Holotype ♂: "Kenya No. 510, Mt. Elgon N. P., Chepnyalil cave, 2500 m, at light, 1992.01.24, leg. A. Lobmayer", "Gen.-Präp. 2350, präp. Karisch, 2008". In MWM.

Paratypes:
Kenya: Mt. Elgon N. P., Chepnyalil cave, 2500 m, 2 ♀♀ (1 ♀ gen. slide 2351, Karisch) 24.-28.I.1992, A. Lobmayer (MWM); Ndimu Mile 469, 1 ♂ (gen. slide B.M. Arct. 5962) 19.IV.[19]01, C. S. Betton (BMNH); Mt. Elgon, 1 ♀ (gen. slide B.M. Arct. 5964) without data, Alinder (ZSM).

Description:
(pl. 16, figs. 58, 59)

Wingspan: ♂♂ 31 mm, ♀♀: 33 – 34 mm.
Forewing white, fasciae red; basal fascia from costa to the middle of wing, at Sc white intersected; antemedian fascia slightly undulate, at costa angled towards base; postmedian fascia widely separated from antemedian fascia, from costa to CuA_1 rather straight or only slightly concave, then angled to dorsum; marginal fascia of two red apical spots; discal spots distinct, black, wide apart; fringes white.
Forewing (underside) white; in ♂ costal field orange tinged between base and antemedian fascia; in ♀ costa more intense red; lobus small, red-brown scaled.
Hindwing without any pattern, white; fringes white.

Genitalia ♂ (fig. 135): Tegumen rather narrow; uncus broad, distally emarginate; valva broad, cucullus shortly triangular; fold weak and more bulging, slightly turned up especially at sacculus; sacculus very broad; process rather broad and short, tip rounded, with two small and weak thorns; vinculum narrow; saccus broad. Aedeagus rather long and narrow, broader at ductus ejaculatoris; two bundles with strong and long cornuti, one field with many more spines than in the other.

Genitalia ♀ (fig. 137): Papillae anales rather large; apophyses rather long and strong; ostium bursae membranous and slightly enlarged; ductus bursae very slender, membranous; bursa copulatrix large, round, with a curved, narrow and strongly sclerotized sclerite with many long spines; appendix bursae from about

half of corpus bursae, membranous.

Similar species:
Cyana (*Cornutivulpecula*) *speideli* spec. nov. is very similar in genitalia to *C*. (*C*.) *klohsi*. In *C*.(*C*.) *klohsi*, uncus is not emarginate and cucullus is broader. In ♀-genitalia, ductus bursae is longer in *C*. (*C*.) *klohsi*. The species are easier to distinguish externally: in *C*. (*C*.) *speideli* spec. nov., discal spots are larger and more widely separated (especially in ♀♀), in ♀♀, forewings are broader and fasciae are darker red, in ♂♂, forewings are larger and outer margin of discal cell is indicated by an obsolescent vein.

Early stages and biology:
unknown.

Distribution and habitats:
Kenya: Mt. Elgon (pl. X, fig. 1).

Cyana (*Cornutivulpecula*) *usambara* spec. nov.

Holotype ♀: "Tanzania, Amani, Usambara, 21/30.IV.76", "Gen.-Präp. 2082, präp. Karisch, 2006". In ZSM.

Paratypes:
Tanzania: Usambara-Berge: Pangani, 1 ♀ 1891, L. Conradt (BMNH); Usambara-Berge, 1 ♀ 16.III.1962, G. Heinrich (ZSM); Usambara-Berge: Sakarani, 1500 m, 1 ♀ 17.XI.1952, 1 ♀ 05.XI.1952, Lindemann & Pavlitzki (ZSM); Amani, 1000 m, 1 ♀ (gen. slide 1799, Karisch) 18.VII.1979, M. Stolze (EMEM); W Usambara Mts., Mazumbai U[niversity] f[orest] s[tation] 8 ♂♂ (1 ♂ gen. slide 10332, Roesler) 3 wA 1 ♀ 17.I.1985, 1 ♂ 18.I.1985, 1 9.II.1985, L. Peregovits (TMB); W Usambara Mts., Magam BA forest, 1818 m, 11 ♂♂ 4 ♀♀ 1.XII.2008, Ph. Darge (ZSM, MNVD); W Usambara Mts., Shume forest, 1876 m, 10 ♂♂ 3 ♀♀ 28.XI.2008, Ph. Darge (ZSM, MNVD).

Additional material:

Tanzania: Arusha-Region: Loliando, 2240 m, 1 ♀ 10.IX.1960, Arthur C. Twomey (CMNH); Lushoto, 1 ♀ XII.1959 (ZSM); "Nr. 3, PL [?]" 1 ♀ (EMEM); Rungwe Mt., 500 ft., 1 ♀ 27.V.1929, Boulton Exp. (CMNH).

Description:
(pl. 16, figs. 60–62)

Wingspan: ♂♂ 22 – 27 mm, ♀♀: 26 – 30 mm.
Forewing white, fasciae brick-red or dark crimson, variable in width; basal fascia faded near dorsum; antemedian fascia dentate, curved towards base at costa and slightly curved basad at dorsum; postmedian fascia angled at about 120° just beyond halfway from costa to dorsum, then strongly curved, reaching dorsum at an acute angle; two to five red triangular marginal spots at apex and below; discal spots rather small, black, wide apart. Fringes white.
Forewing (underside): white; costa between base and antemedian fascia red; in ♂, costal field more or less pink tinged; lobus very small, oval, red-orange scaled.
Hindwing without any pattern, white. Fringes white.

Genitalia ♂ (fig. 139): Tegumen narrow, long; uncus broad, pointed; valva rather broad, cucullus longer, irregularly rounded; fold very well developed, with a crescent-shaped tongue, partially overlapping sacculus; a sclerotized bulge at sacculus opposite the fold; sacculus very broad; process rather narrow and tapered into a short tip; vinculum and saccus also rather broad. Aedeagus rather narrow and long, with two bundles of many long and strong cornuti and a field of very delicate thorns.

Genitalia ♀ (fig. 141): Papillae anales rather large; apophyses anteriores comparatively long; VII. sternite broad, at base with bag-shaped excavations; ostium bursae rather small; ductus bursae at ostium narrow, then broadened towards bursa copulatrix; bursa copulatrix very elongated, curved and bag-like; ductus of appendix bursae broad and short; sclerite distally on (?o.k. B.) corpus bursae, long, large and extending to ductus of appendix bursae. Gland (pl. II, figs. 28, 30) variable, as type "s" (Bendib & Minet, 1998).

Similar species:
Cyana (*Cornutivulpecula*) *usambara* spec. nov. is characterized by the strongly curved postmedian fascia. The ♂-genitalia are easily distinguished from other species by the crescent-like protrusion of the fold. In ♀, *C*. (*C*.) *usambara* spec. nov. is similar to the (completely white) *C*. (*C*.) *meyi* spec. nov., but sclerite of corpus bursae is covered throughout with thorns, and ductus bursae is broader and shorter, making identification straightforward.

Early stages and biology:
unknown.

Distribution and habitats:
Forests of the Usambara and surrounding mountains in northern Tanzania (fig. 52; pl. X, fig. 1).

Cyana (*Cornutivulpecula*) *nussi* spec. nov.

Holotype ♂: "Malawi, Nyika Plateau, W of Chelinda Camp, LF, rain forest, 2100 m, 14.X.1996, leg. Mey & Nuss", "Gen.-Präp. 2081, präp. Karisch, 2006". In ZMB.

Paratype: 1 ♂ with the same data as the holotype. In ZMB.

Additional material:

Tanzania: Iringa Region, Kigogo Forest, 1 ♂ (gen. slide 2749, Karisch) 23. –25.XI.2005, L. Aarvik, M. Fibiger, A. Kingston (CAA); Morogoro Region, Uluguru Mts., Bunduki Forest Reserve, 1275 m, 2 ♂♂ 18.xi.2008, P. Darge (ZSM, MNVD).

Description:
(pl. 17, fig. 65)

Wingspan: ♂♂: 24 – 26 mm.
Forewing: narrow, white; fasciae red; basal fascia discontinued just before dorsum; antemedian fascia rather straight, but very oblique from costa to dorsum; postmedian fascia from costa to CuA_1 parallel with antemedian fascia, then angled and slightly curved basad to dorsum; two or three red patches on margin at and below apex; costal field between basal and antemedian fascia red, costa itself brown; discal spots distinct, black, not approximated, the inner one more elongated oval. Fringes white.
Forewing (underside): white; costal field from base to antemedian fascia orange-red; lobus weak, oval; lobus and wing around lobus with orange scales; cell between antemedian and postmedian fascia brown dusted.
Hindwing: white, without any pattern. Fringes white.

Genitalia ♂ (fig. 138): Tegumen narrow, tapered apically; uncus rather broad, truncated; valva broad; cucullus rather broad, irregularly rounded at tip, far projecting; sacculus very broad, well sclerotized; process projecting only to half length of cucullus, rounded distally with two tips, proximal shorter; vinculum and saccus rather broad. Aedeagus quite short, broad, with two fields of a few spines; spines in each field of about the same length.

Genitalia ♀ unknown.

Similar species:
Cyana (*Cornutivulpecula*) *nussi* spec. nov. resembles *C.* (*C.*) *heidrunae,* but forewings are narrower, postmedian fascia is more strongly angled and discal spots are larger, the inner of which is elongated oval. In genitalia, the species differ in the number of tips of the projection of the sacculus and the size of fields of cornuti in the aedeagus.

Early stages and biology:
unknown.

Distribution and habitats:
Malawi: Nyika Plateau. The known specimens were collected in a mountain rain-forest (Nuss pers., 2008) (fig. 53). Probably the species occurs also in Tanzania, because the genetic differences between material from Malawi and Tanzania are very low (results: dataset DS-CYANA1 on BOLD at www.boldsystems.org)(pl. X, fig. 2).

Cyana (*Cornutivulpecula*) *meyi* spec. nov.

Holotype ♀: " Malawi, Zomba Plateau, Ku Chawe Inn, 1350 m, rain forest, 18.X.1996 LF, leg. Mey & Nuss", "Gen.-Präp. 2113, präp. Karisch, 2006", "Holotypus ♀ *Isine meyi* spec. nov., des. Karisch, 2007". In ZMB.

Description:
(pl. 17, fig. 71)

Wingspan: ♀: 31 mm.
Palpi orange-red, apically yellow; tibiae of 1st and 2nd pair of legs only narrowly orange annulated and tarsi

orange.
Forewing: shiny white, without fasciae; discal spots small, black, not approximated, arranged parallel to costa; costa from base to about 1/5 of its length blackish-brown. Fringes shiny white.
Forewing (underside): white with translucent discal spots.
Hindwings white without any pattern. Fringes white.

Genitalia ♂: unknown.

Genitalia ♀ (fig. 146): Papillae anales narrow; lamella postvaginalis only slightly sclerotized; ductus bursae very slender and long; corpus bursae ovoid, extended distally, with a large and long-tapered sclerite, covered at base with strong cornuti; corpus bursae basally sclerotized and with fields of very long and strong cornuti. Gland (pl. II, fig. 29) between types "r" and "s" (Bendib & Minet, 1998).

Similar species:
Cyana (*Cornutivulpecula*) *meyi* spec. nov. is similar to specimens of *C. heidrunae* without red fasciae. These however have yellowish palpi, dark yellow tibiae of 1st and 2nd pair of legs, which are narrowly annulated only apically, and dark-yellow tarsi. The thorax of *C.* (*C.*) *heidrunae* lacks the transverse fascia. In ♀-genitalia, *C.* (*C.*) *meyi* spec. nov. is distinguished from *C.* (*C.*) *heidrunae* by the tapered and only basally thorny sclerite in bursa copulatrix and the long and slender ductus bursae.

Early stages and biology:
unknown.

Distribution and habitats:
Malawi: only known from the locus typicus on the Zomba Plateau (pl. X, fig. 2).

Cyana (*Cornutivulpecula*) *innocua* spec. nov.

Holotype ♂ (left forewing lacking): "28. 28. Limbe, Nyasaland, Jan. & Febr. 1928, H. Barlow.", "Joicey Bequest. Brit. Mus. 1934 - 120.", "Arctiidae Brit. Mus. slide No. 5921". In BMNH.

Description:
(pl. 17, fig. 66)

Wingspan: ♂: 28 mm.
Forewings: rather narrow, white, fasciae red; costa blackish-red up to just before apex; antemedian fascia delicate; postmedian fascia faded; two orange, triangular spots at margin below apex; discal spots small, black, round, not approximated. Fringes white.
Forewing (underside): white, discal spots translucent; costal field brownish-red, more yellowish dorsally; lobus small, oval, furrowed, brown in an orange blotch.
Hindwing: white, without any pattern. Fringes white.

Genitalia ♂ (fig. 136): Tegumen rather broad and long; uncus broad and truncated; valva broad; cucullus short, broad, rounded at tip, dorsally more strongly sclerotized; fold replaced by a thorny, bent digitus; sacculus broad, process about length of cucullus, only slightly tapered, truncated distally and with a small, curved thorn at tip; vinculum broad; saccus rather broad. Aedeagus rather long, tapered apically, with two groups of spines of about the same size, in one group only very few cornuti.

Genitalia ♀ unknown.

Similar species:
Cyana (*Cornutivulpecula*) *innocua* spec. nov. is similar to *C.* (*C.*) *klohsi*, but has narrower forewings and reduced fasciae. In ♂-genitalia, *C.* (*C.*) *innocua* spec. nov. has a narrower and more projecting process with only one thorny tip and on valva a thorny digitus instead of a fold. The ♀ of *C.* (*C.*) *innocua* spec. nov. is also similar to *C.* (*C.*) *klohsi* in genitalia, but ductus bursae is broader and sclerite of corpus bursae has shorter thorns near ductus bursae.

Early stages and biology:
unknown.
Distribution and habitats:
Limbe in the South of Malawi. Habitats unknown (pl. X, fig. 2).

Cyana (*Cornutivulpecula*) *innocua kaguruensis* subspec. nov.

Holotype: ♂ "Tanzania: Morogoro Region, Kaguru Mts., 1790 m, forêt, 7-II-2005 (Ph. Darge)", "Gen.-Präp. 2748, präp. T. Karisch, 2011". In ZSM.

Description:
(pl. 17, fig. 67)

Wingspan: ♂: 24 mm
Externally very similar to nominotypical *C. innocua innocua* spec. nov. but smaller and with more distinct fasciae. In ♂-genitalia (fig. 149), the only differences from *C. innocua innocua* spec. nov. are the longer digitus in valva, which is projected instead of the fold to sacculus, and the larger number of cornuti in the second field of thorns in vesica.

Until more material becomes available, this male from Kaguru Mountains is provisionally treated as a subspecies of *C. innocua* spec. nov.

Early stages and biology:
unknown.

Distribution and habitats:
Tanzania: only known from the Kaguru Mountains (pl. X, fig. 2).

Cyana (*Cornutivulpecula*) *nyasica* (Hampson, 1918) comb. nov.

Descriptions of New Genera and Species of Amatidae, Lithosidae, and Noctuidae – Novitates Zoologicae **XXV**: 102 f., (*Chionaema*). – Syntype ♂ (BMNH): Nyasaland.

Material:

Syntype: *Chionaema nyasica* Hampson, 1918 ♂: "Type, H. T.", "*Chionaema nyasica* type ♂. Hmpsn.", "Nyasaland. Mt. Mlanje, 13.2.1914, S. A. Neave. 1914 - 171", "gen. slide BM Arct. 5790". In BMNH.

Malawi: Mulanje District, Ruo Gorge, 915 m, 1 ♂ (gen. slide 2326, Karisch) 2 ♀♀ (1 ♀ gen. slide 2325, Karisch) 7.II.2004, L. Aarvik (CAA); Mt. Mlanje, 1 ♀ (gen. slide B.M. Arct. 5915) 11.IX.1913, S. A. Neave (BMNH).

Description:
(pl. 17, fig. 70)

Wingspan: ♂♂ 21 – 22 mm, ♀♀ 25 mm.
Forewing: rather broad, white; fasciae orange-red, distinct at costa, faded towards dorsum; postmedian fascia widely curved towards marginal field; a red-orange spot on margin below apex and two more yellowish spots at M_2 and CuA_1; costa near base with a dark brown spot and from base to antemedian fascia orange-red; discal spots round, black and wide apart. Fringes white.
Forewing (underside): white, discal spots translucent; costal field in ♂ pale orange tinged; lobus weak, oval, orange scaled.
Hindwings on both surfaces without any pattern, white. Fringes white.

Genitalia ♂ (fig. 143): Tegumen broad and short; uncus broad, truncated; valva broad; cucullus long, tapered, tip rounded; fold well developed; sacculus very broad, suddenly tapered to the process; process projecting towards tip of cucullus, slightly curved proximally, truncated at tip, which has a small but strong thorn; vinculum very broad; saccus rather broad. Aedeagus short, broader from middle to apex; vesica with two bundles of numerous cornuti, in one field long and more loosely arranged, in the other one shorter and with spines tightly packed; also an additional field with very fine teeth.

Genitalia ♀ (fig. 145): Apophyses quite slender and a. posteriores short; ostium bursae slightly enlarged; ductus bursae quite broad and short; corpus bursae sac-shaped and crisped, with a broad and helical signum with many long thorns.

Similar species:
Cyana (*Cornutivulpecula*) *nyasica* is well characteristed by the cornuti fields in the vesica.

Early stages and biology:
unknown.

Distribution and habitats:
Only known from the locus typicus Malawi: Mt. Mlanje (pl. X, fig. 3).

Cyana (*Cornutivulpecula*) *nyasica kruegeri* subspec. nov.

Holotype ♂: "Louis Trichard, Hanglip Forestry, 3–4 III.1976, M. J. Scoble", "Gen.-Präp. 2159, präp. Karisch, 2006". In TMP.

Paratypes: South Africa: N[orthern] Province, Entabeni Forest, ca. 1400 m, 1 ♂ 27.I.1998, Krüger & Dombrowski (TMP), 1 Ex. wA [♀] 25.–28.I.1972, Potgieter & Jones (TMP); Malta Forest, 1 ♂ 30.I.1976, D. H. Jacobs (TMP).

Additional material:

South Africa: Marobeni Mts., Drakensberg Range, 1000 m, 1 ♂ (gen. slide B.M. Arct. 5946)(BMNH).

Description:
(pl. 17, figs. 68, 69)

Wingspan: ♂♂: 27 – 30 mm; ♀33 mm.
Thorax in ♂ with a red transverse fascia, in ♀ only with red patches on scapulae.
Forewing: chalky white; fasciae vermilion and very fine, especially in ♀; larger red costal point; antemedian fascia angled at cell towards dorsum, then straight in ♂ and slightly dentate in ♀; postmedian fascia partially obsolescent, fairly straight from costa to CuA_1, then sharply curved to dorsum; in ♂ one or two red triangular marginal spots below the apex, in ♀ only some red scales there; costa in ♂ from base to antemedian fascia bright red, then paler red scaled; discal spots distinct, round, black, not approximated. Fringes white.
Forewing (underside): white; lobus small, oval, orange-brownish.
Hindwings on both surfaces without any pattern, white. Fringes white.

Genitalia ♂ (fig. 144): Tegumen rather broad, short; uncus short, truncated; valva broad; cucullus long and nearly parallel, tip rounded; fold distinct and more strongly sclerotized near sacculus; sacculus broad, process projecting about ½ to ⅔ length of cucullus, strongly sclerotized and with a rounded tip with two short thorns; vinculum strong; saccus broad. Aedeagus comparatively long; vesica with two bundles of strong spines, the spines in one group about ¼ to ⅓ as long as in the other group.

Genitalia ♀: unknown.

Similar species:
Cyana (*Cornutivulpecula*) *nyasica kruegeri* sspec. nov. is very similar to the nominotypical subspecies but is distinguished by the narrow forewings, the longer aedeagus with cornuti much longer in one field and the less arched sacculus.

Differentiation from *C.* (*C.*) *klohsi* is easier on the untapered aedeagus, the longer cornuti in different numbers and the longer and fairly parallel cucullus. From *C.* (*C.*) *innocua* spec. nov. *C.* (*C.*) *nyasica kruegeri* sspec. nov. differs in the shorter process of the sacculus with two thorns.

Early stages and biology:
unknown.

Distribution and habitats:
Mountain Regions in North-Eastern South Africa (pl. X, fig. 3). The habitats are in the Soutpansberg Mountain Bushveld and in the Northern Province Mistbelt Forests (Mucina & Rutherford, 2006).

Cyana (*Cornutivulpecula*) *heidrunae* (Hoppe, 2004)

Isine heidrunae spec. nov. (Lepidoptera: Arctiidae), eine neue Bärenspinnerart von der Insel Bioko an der westafrikanischen Küste. – Entomologische Zeitschrift **114** (3): 106–109, Abb. 1–4, 7, 8 (*Isine*) – Holotype ♂ (CHKP): Equatorial Guinea: Bioko.

Material:

Holotype *Isine heidrunae* Hoppe, 2004 ♂: "Guinea Ecuatorial, Isla de Bioco, NE Pico Basile, 2440 mNN, Lichtung im Bergnebelwald, N 3°36'14", E 8°46'63", LF. 08./09.02.2002 (160 W HWL), leg. H. Hoppe", "Holotypus *Isine heidrunae* spec. nov." In CHKP.

Paratypes: 1 ♀ (Allotypus) with the same dates as the holotype; Bioko, Pico Basile 2400 m, 2 ♂♂ 2 ♀♀ (1 ♀ gen. slide 2218, Karisch) 10.–12.I.2004, LF, leg. Henri & Tim Hoppe (CHKP, CKDT).

Equatorial Guinea (Bioko): NE Pico Basile, 2440 mNN, 4 ♀♀ (1 ♂ gen. slide 1808, 1 ♀ gen. slide 1807, Karisch) 08./09.02.2002, H. Hoppe (CKDT); id., 3 ♀♀ 10. –12.I.2004, H. & T. Hoppe (CKDT).

Cameroon: Mt. Cameroon, 2.5 km S Mann's Spring, 1800 m, 1 ♂ (gen. slide 2062, Karisch) 11.II.1989 (MRAC).

Additional Material:

Cameroon: Baf[ut], 1 ♂ 1 ♀ (ZSM).

Description:
(pl. 17, fig. 63, 64, 72, 73)

Wingspan: ♂♂: 25 - 27 mm, ♀♀ 27 – 33 mm.
Forewing: white, fasciae red, very variable in extension; basal fascia only from costa to middle of the wing; antemedian fascia slightly convex; postmedian fascia from costa to CuA_1 parallel to antemedian fascia, then stronger curved towards dorsum; basal and antemedian fasciae red connected at costa; costa itself orange from base to middle part of wing; discal spots distinct, black, round, widely separated. Fringes white.
Forewing (underside): white; in ♂ costal field from base to antemedian fascia orange, between antemedian and postmedian fasciae pale yellowish-orange tinged; in ♀ costa red between base and antemedian fascia; lobus rather small, oval, orange to yellow.
Hindwing without any pattern, white. Fringes white.
The species was described from a form without red fasciae (pl. 17, figs. 72, 73), which occurs occasionally among the common form. As the barcoding has shown, there are no differences between specimens with and without red fasciae (analysis by the Canadian Center for DNA barcoding).

Genitalia ♂ (fig. 140): Tegumen rather broad; uncus quite broad, tapered near apex and truncated at tip; valva rather broad; cucullus long projecting, slightly curved and rounded at tip; fold well developed especially near sacculus; sacculus very broad, process not reaching tip of cucullus, broad, tip bulky, rounded and with a long thorn; vinculum and saccus rather broad. Aedeagus rather long and broad, vesica with a bundle of very few extremely large spines and another with two to four very small spines.

Genitalia ♀ (fig. 142): Ostium bursae broad, cup-shaped; ductus bursae rather short and slender; corpus bursae round, with a large excavation at the base; a strip-like, curved sclerite with strong spines in corpus bursae. Gland (pl. II, fig. 31) from type "s" (Bendib & Minet, 1998).
The specimen from the mainland has red apical spots on forewing.

Similar species:
Superficially, *Cyana* (*Cornutivulpecula*) *heidrunae* resembles *C.* (*C.*) *klohsi*, and specimens without red fasciae *C.* (*C.*) *meyi* spec. nov. In ♂-genitalia, the present species differs in the single thorn of the sacculus, the reduction of the second field of cornuti, and in ♀-genitalia in the shorter and broader ductus bursae, broader ostium bursae and less extended thorny sclerite in the corpus bursae.

Early stages and biology:
unknown.

Distribution and habitats:
Mountains in Gulf of Guinea (pl. X, fig. 3). Habitat are the *Schefflera*-dominated mountain forests with much *Piper* in the lower vegetation (Cameroon) and the mist-belt forests just below the *Hypericum lanceolatum*-shrub zone in Equatorial Guinea (Bioko) (Hoppe, 2004).

Cyana (*Cornutivulpecula*) *ochrata* spec. nov.

Holotype ♂: "Tanzania Tanga Reg., Muheza Distr.: Kwamgumi For. Res. 170–220 m, 22.VII.1995, leg. S. H. McKamey et al.", "Gen.-Präp. 2331, präp. Karisch, 2008". In CAA.

Description:
(pl. 17, fig. 74)

Wingspan: ♂: 21 mm.
Head white, frons with a pale brown transverse fascia; thorax white, tergites and scapulae with large orange patches.
Forewing: white, fasciae orange; basal fascia faded towards dorsum; antemedian fascia comparatively short; postmedian fascia curved between M_2 and anal angle; marginal fascia distinct, broadened at apex; costa

between base and antemedian fascia pale orange; discal spots small, black, widely separated, the inner one very small, the outer one round. Fringes white.
Forewing (underside): pale orange; lobus small, orange.
Hindwing: pale orange on both surfaces, lightened at costa. Fringes white.

Genitalia ♂ (fig. 148): Tegumen rather narrow; uncus very broad, short, rounded; valva broad; cucullus broad, far projecting, margins nearly parallel, tip rounded; fold distinct, especially near sacculus; sacculus broad, bulged at base of process; process long, strongly tapered and pointed, with a very long tip; vinculum rather small; saccus hardly broadened. Aedeagus rather long and broad, with much sclerotization and folds; in vesica, a field of long cornuti and another with many teeth.

♀ unknown.

Similar species:
Cyana (*Cornutivulpecula*) *ochrata* spec. nov. is very characteristic. Externally it is most like *Cyana* (*Frankmuelleria*) *arenbergeri,* which has dentate fasciae and a pink hindwing.

Early stages and biology:
unknown.

Distribution and habitats:
Only known from the locus typicus in Eastern Tanzania (pl. X, fig. 4).

Cyana (*Cornutivulpecula*) *aberrans* spec. nov.

Holotype ♂: " Tanzania Muheza Distr.: Amani 900–950 m, 12.XII.1992, leg. L. Aarvik", "Gen.-Präp. 2330, präp. Karisch, 2008". In CAA.

Description:
(pl. 17, fig. 75)

Wingspan: ♂: 24 mm.
Head white, frons with a pale brown transverse fascia; thorax white, all tergites and scapulae with an orange-red spot.
Forewing: white, fasciae brick-red to orange; basal fascia obsolescent near dorsum; antemedian and postmedian fasciae broad, faded; antemedian fascia slighly convex; postmedian fascia between costa and M_3 directed to the margin, sharply curved from M_3 to tornus; median fascia orange, especially broad at apex; discal spots black, not approximated; the outer one distinct and round, inner located at the outer margin of the antemedian fascia and consisting of a few blackish-brown scales; costa between base and antemedian fascia orange. Fringes orange.
Forewing (underside): white; costal field near the base bright orange; lobus very small.
Hindwing: white on both surfaces, orange towards the margin. Fringes white.

Genitalia ♂ (fig. 150): Tegumen rather broad; uncus broad triangular; valva broad; cucullus rather short but broad; fold opposite sacculus very strong and bent at costa; sacculus very broad, with a folded projection at base of process; process very broad, broadly truncated and with a long, slender thorn; saccus and vinculum not extended. Aedeagus rather long and broad; with sclerotized fields in the vesica and two bundles of spines, one with longer and bent cornuti and the other with only few, quite long, strong and straight cornuti.

♀ unknown.

Similar species:
Cyana (*Cornutivulpecula*) *aberrans* spec. nov. has a very distinctive wing pattern and cannot be confused with any other species.

Remarks:
Cyana (*Cornutivulpecula*) *aberrans* spec. nov. is placed in subgenus *Cornutivulpecula* subgen. n. on account of the structure of the male genitalia. The venation and the pattern of forewing are different: R_2 is more distinct and M_3/CuA_1 arise from same point on discal cell.

Early stages and biology:
unknown.

Distribution and habitats:

Tanzania. Only known from the surroundings of Amani (pl. X, fig. 4).

Cyana (*Cornutivulpecula*) *rejecta* (Walker, 1854) **comb. nov.**

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 521, (*Setina*). – Syntype (BMNH): in publication without data; 1 Syntype in BMNH [wA, probably ♂]: Natal.

= *bipunctigera* Wallengrén, 1860, Lepidopterologische Mitteilungen. – Wiener Entomologische Monatsschrift **IV** (2): 45, (*Lithosia*). – [Holo]type ♀ (ZRMS): unknown.
Synonymized by Hampson (1914): 635.

Material:

1 **Syntype**: *Setina rejecta* Walker, 1854 (wA, probably ♂): "type", "Natal", "18. *Setina rejecta*", "1952-188". In BMNH.

Sierra Leone: Clements, 1 ♂, [18]99–116 (BMNH);

Angola: N'Dalla Tando, 2700 feet, 1 ♂ 28.X.1908, 1 ♀ 23.X.1908, Dr. W. S. Ansorge (BMNH); Fazenda Congulu, Amboim district, 7–800 m, 2 ♀ 12.–16.IV.1934 (BMNH); Libollo, 1 ♂, Pemberton (BMNH); Calweha R., 1 ♀13.VI.[18]96, Penrice (BMNH).

Uganda: n[ea]r Congo border, 1 ♂ III.–IV.1926, Mrs. E. Barns (BMNH); Ruwenzori Range, Ibanda, 4700 ft., 20.–21. VIII.1952, D. S. Fletcher (BMNH); S.E. Ruwenzori, 3500ft., 1 ♂ 19.VI.1906, Hon. G. Legge & A. F. R. Wollaston (BMNH); Mile 478 on Uganda Rly., 1 ♀ 19.XI.1900, C. S. Betton (BMNH); Kampala, 1 ♂ I. [18]97, dry s[eason], Dr. Ansorge; Nabagulo Forest 15 m[iles] from Kampala 1 ex. wA 25.X.–06.XI.1921, W. Feather (BMNH);

Kenya: Mt. Kenya vers Ouest, Rivière Amboni, Vallée Boisée, 1800 m, 1 ex. wA I.–II.1912, Alluaud & Jeannel (MNHN); Mt. Kenya, West to North, 2 ♀♀ 13.-30.V.[19]30, E. Barns (BMNH); Mt. Kenya, north-east to south-east, 1 ♂ VII.1930, E. Barns (BMNH); Nairobi, 1 ♀ IV.1913 (MNHN); id., 1 ex. wA X.1918, 1 ♂ 2 ♀♀ VI.1919, Dr. van Someren (BMNH); Sud due Lac Rodolph, 1 ex. (slide GU-A.126) 1906, Maurice de Rothschild (MNHN); Suna, S Kavirondo, 1 ♀ I.1932, W. Feather (BMNH); Lumbwa, 1 ♀ 4.VI.1923, 1 ♂ 26.VII.1922, G. W. Jeffery (BMNH); Eldama Ravine, 1 ♀ 4.XII.[18]96, Dr. Ansorge (BMNH); Taita Hills, Mwacha indig[enous] forest, 2 ♀♀ 14.VIII.1999, U. Dall'Asta (MRAC); Ngare Nyouki, 1 ♀ 1909, Ch. Alluaud (MNHN).

Tanzania: Kilimandjaro, 1 ex. wA 1905–1906, Sjöstedt (MNHN); Mamba, Kilimandjaro 1 ♀ III.–X.1897 (BMNH).

Malawi: Zomba, 1 ♀ I.–II.[19]24, H. Barlow (BMNH); Mt. Mlanje, 1 ♂ 1 ♀ 24.III.1913, S. A. Neave (BMNH); Valley of S. Rokuru R., 3000ft., 1 ♂ 20.V.1910, S. A. Neave (BMNH).

South Africa: Transvaal: Pretoria, 1 ♀ (without dates), W. C. Distant (BMNH); White River, 1 ♂ XII.1906, A. T. Cooke. Natal: 1 ex. wA, A A.J.Spiller (BMNH); 1 ♂ 1 ex. wA, G. F. Leigh (BMNH); Karkloof , 1 ♂, G. A. K. Marshall (BMNH); Durban, 1 ♀ 24.IX.1913, (BMNH); Kaffraria, Bashee R., 1 ♂, J. H. Bowker (BMNH);

Madagascar: **North**: Haut Sambirano, 1100 m, vallée de la Besanetrikely, 2 ♀♀ 9.–12.XI.1963, P. Viette (MNHN); massif du Tsaratanana, Andohananalila, 1 ♂ déb. III.1967, P. Soga (MNHN); **East**: Station Périnet, 149 km east of Tananarivo, 1 ♀ XII.1932, 1 ♂ I.1933, Mme. N. d'Olsoufieff (BMNH); env. de Périnet, forêt d'Analamazoatra, 910 m, 1 ex. wA, 2 ♀♀, 14.I.1955, 1 ♂ 21.XI.1954, 1 ♂ 26.XI.1954, P. Viette (MNHN); district de Maroantsetra, route de Navana, km 16,5, vallée d'Antoroka, 100 m, 1 ♂ 8.-18.I.1964, P. Viette (MNHN); route d'Anosibe, km 26, forêt de Sandrangato, 1 ♂ 17.XII.[19]54, 1 ♂ 18.XII.[19]54, 1 ♂ 19.XII.[19]54, P. Viette (MNHN); route de Lakato, km 15, Ankasoka 1100 m, 1 ♀ 2.–10.I.1959, 1 ♂ 17.–21.X.1963, P. Viette (MNHN); piste d'Andapa à d'Ambalapaiso, 25 km ouest d'Andapa, 725 m, 2 ♂♂ 3 ♀♀ 24.–28.XI.1968, P. Griveaud, A. Peyrieras & P. Viette (MNHN); Mananjary, 1 ♂ 1 ex. wA XI.1918, M. Le Moult (BMNH); **Centre**: massif du Tsaratanana, en dessous de l'Andohanisambirano, matsabory, 1900 m, 2 ♂♂ III.1965, P. Soga (MNHN); 8 km S.E. d'Anjozorobe, forêt de Vanjamanitra, 1380 m, 1 ♀ 20.–23.X.1966, P. Griveaud, J. Vadon & P. Viette (MNHN); Tananarive, 2 ♂♂ 1889, R. P. Camboué (BMNH); id., 2 ♀♀ coll. Chulliat (BMNH); id., 1 ♀ 1927, coll. R. Decary (MNHN); Mahatsinjo près Tananarive, 1 ♂, (BMNH); Nanisana near Tananarive, 1 ♀ I.1932, , 1 ♀ XII.1931, 1 ♂ 1 ♀ I.1932, Mme. N. d'Olsoufieff (BMNH); Mananjara, 1 ♂ XI.1918, M. Le Moult (BMNH); Mananjary, 3 ♂♂ 1918, G. Melou (BMNH); Imerina, 1 ♀1892, R. P. Camboué (BMNH); Plateau d'Imerina, 1 ♀ (gen. slide 1820, Karisch) 16.I.1952, P. Viette (ZSM); Plateau d'Imerina, Parc de Tsimbazaza, 1 ♀ 7.XI.1951, 1 ♀ 15.XII.1951, 1 ♀ (wA) 24.XII.1951, 1 ♂ 14.I.1952, 1 ♀ 18.I.1952, 1 ♂ 1 ♀ 25.II.1952, 1 ♀ 7.–15.II.1964, 4 ♀♀ 14.–18.III.1964, P. Viette (MNHN); Ambatofinandrahana, 3 ♂♂ 26.VII.[19]57, P. Griv[eaud] (MNHN); Ambalamarovandana, Andringitra-Ambalavao, 1530 m, 6 ♂♂ 3 ♀♀ 21.–22.I.[19]58, P. Griveaud (MNHN); Andranotobaka, SE d'Ambatolampy, 1400 m, 1 ♂ III.[19]57, P. Griveaud (MNHN); Massiv de l'Ankaratra, Manjakatompo, 1 ♀ 23.XI.1951, P. Viette (MRAC); Massif de l'Ankaratra, forêt d'Antarivady, 2130 m, 2 ♂♂ 2 ♀♀ 4.–7.I.1972, P. Griveaud (MNHN); id., 2 ♂♂ 3 ♀♀ 10.–14.I.1967, P. Viette & P. Griveaud (MNHN); Forêt d'Ambahona, 1850 m, 1 ♂ 17.XII.1951, 2 ♀♀ 26.XI.1951, 1 ex. (GU M-901a) 1 ♂ 4 ♀♀ 28.XI.1951, 1 ♀ 29.XI.1951, 1 ♀ 16.I.1952, 1 ♀ 22.I.1952, 1 ♀ 24.I.1952, 1 ♂ 25.I.1952, 1 ♂ 3 ♀♀ 18.II.1952, 1 ♀ 25.II.1952, 2 ♂♂ 27.XI.1952, P. Viette (MNHN); La Mandraka, 1200 m, 2 ♂♂ 10.–13.III.1964, P. Viette (MNHN); route d'Ambositra à Ambohimanga du Sud, km 39, 1350 m, 1 ♂ 1 ♀ 6.–11.XI.1963, P. Viette (MNHN); env. d'Ambohimahasoa, canton de Tsarafidy, forêt d'Ankafina, 1450m, 1 ♂ 12.–18.III.1963, P. Viette (MNHN); id., 1 ♀ III.1967, P. Griveaud (MNHN); forêt a l'est du Lac Mantasoa, Andrangoloaka, 1389 m, 1 ♀ 27.II.–6.III.1970, P. Griveaud (MNHN); Station forestière d'Angavokely (Carion), Angavobe, 1700 m, 3 ♂♂ II.1969, P. Soga (MNHN); massif de l'Itremo, 1615 m, 1 ♀ 4.-6.I.1973, A. Peyrieras (MNHN); id., col. de l'Itremo, 1600 m, 1 ♀ 16.–20.II.1974, P. Viette & A. Peyrieras (MNHN). **South-East**: N. E. de Fort-Dauphin, massif de l'Andohahelo, forêt d'Andranomangara, 1770 m, 10 ♂♂ 1 ♀ 10.–16.V.[19]72, P. Griveaud (MNHN);

Forêt de Befotaka (Midongy du Sud), 950 m, 1 ♀ 3.–7.III.1959, P. Viette & P. Griveaud (MNHN).

Description:
(pl. 17, figs. 76, 77)

Wingspan: ♂♂: 18 – 32 mm, ♀♀: 21 – 32 mm.
Head and palpi yellow. Thorax and abdomen yellow; legs without any pattern, yellow, tarsi black.
Forewing: yellow, fringes slightly paler; without any pattern apart from two round, black, not approximated discal spots, the inner one often very small. Fringes yellow.
Forewing (underside): yellow; discal spots slightly brownish translucent; lobus small, round.
Hindwing: unicolorous yellow.

Genitalia ♂ (fig. 151): Tegumen rather broad; uncus small, pointed; valva rather small; cucullus long and narrow, tip rounded; fold distinct, overlapping costa; sacculus narrow; process long and narrow, tapered at tip to a pointed thorn; vinculum rather small; saccus comparatively broad. Aedeagus of medium size; vesica with a few very strong and a higher number of longer and slender spines and some fields of smaller teeth.

Genitalia ♀ (fig. 153); Papillae anales rather large; ostium bursae large, membranous; ductus bursae long, in lower part gathered and strongly sclerotized; bursa copulatrix distally with a large appendix bursae, strongly crisped and with irregular sclerotizations. Gland (pl. II, fig. 32) as type “r” (Bendib & Minet, 1998).
Specimens from Madagascar are smaller than those from the African mainland. Some specimens have a reduced inner discal spot or none.

Remarks:
Cyana (*Cornutivulpecula*) *rejecta* is only provisionally placed in subgenus Co*rnutivulpecula* subgen. nov. The males differ in the transformation of vein R_4/R_5 before the lobus, the weakly indicated, straight outer discal vein and the more circular lobus. Female with M_3 and CuA_1 arising from one point at the cell. In genitalia, male with a very strong costal fold and a very thorny vesica. In female genitalia, the sclerotized ductus bursae and the lack of the sclerite in the corpus bursae are noticeable.

Early stages and biology:
unknown.

Distribution and habitats:
East Africa from Kenya and Uganda to Eastern South Africa and Madagascar (pl. X, fig. 4). The few records from Sierra Leone and Angola are from outside this area and require confirmation. *Cyana* (*Cornutivulpecula*) *rejecta* occurs mainly in forest habitats. The specimen from Ngare Nyouki was collected in a mountain savannah (MNHN).

Subgenus: *Idiovulpecula* subgen. nov.

Description:

Head: Proboscis well developed; palpi about 1½ diameter of shaft eye; eye dark greyish-brown; antenna with bristles and cilia in two rows, scaled on the upper side; cilia about 1½ diameter of shaft.
Thorax white, with red transverse fascia and a red spot on 2nd and 3rd tergites; abdomen white, tip sometimes pale yellowish; 1st and 2nd pair of legs orange, white annulated; 3rd pair of legs white, tarsi pale orange.

Wings.
Venation (male, fig. 54):
Forewing: R_2 obsolescent; R_3 and R_4 stalked; M_1 curved under lobus; M_2 obsolescent before margin of discal cell; outer margin of discal cell only visible at about ¼ of its length from base of M_3/CuA_1; M_3/CuA_1 from one point at anal angle of cell; CuA_2 from basal half of cell. Lobus medium sized, divided into an oval depression on wing surface and a flat, round part, which partly covers the depression on underside of wing; surface of lobus traversed by a broad and curved R_3/R_4.
Hindwing: Rs/M_1 and M_3/CuA_1 stalked; branches of Rs and M_1 and M_3 and CuA_3 divergent at margin; M_2 well developed and forming a reduced tube, particularly near margin; CuA_2 from about ¾ of cell.
Venation (female, fig. 55):
Forewing: R_3/R_4 long stalked; M_1 and R_3/R_4 short stalked near apical angle of cell; M_2 and M_3 arising from same point on cell, M_2 strongly curved to M_3; CuA_1 approximated to M_2/M_3; CuA_2 from just beyond half of cell and strongly curved in first part.
Hindwing: as in male, but M_2 weak.

Pattern and colour: Forewing rather narrow, especially in male, apically rounded; ground colour white or greyish-brown; fasciae red, somewhat dentate, marginal spots only at the apex, sometimes absent; discal spots distinct, black, not approximated, basal spot round, the outer sometimes elongated.
Hindwing without any pattern, white or pale yellowish-brown.

Sexual dimorphism insignificant. Females are larger and fasciae are more dentate.

Genitalia ♂: Uncus narrow and pointed; valva broad, divided at tip; cucullus rather long projecting, tip rounded; sacculus strong, process very strong and projecting moderately, on the inner surface flattened, tip with a long and strong thorn; fold very well developed and overlapping costa, folded at sacculus; juxta well sclerotized. Aedeagus longer, strongly tapered at coecum, bulged at ductus ejaculatoris, tube covered with a ring of many delicate, short thorns, which are smaller towards the apex; vesica with a field of numerous slender and longer cornuti, a sclerotized plate and a field with very small teeth.

Genitalia ♀: Papillae anales rather large; apophyses strong and long; ostium bursae only slightly enlarged, membranous; lamella postvaginalis strongly sclerotized and protruding ostium laterally; ductus bursae rather broad and short, strongly sclerotized and folded from base to middle; corpus bursae oblique and potato-shaped; ductus of appendix bursae from upper part of corpus bursae; appendix bursae medium-sized, membranous; sclerotized and folded between ductus bursae and ductus of appendix bursae distally and between the ducti; corpus bursae with a depressed signum with delicate thorns.

Distribution: whole Afrotropical forest and savanna belts.

Etymology: idio- (Greek) = special-; vulpecula = little fox.

Type species: *Cyana* (*Idiovulpecula*) *pretoriae* Distant, 1894

Key to the species

1 forewings white or yellowish, without transverse red fasciae ……..2
1* forewings with red fasciae ……..3
2 forewing with three black spots ……..*Cyana* (*Idiovulpecula*) *magnitrigutta* spec. nov.
2* forewing with two black spots ……..*Cyana* (*Idiovulpecula*) *bigutta* spec. nov.
3 forewing white ……..4
3* forewing greyish-cream ……..*Cyana* (*Idiovulpecula*) *squalida* spec. nov.
3 ♂ without thorny ring on tube of aedeagus, ♀ ductus slender, sclerotization of lamella postvaginalis broad ……..*Cyana* (*Idiovulpecula*) *rwandana* spec. nov.
3* ♂ with thorny ring on tube of aedeagus; ♀ with broader ductus bursae, sclerotization of lamella postvaginalis hexagonal or more narrowly elliptical ……..4
4 ♂ tube of aedeagus less bulged at ring of thorns, thorns smaller; ♀ sclerotized part of lamella postvaginalis broad and nearly hexagonal, ductus bursae longer……*Cyana* (*Idiovulpecula*) *pretoriae*
4* ♂ tube of aedeagus more bulged at ring of thorns, thorns stronger; ♀ sclerotized part of the lamella postvaginalis smaller and nearly elliptical, ductus bursae short, broad ……..*Cyana* (*Idiovulpecula*) *togoana*

Cyana (*Idiovulpecula*) *pretoriae* (Distant, 1897) **comb. nov.**

On a Collection of Heterocera made in the Transvaal. – The Annals and Magazine of Natural History, Ser. VI, vol. **XX** (116): 198f., (*Chionaema*) – Lectotype ♂ (BMNH): South Africa: Transvaal: Pretoria.

Material:

Lectotype ♂ (herewith designated): " Transvaal, Pretoria, W. L. Distant, 7.x.1894", "Arctiidae genitalia slide no. 5650", "Distant Coll., 1911 - 383", "pretoriae Dist." In coll. BMNH.
Paralectotype ♂ with the same data, not dissected.

Kenya: Nairobi, Muguga, 1 (gen. slide B. M. Arct. 5940) 15.VI.[19]71, 1 ♂ 26.VI.[19]71, E. S. Brown (BMNH); Nairobi, 1 ♂ (gen. slide B. M. Arct. 5939) 17.V.1919, Dr. v. Someren (BMNH); Nairobi, 1 ♀ (Gen.-Präp. B. M. Arct. 5941) April 1927, D. H. Hopkins (BMNH); Rift Valley, Naivasha, 1 ♀ 12.IV.1933 (MNHN); Voi Plantations, 1 ♂ 21.II.1912, C. Montague Smyth (BMNH); Taita Hills, Mbololo Forest edge, 2 ♀♀ (1 ♀ gen. slide 2020, Karisch) 24.VI.1998, U. Dall'Asta (MRAC); Taita Hills, Mbololo Plantation, 1 ♀ 27.VI.1998, U. Dall'Asta (MRAC);
Tanzania: Usambara Mts., Mazumbai, 1520 m, 1 ♀ (gen. slide 1796, Karisch) 18.I.1985, L. Peregovits (EMEM); id., 1 ♀ (gen. slide 10331, Roesler) 18.I.1985, L. Peregovits (TMB); Arusha, Loliando, 2240 m, 1 ♂ (gen. slide 2077,

Karisch) 4.IX.1960, A. C. Twomey (CMNH); Morogoro Distr., Usa River, 1170 m, 1 ♂ 9.VIII.1991, L. Aarvik (CAA); id., 1 ex. wA 1.V.1965, Dr. Szunyoghy (TMB); Morogoro Town, 550 – 600 m, 1 ♂ 2.X.1992, 1 ♂ (gen. slide 2327, Karisch) 11.VIII.1992, 1 ♂ 20.I.1993, 1 ♂ 22.VI.1993, L. Aarvik (CAA); Songea, 1100 m, 1 ♀ (gen. slide 1797, Karisch) 28.IV.-2.V.[19]36, Zerny (EMEM); Songea, Litembo, 1500 m, 1 ♀ 3.III.[19]52, Pater O. Morger (ZSM); Songea, 4700 ft., 1 ♀ 26.II.[19]33, R. F. Johnstone (BMNH);

Malawi: Zomba, 2 ♀♀ (1 ♀ gen. slide B. M. Arct. 5933) VI.1923, H. Barlow (BMNH); Zomba District, Likomgala River, 1 ♀ I.[19]22, H. Barlow (BMNH);

Zimbabwe: Vukutu 15 km W Juliasdale, 1840 m, 1 ♂ (gen. slide 1818, Karisch) 28.II.1999, J. Lenz (ZSM); Salisbury, 1 ♂ V.1901, G. A. K. Marshall (BMNH); Harare, Christon Bank, 1 ♂ (gen. slide 2136, Karisch) 22.X.[19]92, N. J. Duke (TMP); Laurenceville, Vumba, 1 ♂ (gen. slide 2133, Karisch) 4.X.1964, D. M. Cookson (TMP), id., 1 ♂ 11.-14.X.1990, N. J. Duke (TMP); Umtali, 1 ♂ 18.-20.IV.1956, v. Son & Vári (TMP); Penhalonga, 1 ♂ (gen. slide 2134, Karisch), D. A. Kidwey (TMP); Mutare, Murahwa's Hill, 1 ♂ (gen. slide 2135, Karisch) 16.X.1989, N. J. Duke (TMP); Inyanga, 1 ♂ 19.II.1975, N. J. Duke (TMP); [without more indications] 1 ♀ (gen. slide 2142, Karisch) 6.-10.IV.19[3?]4, A. J. T. Janse (TMP); Hopefontain, 1 ♀ (gen slide 2144, Karisch) 11.XI.1927, Swinburne & Stevenson (TMP); Lundi, 1 ♀ (gen. slide 2145, Karisch) 13.-16.III.1964, Vári & v. Son (TMP); Selukwe, 1 ♂ 1915, 1 ♂ 1917, A. Ellenberger (MNHN); Macheke, 1 ♂ IX. [19]25, coll. Janse (TMP);

South Africa: **Transvaal** (= *C.* (*I.*) *pretoriae pretoriae* (Distant, 1897): Pretoria 1 ♂ W. L. Distant (BMNH); Pretoria 1 ♂ (BMNH); Pretoria, Wilow Glen, 1 ♀ (gen. slide 2139, Karisch) 29.X.1998, L. Vári (TMP); Pretoria, 1 ♀ 7.XI.1918, W. Impey (TMP); Johannesburg, 6000 ft., 1 ♀ 1896, J. P. Crogue (BMNH); Johannesburg, 1 ♂ II.1906, A. T. Cooke (TMP); Suikerbosrand Natuurreservaat, 1 ♂ (gen. slide 2137, Karisch) 17.III.1978, D. M. Kroon (TMP); Pilgrimsrest, 1 ♀ (gen. slide 2157, Karisch) II.79 [?], 1 ♂ 19.II.1919, coll. Janse (TMP); Marieps M[ou]nt[ain], 1 ♀ XII.1925, G. van Son (TMP); Bergvliet forest farm, 1 ♀ (gen. slide 2161, Karisch) 11.XI.1980, Endrödy-Younga (TMP); Sjonajona, Badplaas Dist., Mondi forest, 1384 m, 2 ♂♂ (gen. slide 2162, 2136, Karisch) 11.-16.XI.2002 (TMP); Waterval Boven, 1 ♂ 16.-17.III.1967, Potgieter & Godger; Bushman Rock, 1 ♂ 18.II.[19]80, N. J. Duke (TMP); Rustenburg, Natuureservaat, 1 ♂ 6.-8.X.1975, Potgieter & Scoble (TMP); Irene, 1 ♀ 11.IV.1972, C. K. Brain (TMP); Boekenhoutsdkloofdrift, 1 ♂ 31.X.1981, Mrs. E. A. Voigt (TMP); Rooiberg, 1 ♂ 16.VIII.1959, R. B. Copley (TMP); White River, Cooke, 1 ♂ IV.[19]11, coll. Janse (TMP); Levubu, Farm Arbor, 1 ♀ (gen. slide 2141, Karisch) 24.-28.I.1998, Krüger & Dombrowsky (TMP); Naboomspruit, 20 km N, 1 ♂ (gen. slide 2156, Karisch) 18.I.[19]97, M. Picker (TMP); **Natal**: National Parc, 6 ♂♂ (1 ♂ gen. slide B.M. Arct. 5916) 1 ♀ (gen. slide B.M. Arct 5919) III.1932 [Mrs. A. Mackie, J. Olgivie] (BMNH); Mooi River 3 ♂♂ (1 ♂ gen. slide B.M. Arct. 5917) (BMNH); Natal, 1 ♀ (ZMB); Drakensberg Region, Royal National Park-Region, Hlalanathi-Bergresort, 1800 m, 1 ♂ 20.-24.I.2002, de Freina (MWM); Drakensberg Region, 30 km SSW Underberg, Coleford National Reserve, 1750 – 1900 m, 2 ♂♂ 24.-29.XI.1999, de Freina (MWM); Dragon's Peak Park, 1 ♀ (gen. slide 1987, Karisch) 9.-12.XI.1993, Mey & Ebert (ZMB); Estcourt, 6 ♂♂, J. M. Hutchinson (BMNH); Margate, 1 ♂ (gen. slide 1988, Karisch) IV.1996, l. c. (ZMB); Weenen, 1 ♀ i.1895 (BMNH); New Hanover, 1 ♀ 14.XI.1915, C. B. Hardenberg (TMP); Newcastle, 1 ♀ (BMNH); id., 1 ♀ IX.1976, T. S. Kroon (TMP); [without locality] 1 ♀ 1901 (BMNH); Albert Falls, 1 ♂ V.1934, Bell-Marley (TMP); Kloof, 1 ♂ III.1934, Bell-Marley (TMP); Weza Forest, 1 ♂ 28.-30.XI.1981, D. H. Jacobs (TMP); Ngome State Forest, 1 ♂ 18.-22.I.1993, Krüger & Dombrowsky (TMP); Ersteling, 1 ♀ 24.II.[19]01 (TMP); Mont-aux-Sources, 1 ♂ 9.II.-III.1961, A. L. Acutt, 1 ♀ 13.IV.1960, F. Pardoe (TMP); Umzinkulu, 1 ♂ 29.III.[19]82, N. J. Duke (TMP); Pietermaritzburg, 1 ♀ (gen. slide 2143, Karisch) 19[??], C. Akerman (TMP); P[ieter]m[aritz]b[urg], 1 ♀ II.[19]32, [Akerman] (TMP); **Eastern Cape**: Tsitsikama, De Plaat Forestry, 1 ♂ (gen. slide 2132, Karisch) 18.III.1979, Potgieter & Scoble (TMP); Wylie's Port, 1 ♂ 2.II.1920, C. J. Swierstra (TMP); Jouberts Pass, Lady Grey, 1 ♂ 23.III.[19]96, N. J. Duke (TMP);

Lesotho [Basutoland], Maseru, 1 ♂ 6.V.1902, 1 ♂ 10.XII.1901, R. Crawshay (BMNH); Masite, 1 ♀ 3.IV.1902, S. Weigall (BMNH).

Provisionally assigned:

Kenya: Mt. Kenya, East. Chogaria Forest Station, 4 ♂♂ (gen. slide 306/2004, Kühne; gen. slide 2249, 2250, Karisch) 06.X.2001, L. Kühne (CKP); Escarpment, 6500 – 9000 ft., 2 ♂♂ (gen. slide B. M. Arct. 5947) II.[19]01, 1 ♂ X. XI.1900, W. Doherty (BMNH);

Tanzania: Mt. Meru, E. slope, forestry, 5700 ft., 1 ♂ (gen. slide 1713, Karisch) 21.I.-1.II.1966, J. Szunyoghi (EMEM); id., 1 ♂ (gen. slide 10391, Roesler) 12.V.1965, Dr. J. Szunyoghy (TMB); [Mt. Meru], USA River 3900 ft., 1 ♂ (gen. slide 10370, Roesler) 3.VI.1965, Dr. Szunyoghi (TMB); Mt. Meru, Momella, 1600 – 1800 m, 4 ♂♂ (1 ♂ gen. slide 2029, Karisch) 1 ♀ (gen. slide 2030, Karisch) 10.-19.II.[19]64, W. Forster (ZSM); Forêt de Meru, 4.VII.1973, P. Rougeot (MNHN); Mt. Meru, E., 7000 – 8000 ft., 1 ♂ I.1938, B. Cooper (BMNH); Mt. Meru, Campsite 3, 1680 m, 1 ♂ 20.X.2004, Ph. Darge (ZSM); Kilimandjaro, West, 1690 m, 2 ♂♂ (gen. slide 2240, 2251, Karisch) 3.VII.2005, l. c. (MWM).

Description:

(pl. 17, figs. 78, 79)

Wingspan: ♂♂: 28 – 35 mm, ♀♀: 35 – 43 mm.

Forewings: white, fasciae brick-red to crimson; basal fascia slightly dentate, obsolescent near dorsum; antemedian and postmedian fasciae distinct, straight to slightly curved outward, but parallel; in ♀♀ postmedian fascia below the cell slightly angled and tapered; at the apex and below some red spots, in ♀♀ occasionally

absent; discal spots quite large, black, widely separated, the inner one round, the outer elongated, especially in ♂; costa between base and antemedian fascia reddish, colour sometimes extending over half of wing. Fringes white.
Forewings (underside): white, pattern translucent; costal field in ♂ orange-yellow to orange-red; lobus rather small, pear-shaped, paler orange scaled.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 152): Tegumen rather broad; uncus pointed; valva broad; cucullus long, narrow and irregulary rounded at tip; fold well developed, turned up only slightly, especially at costa; sacculus broad, more strongly sclerotized distally, and with a distinct tip; vinculum broad; saccus broad, slightly thickened at middle. Aedeagus slender, medium long; coecum elongated and tapered, slightly bulged in apical third and covered with many small thorns, which become smaller towards apex, finally obsolescent; vesica with a sclerotized plate, a small field with cornuti and another with very small teeth.

Genitalia ♀ (fig. 154): Papillae anales quite large; apophyses rather long and slender; lamella postvaginalis large, sclerotized, nearly hexagonal, often with two prolonged tips at the upper corners; ductus bursae rather short, slightly folded and sclerotized from just behind ostium bursae to corpus bursae; bursa copulatrix short, sac-shaped, with a large appendix bursae; opening of ductus of appendix bursae coarsely dentate; signum an undulate small depression at end of corpus bursae. Gland (pl. II, fig. 33) as type "o" (Bendib & Minet, 1998), but lateral lobes truncated.

Cyana (*Idiovulpecula*) *pretoriae* is quite variable. Specimens from northern Transvaal to southern Tanzania have brighter and broader fasciae. Those from Kenya (Nairobi).have very delicate fasciae.

Remarks:
Within *C.* (*I.*) *pretoriae*, there is evidently a group of subspecies or species *in statu nascendi*. For example an interesting individual group occurs in the mountains of Mt. Meru, Kilimandjaro and Mt. Kenya. The males (pl. 17, fig. 80) have broader forewings, the fasciae are more strongly curved outward and sometimes dark-brown tinged, the outer discal spot is very long and often connected with the postmedian fascia. The lobus is sometimes bright orange scaled. The ♂-genitalia (fig. 156) are very similar to those of *C.* (*I.*) *pretoriae* from other regions. The uncus is slightly broader, the curvature of the sacculus more distinct and the aedeagus shorter with a shorter coecum. No differences were found in the ♀-genitalia (fig. 158). The glands (pl. II, figs. 34-36) are types "r" or "q" (Bendib & Minet, 1998), but especially in specimens from East Africa the lateral lobes are undulated or with protrusions. Initial genetic studies (see dataset DS-CYANA1 on BOLD at www.boldsystems.org") have shown that there are often slight distances of up to 1% between specimens of *C.* (*I.*) *pretoriae*, which are found also between those from one locality. No corresponding morphological differences have been found, and at present the nominate subspecies *C.* (*I.*) *pretoriae pretoriae* can only be confirmed for Transvaal. More fresh material is needed for further morphological and genetic studies of specimens from the other parts of Eastern and Southern Africa.

Similar species:
Externally, *Cyana* (*Idiovulpecula*) *pretoriae* is very similar to C. (*I.*) *togoana*. In ♂-genitalia, tube of aedeagus is less bulged at the ring of thorns, the thorns are smaller and the ring is more extended; median part of saccus is less arched.
In ♀-genitalia, the sclerotized part of the lamella postvaginalis is broader and nearly hexagonal, the ductus bursae longer and the sclerotization of corpus bursae is less confined to thec area around ductus of appendix bursae.

Early stages and biology:
unknown.

Distribution and habitats:
East and South-East African species, distributed from the mountains of Eastern Cape and Natal to Kenya; not yet found west of the western part of the Rift Valley (pl. X, fig. 5). The range of habitats extends from savannas and bushland to anthropogenically influenced forests.

Cyana* (*Idiovulpecula*) *pretoriae spectabilis Karisch & Dall'Asta, 2010

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal of Afrotropical Zoology **6**: 123, figs. 12, 13, 21, 25, (*Cyana*). –Holotype ♂ (MRAC): Dem. Rep. Congo: Lubumbashi (= Elisabethville).

Material:

Holotype ♂: "Musée du Congo, Elisabethville, 15-IX-1936, Ch. Seydel". In MRAC.

Paratypes: Dem. Rep. Congo (Zaire): Elisabethville, 1 ♂ III.1935, 1 ♀ XII.1936, 1 ♀ 21.XI.1936, Ch. Seydel (MRAC); Elisabethville, 1 ♂ (gen. slide 1817, Karisch) 4.XI.[19]58, 1 ♀ (gen. slide 1989, Karisch) 23.I.1949, Ch. Seydel (ZSM); Elisabethville, 1 ♀ V.1940, H. J. Brede (TMP); Kafakumba, 1 ♀ 19.II.1926 (BMNH).

Dem. Rep. Congo (Zaire): Elisabethville (= Lubumbashi), 12 ♂♂ 19 ♀♀ 13.I.[19]23, 29.XII.1931, 16.XI.1933, 3.X.1934, 30.X.1934, 8.XII.1934, 6.XI.1936, 10.XI.1936, 18.XI.1936, 26.XI.1936, 8.II.1937, 1.XI.1937, 6.XI.1938, 17.XI.1937, 22.I.1938, 21.II.1938, 31.III.1938, Ch. Seydel (MRAC); id., IV.1912, 22.X.1914, Overlaet (MRAC); id., 1 ♂ 24.I.1979, 1 ♂ 26.I.1979, J. Thiry (MRAC); Kafakumba, 1 ♀ 1929, G. F. Overlaet (MRAC).

Description:
(pl. 17, figs. 82, 83)

Wingspan: ♂♂: 29 – 32 mm, ♀♀: 33 – 49 mm.

Similar to *C.* (*I.*) *pretoriae pretoriae*, but fascia and patches on thorax larger; fasciae on the forewing much broader and brighter red; marginal spots confluent, forming a marginal fascia from apex to middle of wing; discal spots very large and distinct.

♂-genitalia (fig. 155) as in *C.* (*I.*) *pretoriae pretoriae*, but aedeagus more slender and vesica with a larger field of cornuti. In ♀-genitalia (fig. 157), corpus bursae slightly longer and opening of signum very small, oval. Not very variable; some specimens have a more curved postmedian fascia.

Early stages and biology:
unknown.

Distribution and habitats:
This subspecies is only known from Shaba-Province in South-East Congo (pl. X, fig. 5). Habitats are most probably the humid savannahs, which are typical for the surroundings of Lubumbashi (fig. 56).

Cyana (*Idiovulpecula*) *pretoriae witti* subspec. nov.

Holotype ♂: "64 Yemen, Prov. Sana'a, 13°45'N, 44°10'E, road Ta'izz-Ibb, 5 km s Nagdal Ahmar, 2280 m, 7.III.2000, leg. F. Aulombard, M. Fibiger, H. Hacker & M. P. Schreier", "Gen.-Präp. 2359, präp. Karisch, 2008". In MWM.

Paratypes: Yemen: Prov. Ibb: Wadi Merhab, village Jalajil, 1600m, 1 ♂ (gen. slide 2360, Karisch) 13.III.2000, F. Aulombard, M. Fibiger, H. Hacker & M. P. Schreier (MWM); 2 km N Pass W Ibb, village Diatam, 2300 m, 1 ♂ 11.III.2000, F. Aulombard, M. Fibiger, H. Hacker & M. P. Schreier (MWM); Prov. Sana'a: Jabal al Hotep (s Manakhah), 2800 m, 1 ♀ (gen. slide 2361, Karisch) 26.II.2000, F. Aulombard, M. Fibiger, H. Hacker & M. P. Schreier (MWM).

Additional material:

Ethiopia: Dire Daoua, 1 ♀ [without date], G. Kristensen (BMNH); Harar, 6500 ft., 1 ♀ (gen. slide B.M. Arct. 5963) 16.II.[19]37, 1 ♀ (gen. slide B.M. Arct. 5964) 17.III.[19]37, 1 ♀ 1.+5.III.1937, 1 ♀ 30.I.[19]37, 1 ex. wA 24.I.[19]37, T. Wikeley (BMNH); Bale, 5 km N Wondo Genet, 1970 m, 1 ♀ 1.V.2006, R. Beck & Tamrat (coll. Witt).
Uganda: near Congo border, 1 ♂ (gen. slide B.M. Arct. 5935) III.-IV.1926, Mrs. E. Barns (BMNH);
Kenya: Kakamega Forest, 1600 m, 1 ♂ (gen. slide 316/2004, Kühne) 13.V.2002, L. Kühne (cKP).

Description:
(pl. 17, figs. 84, 85)

Wingspan: ♂ 32 – 35: ♀: 37 – 40 mm
Forewings: white. ♂: delicate crimson fasciae; basal fascia from costa to just before dorsum; antemedian fascia dentate and oblique from costa to dorsum; postmedian fascia nearly parallel to it, sometimes obsolescent at cell; some specimens with few apical red spots; costa between base and antemedian fascia bright red, thence orange to postmedian fascia; discal spots not approximated, black, inner one round, outer very elongated; fringes white. ♀: as in nominate subspecies, but fasciae narrower and more outwardly curved; the only female from Yemen which has been studied has antemedian- and marginal fasciae indicated by just a few red scales; discal spots as in ♂.
Forewings (underside): white, with translucent fasciae and slightly translucent discal spots, in ♂, costa bright red at postmedian fascia and lobus distinct, round, red.
Hindwing: without any pattern, white. Fringes white.

Genitalia ♂ (fig. 159): Tegumen rather long; uncus slender and long pointed; valva broad; cucullus rather long and slightly tapered, curved; fold well developed, triangular turned up, especially near costa; sacculus rather broad; process strong, dorsally slightly undulate, reaching nearly to tip of cucullus and tapered into a strong tip; vinculum rather broad; saccus broad. Aedeagus slender, medium long; coecum long tapered; tube of aedeagus slightly bulged in caudal third and covered with fine, loosely arranged teeth; vesica with a stronger sclerotized plate, a field of fine spines and another with distinct but short teeth.

Genitalia ♀ (fig. 161): Papillae anales rather large; apophyses long and slender; lamella postvaginalis distinctively sclerotized, nearly hexagonal; ductus bursae short and broad, folded, with very strong sclerotization from just below ostium bursae and continued far into corpus bursae; corpus bursae enlarged only at the end and crisped, with a distinct, slightly depressed signum with many fine teeth; appendix bursae membranous.

Specimens from the African mainland have a more distinct red pattern on forewings.

Similar subspecies:
In ♂-genitalia, aedeagus of *C*. (*I*.) *pretoriae witti* sspec. nov. is more stout and more bulged at the ring of thorns, vesica with stronger spines in first field and teeth in second field are bigger than in the southern forms of *C*. (*I*.) *pretoriae*. In ♀-genitalia, *C*. (*I*.) *pretoriae witti* sspec. nov. lacks prolonged tips on sclerotized part of lamella postvaginalis, sclerotization of ductus and corpus bursae is more extensive and apophyses, particularly the a. anteriores, are longer than in the other *C*. (*I*.) *pretoriae*.

Early stages and biology:
unknown.

Distribution and habitats:
C. (*I*.) *pretoriae witti* is known from the mountains in western Yemen through the highlands of Ethiopia to Uganda and Kenya (pl. X, fig. 5). The conspecificity of specimens from Kakamega and Yemen has been confirmed by analysis of DNA barcodes" (see dataset DS-CYANA1 on BOLD at www.boldsystems.org).

Cyana (*Idiovulpecula*) *squalida* spec. nov.

Holotype ♂: "23.30. Br. Somaliland, Sugli, Al Hills, 4700 ft., Lat. 10°58' N, Long. 48°53' E, November 1929, C. L. Collenette". In BMNH.

Paratypes:

Somaliland: Sugli, Al Hills, 4700 ft., 1 ♂ (gen. slide B.M. Arct. 5960) 3 ♀♀ (1 ♀ gen slide B.M. Arct. 5961) XI.1929, C. L. Collenette (BMNH);

Eritrea: Asmara, 1 ♂ 20.[Oct.?] 1905, N. Beccari (BMNH).

Description:
(pl. 17, figs. 86, 87)

Wingspan: ♂♂: 27 – 30 mm, ♀♀: 34 – 36 mm.
Head greyish-cream, frons proximally orange; palpi short, about 1 1/3 diameter of eye, orange. Thorax greyish-cream, 3rd tergite with an orange spot; scapulae with an orange patch; legs greyish-cream with orange patches and rings. Abdomen greyish-white, in ♂ yellowish at tip.
Forewing: greyish-cream; fasciae red; basal fascia distinct only at costa, then tapered and obsolescent; antemedian fascia oblique from costa to discal cell, then angled and slightly dentate to dorsum; postmedian fascia in ♂ convex below discal spot, then concave, in ♀ slightly dentate and in both sexes reaching dorsum just before tornus; costa red between base and antemedian fascia; discal spots distinct, black, round, rather small. Fringes greyish-cream.
Forewings (underside): paler greyish than on upperside; costal field in ♂ narrowly orange or orange-yellow, in ♀ only a narrowly red costa; lobus small, round and covered with orange scales.
Hindwings cream on both surfaces, without any pattern. Fringes cream.

Genitalia ♂ (fig. 160): Tegumen rather broad; uncus pointed; valva broad; cucullus broad and moderately projecting, broadly rounded at tip; fold well developed; sacculus broad; process projecting to near tip of cucullus, very strong, with a well developed terminal thorn; vinculum strong; saccus relatively broad. Aedeagus comparatively long and slender; coecum tapered and elongated; ring of thorns on tube of aedeagus very broad, but thorns themselves rather small; vesica with a sclerotized plate, a field with fine cornuti and another with very small teeth.

Genitalia ♀ (fig. 162): Papillae anales quite large; apophyses rather slender, a. anteriores short; sclerotized

part of lamella postvaginalis irregularly defined, nearly circular; ductus bursae rather long and slender, folded and sclerotized from just below ostium bursae to corpus bursae; bursa copulatrix small, sac-shaped, with a large appendix bursae; signum a small sclerotized depression in corpus bursae. Gland (pl. II, fig. 38) as type "o" (Bendib & Minet, 1998).

This species is very invariable.

Similar species:
Cyana (*Idiovulpecula*) *squalida* spec. nov. is easy to distinguish from C. (*I.*) *pretoriae* and C. (*I.*) *togoana* by the difference in wing colour. In ♂-genitalia, by the slender aedeagus with a broad ring of thorns and a smaller field of cornuti in vesica and in ♀-genitalia by less sclerotization of corpus bursae, which is smaller than in the other species, and a nearly circular sclerotized part of lamella postvaginalis.

Early stages and biology:
unknown.

Distribution and habitats:
Mountains near the coast in Northeast Africa (pl. X, fig. 6). Habitats unknown.

Cyana* (*Idiovulpecula*) *togoana (Strand, 1912) **comb. nov.**

Zur Kenntnis äthiopischer Lithosiinae. – Archiv für Naturgeschichte **78** (A)(7): 189 f., (*Chionaema*) – Holotype ♂ (ZMB): Togo: Bismarckburg.

Material:
[Holo]type ♂: " Type", "Togo Bismarckburg L. Conradt S.", "7/XI.93", "*Chionaema togoana* m. ♂ Strand det.", "Photographed B. M. Neg. 15534", "genitalia slide No. 2". In coll. ZMB.

Sierra Leone: [without locality], 1 ♀ (gen. slide 2053, Karisch) 14.IX.1895, Clements (CMNH); Tingi Hills, Singi-Singi Mountain, 3 ♂♂ (1 ♂ gen. slide 2747, Karisch) 14.IV.2010, J. Rudloff (MNVD, CKDT); id., 1 ♂ 13.IV.2011, 1 ♂ 14.IV.2010, T. Karisch (CKDT).
Ivory Coast: Bouaké, 1 ♂ (gen. slide 2026, Karisch) 6.-7.VIII.1984 (MRAC);
Ghana: Umgebung Abetifi, 1 ♂ (gen. slide 318/2004, Kühne) 24.-31.VIII.1993, 1 ♂, (gen. slide 1745, Karisch) 16.-27.IV.1997, L. Kühne (cKP);
Nigeria: Kaduna, 1 ♂ (gen. slide 2061, Karisch) 28.X.[19]71, Dr. Politzar (ZSM); Lagos, Ikoyi, 1 ♂ (gen. slide B.M. Arct. 5345) 26.XI.[19]74, M. A. Cornes (BMNH); Kumbo, 5500 ft., 1 ♀ IX.[19]22, S. L. Bates (BMNH);
Cameroon: Adamaoua 20 km S Minim, 1200 m, 1 ♂ (gen. slide 2046, Karisch) 5.II.-3.III.1980, 1 ♂ 24.II.-21.III.1981, W. Flacke & P. Nagel (ZfB); Adamaoua 30 km NE Tignere, 1000 m, 1 ♂ (gen. slide 2091, Karisch) 2 ♀♀ (1 ♀ gen. slide 2090, Karisch) III.1983, Flacke, Horras & Nagel (ZfB);
Central Africa: Obo, 1 ♀ (gen. slide 1991, Karisch) 25.IX.1928, Dr. Dryleff (MRAC).

Provisionally assigned:
Dem. Rep. Congo (Zaire): Kivu: Nyamunyunye (= Mulungu) 1 ♂ (gen. slide 2005, Karisch) 11.XI.1952, J. Hecq (MRAC); Luemba, 1 ♂ 26.IV.1954, G. Marlier (MRAC); Masisi, 4000 ft., 1 ♀ II.[19]24, T. A. Barns (BMNH); Rutshuru, 1 ♀ III.1938, J. Ghesquière (MRAC); Ituri: Nioka, 1 ♀ (gen. slide 1992, Karisch) 25.III.1953, 1 ♀ 19.IX.1954, 1 ♀ 20.VIII.1953, J. Hecq (MRAC);
Uganda: Bwamba, 1 ♀ VII.1942, T. H. E. Jackson (BMNH); Mabera Forest, 1 ♀ (gen. slide B.M. Arct. 5936) 8.IX.[19]20, R. A. Dummer (BMNH); Ruwenzori, Fort Portal, 5000 ft., 1 ♂ (gen. slide B.M. Arct. 5938) XII.1934-I.1935, F. W. Edwards (BMNH); Ruwenzori Range: Ibanda, 4700 ft., 1 ♂ 4.-12.IX.1982, D. S. Fletcher (BMNH);
Burundi: Usumbura, 900 m, 1 ♂ (gen. slide 2009, Karisch) 16.X.1961, 1 ♂ (gen. slide 2010, Karisch) 16.XII.1961, 1 ♂ 28.X.1961, Dr. M. Fontaine (MRAC); Kitega, 1 ♂ (gen. slide 2008, Karisch) 1.VII.1968, Dr. M. Fontaine (MRAC);
[?]: Ilani, Upp. Web. R., 1 ♂ 19.III.[19]01, C. V. Erlanger (BMNH).

Description:
(pl. 17, figs. 88, 89)

Wingspan: ♂♂: 26 – 32 mm; ♀♀: 34 – 37 mm.
Forewing: white; fasciae vermilion; basal fascia obsolescent before dorsum; antemedian fascia slightly curved and angled outward at dorsum; postmedian fascia slightly curved outward, in ♀ angled at M_3; red triangular marginal spots apically and below to middle of wing; in ♂, costa red from base to antemedian fascia, sometimes also beyond; discal spots distinct, black, not approximated, the outer elongated and in ♂ sometimes divided by a fine white transverse line. Fringes white.
Forewing (underside): white, in ♂, costal field orange scaled to postmedian fascia; lobus comparatively large, oval, proximally reddish, caudally yellowish.
Hindwing: without any pattern, white, Fringes white.

Genitalia ♂ (fig. 163): Tegumen slender; uncus pointed, rather long; valva broad; cucullus broad, distally small, rounded; fold well developed, but not distinctly rounded or turned up at costa; sacculus broad and well sclerotized; process long, nearly reaching tip of cucullus, at first broadly finger-like with small, sclerotized distal plates, and with a stout thorn at tip; vinculum strong and broad; saccus broad, arched, especially in middle. Aedeagus rather long; coecum tapered and elongated; tube of aedeagus with a distinct bulge midway, with a ring with strong stout teeth, apically tapered and without teeth; vesica with a rather large, sclerotized plate, a bundle of medium-sized cornuti and a field with minute teeth.

Genitalia ♀ (fig. 165): Papillae anales rather large; apophyses slender and moderately long; sclerotized part of lamella postvaginalis narrow, nearly elliptical, basal margin rather straight; ductus bursae broad, short, folded, strongly sclerotized; bursa copulatrix large, sac-shaped, strongly sclerotized in upper part to ductus of appendix bursae, here with an undulate, nearly circular opening; signum a small sclerotized depression with delicate teeth. Gland (pl. II, fig. 37) as type "s" (Bendib & Minet, 1998).
There is slight variation in width of the fasciae and extent of the marginal red markings.

Similar species:
Cyana (*Idiovulpecula*) *togoana* is similar to *C*. (*I*.) *pretoriae*, see above.

Remarks:
The [holo]type is an aberrant male with approximated antemedian and postmedian fasciae whichy are very broad. The genitalia are identical to those of other specimens from West Africa.
Two specimens with a very short aedeagus from the Ruwenzori Mountains (Uganda) are provisionally assigned to *C*. (*I*.) *togoana* (s. a.). Some females from Ethiopia and Congo Province Ituri are also placed here. They are comparatively large (wingspan: 35 – 42 mm), but show no differences in pattern or colour from specimens of *C*. (*I*.) *togoana* from other regions. In genitalia (fig. 167), ductus bursae is longer and slender, the opening of sclerotization at ductus of appendix bursae is less striking and sclerotized part of lamella postvaginalis is larger and nearly trapezoid, with a distinct depression on apical margin. No males were available from this locality, and it is impossible at present to be sure whether or not these females represent another species.

Early stages and biology:
unknown.

Distribution and habitats:
West Africa from Sierra Leone through Cameroon to the north of the Congo Basin, probably also in the East African Rift Valley, north to Uganda and south to Burundi (pl. X, fig. 6). In Western Africa, the species was found in the woodland savanna of the mountains (fig. 57) and several cultivated areas. At Masisi (Kivu), T. A. Barns collected the species in a grassy forest.

Cyana (*Idiovulpecula*) *rwandana* spec. nov.

Holotype ♂: "Rwanda, Nyungwe, 2.XI.79, B. Turlin, 2000 m". In ZSM.

Paratypes:
Rwanda: Nyungwe, 2000 m, 1 ♂ 19.V.1974, 2 ♂♂ 24.V.1974, 5 ♂♂ (1 ♂ gen. slide 2011, Karisch) 2.XI.[19]74, 1 ♂ 24.XI.1974, 3 ♂♂ 29.XI.1975, B. Turlin (MNHN); Butaré 2 ♂♂ 1 ♀ (1 ♂ gen. slide 1816, Karisch; 1 ♀ gen. slide 2014, Karisch), 24.V.[19]74, B. Turlin (ZSM);
Dem. Rep. Congo (Zaire): Lulenga, lava plains beneath, Virunga Volcanoes, 5000ft., 1 ♂ (gen. slide B. M. Arct. 5934) III.-IV. [19]24, T. A. Barns (BMNH).

Description:
(pl. 17, figs. 90, 91)

Wingspan: ♂♂: 26 – 35 mm, ♀: 35 mm.
Forewing: white, rather broad; fasciae red, also broad; basal fascia slightly dentate and intersected by white lines near base, connected to antemedian fascia by the red costa; antemedian fascia slightly convex, postmedian fascia parallel to it, at CuA_1 sometimes slightly angled outward; in ♀ the whole fascia strongly outwardly curved; marginal fascia only indicated by a few apical spots; discal spots distinct, black, large, widely separated, the outer one often white intersected in the lower half, forming a larger upper spot and a smaller lower one. Fringes white.
Forewing (underside): white, pattern translucent; costal field in ♂ more or less orange-red from base to antemedian fascia; lobus rather small, oval, pale orange scaled.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 164): Tegumen rather slender; uncus large, basal broad, tapered and truncated; valva broad; cucullus rather slender and far projecting, margins nearly parallel, rounded at tip; fold well developed; sacculus broad; process strong but rather short, broadened towards the tip and becoming bulged, with a strong thorny tip; vinculum broad; saccus very broad. Aedeagus long, broadened at ductus seminalis; vesica with a sclerotized plate, a field with shorter, stronger and slender cornuti and others with smaller teeth.

Genitalia ♀ (fig. 166): Papillae anales rather large; apophyses anteriores short, a. posteriores comparatively long; ostium bursae hardly enlarged; dorsal part of lamella postvaginalis strongly sclerotized, nearly hexagonal; ductus bursae strongly sclerotized and folded in basal half, sclerotization continued to basal part of corpus bursae and ductus of appendix bursae; corpus bursae short, membranous; appendix bursae long extended, also membranous.

In some specimens the marginal spots in apex of forewing are reduced or absent.

Similar species:
Cyana (*Idiovulpecula*) *rwandana* spec. nov. is similar to *C.* (*I.*) *pretoriae* and C. (*I.*) *togoana*. The males are easy to distinguish by the lack of the thorny ring on the aedeagus. In female *C.* (*I.*) *rwandana* spec. nov., sclerotization of lamella postvaginalis is broader, ductus bursae more slender and sclerotization of corpus bursae and on ductus of appendix bursae is stronger than in *C.* (*I.*) *pretoriae* and *C.* (*I.*) *togoana*.

Remarks:
Cyana (*Idiovulpecula*) *rwandana* spec. nov. differs from all other species in the subgenus in the reduction of the thorny ring on the tube of the aedeagus.

Early stages and biology:
unknown.

Distribution and habitats:
Virunga-volcanoes (pl. XI, fig. 1). Habitat at Nyungwe was a wet mountain forest, rich in epiphytic plants. Specimens from Butaré were collected at an isolated house in an anthropogenically influenced area (Turlin, i. l. 2010).

Cyana (*Idiovulpecula*) *bigutta* (Karisch, 2005) **comb. nov.**

Eine neue *Cyana*-Art aus Ostafrika (Lepidoptera: Arctiidae, Lithosiinae). – Atalanta **36** (3/4): 573–574, figs. 1, 2, pl. 18: fig. 1, (*Cyana*) – Holotype ♀ (BMNH): Kenya: Escarpment.

Material:

Holotype *Cyana bigutta* Karisch, 2005 ♀: " Escarpment, B. E. A.,. 6500 to 9000 ft. (Doherty), X. XI. 1900", "Rothschild Bequest B. M. 1939-I.", "Gen.-Präp. 1896, präp. Karisch, 2005", "Holotypus ♀ *Cyana bigutta* spec. nov., Karisch, 2005" In BMNH.

Description:
(pl. 17, fig. 92)

Wingspan: ♀: 33 mm.
Thorax white with some orange scales.
Forewing: shiny white without fasciae; two distant, small, round, black discal spots; a few black scales in costal part of forewing; costa yellow from base to median part of the wing. Fringes white.
Forewing (underside): shiny white; costa yellow from base to median part of wing. Fringes white.

Genitalia ♂: unknown.

Genitalia ♀ (fig. 168): Papillae anales large; apophyses not especially long; lamella postvaginalis broad, nearly rectangular, well sclerotized; ductus bursae broad and rather long, strongly sclerotized and partly folded to corpus bursae; corpus bursae long sac-shaped, with a small and arched sternite; below the sclerotization of corpus bursae a large, membranous appendix bursae and a smaller, rounded appendix at base of ductus bursae.

Similar species:
Cyana (*Idiovulpecula*) *bigutta* is similar to C. (*I.*) *magnitrigutta* spec. nov., but differs externally in the discal spots, which lie parallel to costa, and in the absence of a black basal spot. In ♀♀ genitalia, appendices are larger and sclerotization of lamella postvaginalis is rectangular instead of rhomboid.

Remarks:
Cyana (*Idiovulpecula*) *bigutta* and *C.* (*I.*) *magnitrigutta* spec. nov. have larger forewings without red fasciae

(there may be exceptions, see *C.* (*C.*) *heidrunae*), but in genitalia and venation they correspond to the other species of the subgenus.

Early stages and biology:
unknown.

Distribution and habitats:
Kenya. Known only from the type locality (pl. XI, fig. 1).

Cyana (*Idiovulpecula*) *magnitrigutta* spec. nov.

Holotype ♀: "Kamerun, Lolodorf, L. Conradt, 1894-1895", "Ex Oberthür Coll. Brit. Mus. 1927 – 8.", "22/II.95", "Arctiidae Brit. Mus. slide No. 5971", "Holotypus ♀ *Isine magnitrigutta* spec. nov., des. Karisch, 2007". In BMNH.

Description:
(pl. 17, fig. 93)

Wingspan: ♀: 28 mm.
Thorax and abdomen white.
Forewing: white, without fasciae; with two black, round, distant discal spots, the basal one larger; black basal point. Fringes white.
Forewing (underside): white with translucent discal spots.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂: unknown.

Genitalia ♀ (fig. 170): Papillae anales large; apophyses anteriores short; lamella postvaginalis with a rhomboid sclerotization; ductus bursae sclerotized for about ¾ of its length, membranous only below ostium bursae; corpus bursae with a small primary protrusion, then narrowed and elongated, with a small, depressed signum; appendix bursae from near base of ductus bursae, sclerotized at the beginning and strongly ribbed. Gland (pl. II, fig. 39) derived from type "r" (Bendib & Minet, 1998).

Similar species:
Cyana (*Idiovulpecula*) *magnitrigutta* spec. nov. is similar to C. (*I.*) *bigutta*; see above.

Early stages and biology:
unknown.

Distribution and habitats:
Cameroon. Only known from the type locality. (pl. XI, fig. 1). Habitats unknown.

Subgenus: *Caudovulpecula* subgen. nov.

Description:
Head: Proboscis well developed; palpi about 1 to 1½ diameter of eye; eye dark greyish-brown; antenna with bristles and cilia in two rows; scaled on upper side; cilia about 1 to 1½ diameter of shaft.
Thorax white, with red spots on each tergite and on scapulae; 1st and 2nd pair of legs orange and white annulated; 3rd pair of legs white, only tarsi orange with a delicate, often weak annulation. Abdomen white, in ♂ slightly yellowish at tip.

Wings.
Venation (male, fig. 58):
Forewing: R_1 and R_2 transformed by lobus and obsolescent; R_3 and R_4 stalked, R_3/R_4 curved; M_1 and M_2 arising below lobus; M_3 and CuA_1 from same point in anal angle of discal cell; CuA_2 from about 2/3 of cell. Lobus very large, nearly round, a flat and hot-water bottle-shaped protrusion about the wing, placed between R_2 and R_3 (fig. 5); long and densely scaled on upperside of forewing between R_2 and R_3, scales hiding opening of lobus (fig. 6, 7).
Hindwing: Rs/M_1 and M_3/CuA_1 stalked, Rs/M_1 longer than M_3/CuA_1; M_2 weak; CuA_2 from about 2/3 of cell; terminal margin of cell comparatively straight.
Venation (female, fig. 59):
Forewing: $R_4/R_5/M_1$ long, R_4/R_5 short stalked; M_2 and M_3 from the same point on terminal margin of discal cell;

CuA_1 strongly approximated; CuA_2 from about half of cell and curved outward; terminal vein of cell distinctively angled to base.
Hindwing: Rs/M_1 and M_3/CuA_1 rather long stalked; branch of M_3/CuA_1 slightly shorter than that of Rs/M_1; M_2 weak; CuA_2 from about $^2/3$ of cell; terminal margin of cell rather straight.
Forewing rather long and narrow; apex in ♂ quite acute; dorsum sinuous, especially in ♂; ground colour white or yellowish-white; fasciae convex, hardly dentate; marginal fascia from apex to median part of termen, but often reduced to some triangular apical spots or, especially in ♀, absent; discal spots distinct, black, in ♂ strongly approximated, the outer one elongated; in ♀ not approximated and round.
Hindwing without pattern white.

Sexually dimorphic in the position of the discal spots and the difference in size.

Genitalia ♂: Uncus rather broad, pointed; valva broad, divided at tip; cucullus quite long projecting and tapered; sacculus small; process long but quite delicate, tapered to a thorny tip; fold strong and triangular turned up at costa; juxta more strongly sclerotized. Aedeagus very long and slender, sigmoid; tube without special sclerotizations; vesica with a bundle of delicate, longer spines, a sclerotized plate and fields of minute teeth.

Genitalia ♀: Papillae anales quite small; apophyses anteriores very short and broad; a. posteriores long and slender; VII. sternite broad and crisped; ostium bursae enlarged; ductus bursae strongly sclerotized to ostium and forming two broad lobes, narrow and membranous to bursa copulatrix, sclerotized at base but rather smooth; corpus bursae large, sac-like, sclerotized only at base; signum sclerotized, depressed and covered with small teeth; ductus of appendix bursae from near ductus bursae; appendix bursae large, membranous.

Distribution: From West Africa to the western parts of East Africa and Angola.

Etymology: cauda = tail; vulpecula = little fox.

Type species: *Cyana* (*Caudovulpecula*) *delicata* (Walker, 1854)

Key to the species

1 forewing of ♂ yellowish … .....*Cyana* (*Caudovulpecula*) *delicata*
1* forewing otherwise or ♀ 2
2 ♂ 3
2* ♀.....4
3 fasciae red, not dusted with grey .....*Cyana* (*Caudovulpecula*) *flammeostrigata*
3* fasciae red, dusted with grey .....*Cyana* (*Caudovulpecula*) *ethiopica* spec. nov.
4 ductus bursae long, not enlarged, sclerotization of ostium bursae narrow
.....*Cyana* (*Caudovulpecula*) *flammeostrigata*
4* ductus bursae shorter or enlarged, sclerotization of ostium bursae broader 5
5 ductus bursae broad and short, its sclerotisation more homogenous, fasciae lighter red
.....*Cyana* (*Caudovulpecula*) *delicata*
5* ductus bursae longer and extended, its sclerotization not very homogenous, fasciae darker red
.....*Cyana* (*Caudovulpecula*) *ethiopica* spec. nov.

Cyana (*Caudovulpecula*) *delicata* (Walker, 1854) **comb. nov.**

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum 2: 550, (*Bizone*). – Lectotype ♂ (BMNH): Sierra Leone.
= *shakalesha* Roesler, 1990
Die *Cyana*-Spezies von Afrika. Teil 1: Zwei neue Arten aus den Beständen des Naturhistorischen Museums in Budapest (Lepidoptera, Arctiidae). – Entomofauna **11** (10): 165ff., figs. 1, 2, (*Cyana*) – Holotype ♂ (TMB): Ghana: Kumasi.
Synonymised by Karisch (2003): 170.

Material:

Lectotype ♂: " S. Leone, 43 - 98.", "Arctiidae genitalia slide 217", "4. Bizone delicata." In BMNH.

Holotype ♂ *Cyana shakalesha* Roesler, 1990: "Africa, Ghana, 6.X.1967, Dr. Endrödy-Yunga", "U. Roesler, ♂GU: 10385", "*Cyana shakalesha* U. Roesler, Holotypus" [red label]. In TMB.

Sierra Leone: Sussex S Freetown, Nature Trail River No. 2, 1 ♂ 10.IV.2010, T. Karisch (CKDT);
Guinea: near Macenta, Boukouni, 1750 ft., 1 ♂ 11.V.[19]26, C. L. Collenette (BMNH);

Ivory Coast: Bingerville, 1 ♂ 1915, 1 ♂ 3.-7.IX. 1915, 1 ♀ (gen. slide B.M. Arct. 5953) 8.-11.IX.1915, G. Melou (BMNH); Gouédié bei Man, 1 ♂ 22.VII.1997, Karisch (CKDT); Divo, 1 ♀ (gen. slide 2055, Karisch) 1963, J. Decelle (MRAC); Forêt classe Bossématie, 2 ♂♂ 15.X.1973, 1 ♂ 4.X.1996, U. Dall'Asta (MRAC); Daloa, Due Noué, 1 ♀ (MNHN);

Ghana: C. Ashanti, Juaso, 900 ft., 1 ♂ 5.xii.[19]37, G. S. Cansdale (BMNH); Wassaw district, 45 miles inland from Sekondi, 1 ♂ (BMNH); Kumasi, 1 ♀ (gen. slide B.M. Arct. 5955) 10.-15.IX., Lt. Sanders; Umg. Yamfo, 2 ♀♀ (1 ♀ gen. slide 1746, Karisch) 15.-20.X.1993, L. Kühne (CKP); without locality, 1 ♀ (gen. slide 2403, Karisch) 3.IX.1967, Dr. Endrödy-Yunga (TMB);

Nigeria: Ogruga, 1 ♂ (BMNH);

Cameroon: Bitje, Ja-River, 2000 ft., 1 ♂, G. L. Bates (BMNH); Route Edea – Douala, km 5, 1 ♂ 1 ♀ (gen. slide 2063, Karisch) XII.1991, Th. Bouyer (MRAC); R[ou]te Edea – Douala, km 15, 17 ♂♂ 1 ♀ XII.1991, Th. Bouyer (MRAC); Efulen, 1 ♂ 22.VII.1923, 1 ♂ 10.VI.1921, 1 ♂ 17.XI.1922, 1 ♂ 27.X.1922, 1 $ 20.V.1923, 1 ♂ 25.XI.1916, H. L. Weber (CMNH); Johann-Albrechts-Höhe, Station Kamerun, 1 ♀ (gen. slide 2056, Karisch) 1895, L. Conradt (CMNH); Mt. Cameroun, 10 m above Edwards forest, 1 ♂ 20.I.1989, 5 ♂♂ 12.I.1989, (MRAC); Mt. Cameroun, Bonjongo, 460 m, 1 ♀ 25.I.1989, (MRAC); Ebodje Akok, 5 ♂♂ 22.-23.XII.1992, Th. Bouyer (MRAC); Nyazanga, 5 ♂♂ 5.-8.IX.1992, Th. Bouyer (MRAC); Zamakoe, 2 ♂♂ 1 ♀ 4.-5.VII.1992, 13.-14.VIII.1992, Th. Bouyer (MRAC); Eloumden, 17 ♂♂, 28.-29.X.1992, Th. Bouyer (MRAC);

Gabon: Ipassa, 1 ♂ 1.V.1978, J. Pierre & G. Bernardi (MNHN);

Dem. Rep. Congo (Zaire): Parc National D'Ozala, 1 ♂ 29.I.-3.III.1997, Murzin & Siniaev (MNVD); id., 6 ♂♂ 1 ♀ 29.I.-3.III.1997, Murzin & Siniaev (MWM);

Congo (Zaire): Uele: Paulis, 1 ♀ (gen. slide 1994, Karisch) 28.VII.1956, 1 ♀ 8.VIII.1956, 1 ♀ (gen. slide 2001, Karisch) 22.VIII.1957, M. Fontaine (MRAC); Kivu: middle Lowa Valley, south of Walikali, 3500 ft., 1 ♂ (gen. slide B.M. Arct. 5956) III.1924, T. A. Barns (BMNH); Kivu: middle Lowa Valley, near Walikali, 3000 – 4000 ft., 1 ♂ II.1924, T. A. Barns (BMNH); Sankuru: Katako-Kombe, 1 ♀ (gen. slide 1993, Karisch) 22.XI.1951, M. Fontaine (MRAC);

Angola: Prov. Nordcuanza, Canzele 30 km nördl. Quiculungo, 1 ♂ 18.IX.1957, G. Heinrich (ZSM); Salazar, 2 ♂♂ (1 ♂ gen. slide B.M. Arct. 5957) 9.-15.III.1972 (BMNH); 3 mls SW Salazar, 1 ♂ 15.III.1972 (BMNH).

Description:
(pl. 18, figs. 94, 95)

Forewing: cream (♂) or yellowish-white (♀); fasciae brick-red; basal fascia from costa to medial part of wing, often only consisting of a red costal patch; antemedian fascia nearly straight, in ♀ angled before dorsum to termen and curved towards base at costa; postmedian fascia in ♀ rather straight, in ♂ slightly convex, then curved towards base and reaching dorsum at nearly a right angle; marginal fascia of a few red apical spots and along termen; discal spots distinct, black, in ♂ strongly approximated, outer one elongated, in ♀ not approximated. Fringes whitish.
Forewing (underside): white (♀) or cream-white (♂); in ♂, costa and costal field orange-yellow; lobus large, round, yellow with some red or orange-red scales.
Hindwing: without any pattern either surface; yellowish-white in ♂ and white in ♀. Fringes whitish.

Genitalia ♂ (fig. 169): Tegumen rather broad and long; uncus long, gradually tapered; valva broad; cucullus broad, rather far projecting, irregularly rounded at tip; fold well developed, nearly obsolescent at sacculus; sacculus quite small; process far projected and curved, tapered into a thorny tip; vinculum not very broad; saccus slender. Aedeagus long, sigmoid, with sclerotized plate and a field with long and slender spines.

Genitalia ♀ (fig. 171): Papillae anales comparatively small; ductus bursae rather long, with two large oval, sclerotized lobes, crisped at apical margin near ostium bursae, broadened to corpus bursae; sclerotization continued distally to corpus bursae, which is broadly sac-like, with a point near base, whence large appendix bursae originates; signum small, granulated. Gland (pl. II, figs. 40, 41) near type "r" (Bendib & Minet, 1998).
Cyana (*Caudovulpecula*) *delicata* is not very variable.

Similar species:
For differences from *Cyana* (*Caudovulpecula*) *flammeostrigata* see below.

Remarks:
In specimens from the Western Congo Basin, aedeagus is slightly shorter than in specimens from other regions, and in specimens from Angola, vesica has a larger bundle, with long and slender spines.

Early stages and biology:
unknown.

Distribution and habitats:
From the rain forests of West Africa to the Congo Basin and the west slopes of the Mitumba Mountains, south to Angola (pl. XI, fig. 2). In the Ivory Coast the author found the species in anthropogenically influenced forests (fig. 60), in Sierra Leone in a rain forest near the coast. From Mt. Cameroon the species is reported

from the primary forest (Edward's forest) and from cultivated areas near Bonjongo. The range of habitats seems to be broad.

Cyana (*Caudovulpecula*) *flammeostrigata flammeostrigata* (Karisch, 2003) **comb. nov.**

Zwei neue afrikanische *Cyana*-Arten (Lepidoptera, Arctiidae). – Lambillionea CIII: 119f., figs. 2, 3, (*Cyana*) – Holotype ♂ (CKDT): Bioko: Ruiché.

Material:

Holotype ♂: " Äquatorialguinea, Insel Bioko (Fernando Póo), Ruiché 5 km S Luba, nördlicher Ortsrand bei 2. Schule, ca. 740 mNN, verbuschende Bananenplantage, 3°24'50" n. Br., 8°33' ö. L., 21.VIII.1994 LF (160 W Mischlicht), T. Karisch legit."; "Holotypus ♂, *Cyana flammeostrigata* Karisch, des. Karisch, 2003". In CKDT.

Paratypes:

Equatorial Guinea (Bioko): 1 ♂ (gen. slide 1534, Karisch) mit selben Daten wie der Holotypus (CKDT); Moca-Malabo, 1 ♂ 18.-21.II.2002, Hoppe (CHKP);

Cameroon: Bonepoupa 35 km ONO Douala, 1 ♀ 26.VIII.1994, T. Karisch (CKDT).

Equatorial Guinea (Bioko): Moca Malabo, 1400 m, 8 ♂♂ 1 ♀ 15.-21.I.2004, H. & T. Hoppe (CHKP);

Cameroon: Mt. Cameroun, 3.5 km NW Mapanja, 1 ♀ 1.II.1989, 2 ♂♂ (1 ♂ gen. slide 2065, Karisch) 2.II.[19]89, 1 ♀ (gen. slide 2064, Karisch) 3.II.[19]89 (MRAC); Mt. Cameroun, Bonjongo, 460 m, 1 ♂ 25.I.1989, (MRAC); Efulen, 1 ♀ (gen. slide 2052, Karisch) 1.IV.1923, H. L. Weber (CMNH); Village Kala, 18 km W Yaoundé, 730 m, 1 ♂ (gen. slide 2067, Karisch) 2.IX.1977, A. Evoé (MNHN);

Congo (Zaire): Pool Region, Voka, 620 m, 1 ♂ (gen. slide 2068, Karisch) 30.V.1993, J. Rawlins, R. Davidson, G. Onore, D. Schlitter (CMNH).

Description:

Wingspan: ♂♂: 31 – 33 mm, ♀♀: 34 – 42 mm.

Forewing: white, with crimson fasciae; basal fascia slightly dentate, obsolescent before dorsum; antemedian fascia angled at costa towards base, then nearly straight to dorsum; postmedian fascia from costa to CuA_1 rather straight to termen, then angled and reaching dorsum at nearly a right angle; marginal fascia simply a few red apical spots; discal spots distinct, black, round, in ♂ approximated, outer one elongated; in ♀ distant, located between the fasciae. Fringes white.
Forewing (underside): white, pattern translucent; in ♂, costa between base and antemedian fascia orange-red, costal field with some red scales; lobus large, round, orange-red; in ♀, antemedian fascia at costa indicated by a few red scales.
Hindwing without any pattern white. Fringes white.

Genitalia ♂ (fig. 172): Tegumen slender; uncus slender, tapered to truncated tip; valva broad; cucullus rather narrow, far projecting, curved proximally, tapered, tip irregularly rounded; fold well developed, broadly triangular folded on costa, with a crisped lobe against sacculus; sacculus broad; process far projecting, strongly sclerotized, tip with a short and stout thorn; vinculum narrow but strong; saccus rather small. Aedeagus very long and slender, weakly sigmoid; vesica with a sclerotized plate, a longer field with long and slender spines and some fields with minute teeth.

Genitalia ♀ (fig. 174): Papillae anales comparatively small; apophyses anteriores rather short; a. posteriores long; ostium bursae rather broad; ductus bursae strongly sclerotized and smooth apart from a small field in the middle, with two lobes at the ostium; corpus bursae sac-shaped, sclerotized on one side in its basal part; with a tip near ductus bursae whence the longer ductus of appendix bursae; appendix bursae large and membranous; signum of bursa copulatrix quite large, depressed and granulated. Gland (pl. II, fig. 42) between types "r" and "o" (Bendib & Minet, 1998).

This species is only slightly variable.

Similar species:
Cyana (*Caudovulpecula*) *flammeostrigata* is very similar to C. (*C.*) *delicata*. The males are easy to distinguish by the white ground colour. Females can only be identified with certainty by reference to the genitalia.
In *C.* (*C.*) *flammeostrigata*, the ♂-genitalia have a folded lobe on sacculus and a less curved and longer aedeagus.
In ♀-genitalia, *C.* (*C.*) *flammeostrigata* differs in the smaller sclerotized lobes of the ductus bursae near the ostium bursae, the longer ductus bursae, which is not broadened at the base of the bursa copulatrix, the larger signum and the narrower and less crisped VII. sternite.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forests in Equatorial Guinea (Bioko). and from Cameroon to the western parts of the Congo Basin (pl. XI, fig. 3). *Cyana* (*Caudovulpecula*) *flammeostrigata flammeostrigata* seems to be not very restricted in habitat: the author found the species in cultivated areas near villages and in anthropogenically influenced rain forests (fig. 61). From Mt. Cameroon known from lower mountain forest with many shrubs.

Cyana (*Caudovulpecula*) *flammeostrigata orientalis* subspec. nov.

Holotype ♂: "Kenya, Western Prov., Kakamega Forest N. R., 2001 bis 2003, ca. 0.21,3 N; 34.51 E, leg. L. Kühne", "prim. forest 1600 m, 27.ix.2002 Lichtfalle (1), 0.21,34 N; 34.51,39 E" (CKP).

Paratypes:
Kenya: Kakamega Forest, Byango Hill, 1600 m, 1 ♂ 23.X.2002, L. Kühne (CKP); Kakamega Forest, W Byango Hill, 1600 m, 1 ♂ 1.X.2002, L. Kühne (CKP); Kakamega Forest, primary forest, 1600 m, 1 ♂ 17.III.2002, 2 ♂♂ 23.X.2002, 1 ♂ (gen. slide 312/2004, Kühne) 9.I.2002, 1 ♂ (gen. slide 308/2004, Kühne) 16.XI.2001, 1 ♂ (gen. slide 307/2004, Kühne) 17. X. 2001, 1 ♀ 1.VIII.2002, L. Kühne (CKP); Kakamega Forest, sec. forest, 1600 m, 1 ♀ (gen. slide 209/2004, Kühne), L. Kühne (CKP); Kakamega Forest, 5200 ft., 1 ♂ 10.-13.VII.1960, A. C. Twomey (CMNH);
Uganda: Toro, 3 ♂♂ (1 ♂ gen. slide 2058, Karisch), 1 ♀ (gen. slide 2059, Karisch) 16.-21.VII.1960, A. C. Twomey (CMNH);
Tanzania: Bukoba, 1 ♂ (gen. slide 1819, Karisch) IX., X. [19]64, leg. J. Scheven (ZSM).

Additional material:

Congo (Zaire): Kivu: Nyamunyunye (Mulungu), 3 ♂♂ 2 ♀♀ 7.I.1956, 10.I.1956, III.1957, 22.X.1959, J. Hecq (MRAC);
Kenya: Western Prov., Mt. Elgon N. P., prim. forest 2000 m, 1 ♂ (gen. slide 310/2004, Kühne) 30.III.2002, L. Kühne (CKP);
Tanzania: Kilimandjaro, Marangu,, 1500 m, 1 ♀ (gen. slide 2016, Karisch) 15.VIII.1952, 1 ♀ 1.-15.XI.1952, Lindemann & Pavlitzki (ZSM); Mt. Meru, Usa-Forest, 1 ♀ (gen. slide 2031, Karisch) 30.VI.1988, E. M. & M. Lödl (NHMW); Kilombero District, Udzungwa Mts., Mang'ula, 1 ♂ (gen. slide 2324, Karisch) 4.-6.XII.2005, L Aarvik (CAA);
Rwanda: Rwankwi, 1 ♂ 16.VIII.1947, 1 ♂ (gen. slide 2003, Karisch) I.1948, J. V. Leroy (MRAC);
Malawi: Mulanje District, Ruo Gorge, 915 m, 1 ♂ (gen. slide 2289, Karisch) 9.II.2004, L. Aarvik (CAA).

Description:
(pl. 18, figs. 98, 99)

Wingspan: ♂♂: 25 – 32 mm, ♀♀: 30 – 39 mm.
Like the nominotypical subspecies, but fasciae narrower, especially in ♀♀; cucullus in ♂ broader (fig. 173); sclerotization of the ductus bursae in ♀ shorter (fig. 175). Gland (pl. II, fig. 43) of type "s" (Bendib & Minet, 1998). Variation is rare. From Mt. Elgon (2000 m), the author has a male with no red fasciae and the red marginal spots only in the apex. From South Malawi, he has seen a male with a reduced antemedian fascia. Neither differs in genitalia from *C.* (*C.*) *flammeostrigata orientalis* and they are simply aberrations.

Early stages and biology:
Unknown.

Distribution and habitats:
Rain forests in the East African Rift Valley and on Mt. Meru and Kilimandjaro (pl. XI, fig. 3). Kühne collected the species in primary and secondary forests of the Kakamega Forest (Kenya). Lödl found it in a primary forest on Mt. Meru.

Cyana (*Caudovulpecula*) *ethiopica* spec. nov.

Holotype ♂: "Ethiopie; env. Kebré-Mengist, 2300 m, 23.III.1975, P. C. Rougeot leg.", "Mission P.-C. Rougeot III-IV.1975". In MNHN.

Paratypes:
Ethiopia: Kébré-Mengist, 2200m, 1 ♂ (gen. slide 2085, Karisch) 10.XI.1976, 1 ♀ (gen. slide 2086, Karisch) 13.XI.[19]73, P.-C. Rougeot (MNHN); Koffolé, 2200 m, 1 ♂ 31.X.1973, 1 ♀ 9.XI.1973, P. C. Rougeot (MNHN).

Description:
(pl. 18, figs. 100, 101)

Wingspan: ♂♂: 27 – 31 mm, ♀♀: 34 – 38 mm.
Forewing: white, fasciae red, partially greyish dusted; basal fascia narrow, obsolescent before dorsum; antemedian fascia broader than postmedian, slightly inversely sigmoid and dentate; postmedian fascia straight from costa to CuA_1, then angled (♂♂) or strongly curved (♀♀) to dorsum; marginal spots distinct only in ♂, but small; costa between base and antemedian fascia red; discal spots distinct, black, in ♂ not especially approximated, outer one elongated, in ♀ widely spaced. Fringes white.
Forewing (Underside): white, pattern translucent; costa in ♂ broadly orange-red from base to just before postmedian fascia and costal field yellowish; lobus large, round, orange-red.
Hindwing without any pattern, white. Fringes white.

Genitalia ♂ (fig. 176): Tegumen rather long; uncus basally broad, long, tapered and truncated at tip; valva broad; cucullus broad, not far projecting, truncated at tip; fold very well developed, broadly turned up on costa until close to base of valva; a folded and sclerotized lobe towards sacculus; sacculus broad; process strong and reaching just behind tip of cucullus, with a small thorn at tip; vinculum very strong, broad; saccus rather slender. Aedeagus very long and slender, sigmoid; vesica with a strongly sclerotized plate, a bundle of many slender and long spines and some fields with minute teeth.

Genitalia ♀ (fig. 178): Papillae anales small; VII. sternite broad and slightly sclerotized; ostium bursae large; ductus bursae rather long, with lobe-like sclerotizations at ostium, a membranous middle part and another sclerotization towards corpus bursae, continued distally on corpus bursae; corpus bursae oval, with a tip near base whence ductus to the large and membranous appendix bursae; corpus bursae with a small, centrally depressed and granulated signum. Gland (pl. II, fig. 44) very strongly dissected, derived form (as type “c” in Bendib & Minet, 1998, but with lateral projections still interconnected).

Cyana (*Caudovulpecula*) *ethiopica* varies in the extent of greyish dusting on the red fasciae in ♂ and in the size of the fasciae in ♀.

Similar species:
Table showing differences between *Cyana* (*Caudovulpecula*) *delicata* and C. (*C.*) *flammeostrigata* and *C.* (*C.*) *ethiopica* spec. nov.

Character	*C. delicata*	*C. flammeostrigata*	*C. ethiopica*
ground colour ♂	white	cream	white
antemedian fascia	nearly straight in ♂	angled at costa	pronounced dentate
postmedian fascia ♀	only 120° angled	only 120° angled	strong curved, angle about 100°
colour of fasciae ♂	bright red	bright red	red, dusted with grey
discal spots ♀	medium sized	medium sized	larger
♂-genitalia			
process of sacculus	stronger, tip short	slender, tip short	stronger, tip very short
Character	*C. delicata*	*C. flammeostrigata*	*C. ethiopica*
cucullus	broader	narrower and longer	shorter
lobe of the fold at sacculus	obsolescent	folded lobe comparatively large	folded lobe present, but small
aedeagus	long, slender, sigmoid	very long & slender, less curved	long,slender,curved
♀-genitalia			
sclerotization at ostium bursae	lobes strong	lobes more delicate	lobes strong
ductus bursae	shorter, broadened	longer, not broadened	medium, not broadened
signum	small, granulated	larger, depressed and granulated	larger, depressed and granulated
sternite VII	broader, crisped	narrower, less crisped	broad, crisped

Early stages and biology:
unknown.

Distribution and habitats:
Ethiopia (pl. XI, fig. 3). Habitats unknown.

Subgenus: ***Strigivulpecula*** **subgen. nov.**

Description:
Head: Proboscis well developed; palpi about 1½ diameter of eye; eye dark greyish-brown, with black spots; antenna with bristles and cilia in two rows; scaled on the upper side; cilia about as long diameter of shaft.
Thorax white, with a red patch on first and second, sometimes also on third tergite and scapulae; 1st and 2nd pair of legs orange with white rings; 3rd pair of legs white with pale orange tarsal joints. Abdomen white, sometimes pale orange at tip.

Wings.
Venation (male, fig. 62):
Forewing: R_1 and R_2 transformed by lobus and obsolescent; R_3 and R_4 stalked, vein R_3/R_4 curved, arising below lobus; M_1 also arising below lobus; M_2 nearly parallel to M_1 and M_3 and far from M_3 arising from terminal vein of cell; M_3 and CuA_1 approximated at cell; CuA_2 from about ¾ of cell; discal cell between M_1 and M_2 open; areole weakly developed; lobus rather small, oval, fixed at R_1 and overlapping in direction of terminal margin.
Hindwing: Rs/M_1 and M_3/CuA_1 long stalked; M_2 very weak; CuA_2 from about ¾ of cell; terminal margin of cell nearly straight.
Venation (female, fig. 63):
Forewing: R_1 and R_2 distant at costa; R_3/R_4 and M_1 stalked; R_3/R_4 long stalked; M_2 and M_3 not approximated at base; CuA_1 only slightly approximated to M_3 at cell; CuA_2 from about 2/3 of cell; terminal vein of discal cell slightly curved, but comparatively straight.
Hindwing: Rs/M_1 and M_3/CuA_1 rather long stalked; M_2 very weak; CuA_2 from about ¾ of cell; terminal vein of cell rather straight.
Forewing of ♂ rather narrow, apex not particularly round; in ♀ forewing very broad; ground colour white, fasciae red or orange, only slightly dentate, parallel and in the most cases slightly curved outward; antemedian fascia basad and postmedian fascia distad accompained by a delicate black or dark brown line; in ♂, a black patch at lobus and a red strigula oblique from lobus to costa; marginal fascia well developed, consisting of connected red or orange, triangular or crescent-shaped spots, sometimes obsolescent before anal angle, in ♂ connected at costa with the red strigula from lobus; discal spots distinct, black, in ♂ slightly approximated.
Hindwing without any pattern on either surface, white, sometimes pink at margin.

Sexual dimorphism distinct. Females with broader forewings, discal spots not approximated, no black patch and no red strigula between apical angle of discal cell and costa.

Genitalia ♂: Uncus very short, pointed; valva broad, divided at tip; cucullus narrow, rather far projecting, strongly tapered; sacculus broad; process strong and broad, proximally with a small rib and caudally with a rather delicate thorn at tip; fold weak, but costa at base of valva bulged. Aedeagus rather long and broad; vesica with three fields with long, strong but slender cornuti and other fields with minute teeth.

Genitalia ♀: Papillae anales rather small; apophyses long and slender; VII. sternite broad and membranous; ostium bursae distinctively enlarged, membranous; ductus bursae quite long, very slender and folded longitudinally; corpus bursae sinuate, with some broader, sclerotized and slightly folded fields and without a clearly separated appendix bursae.

Distribution: From West Africa to East and South Africa, also on Madagascar and the Comoro Islands.

Etymology: striga = line; vulpecula = little fox.

Type species: *Cyana* (*Strigivulpecula*) *rufeola* Karisch & Dall'Asta, 2010

Key to the species

1 red fasciae on forewing decidedly dentate ……..2
1* red fasciae only curved ……..3

2 fasciae dark red, small, ♂ lobus small, oval, carmine ….....*Cyana* (*Strigivulpecula*) *amatura*
2* fasciae lighter red, broader, more approximated in the middle, ♂ lobus large, split opposite the costa ……..…….....*Cyana* (*Strigivulpecula*) *lobata* spec. nov.
3 red fasciae accompaigned by black lines ……..…….....4
3* red fasciae without black lines ……..…….....6
4 forewing broad, fasciae orange, marginal spots absent or reduced ……..…….....
……..…….....*Cyana* (*Strigivulpecula*) *capensis*
4* forewing narrow, fasciae red, marginal spots or a red marginal line present ……..…….....5
5 fasciae very fine, darker red, ♂-genitalia with broad saccus, bulge on costa of valva weakly developed, ♀ without sclerotization below ductus bursae ……....*Cyana* (*Strigivulpecula*) *nemasisha*
5* fasciae broader, more orange red, in ♂, saccus slender, bulge on costa of valva more distinctive; ♀ with sclerotization below ductus bursae ….....*Cyana* (*Strigivulpecula*) *rufeola*
6 fasciae more fiery-red and in ♀ more closely approximated, ♂-genitalia with slender process and distinctive bulge on costa of valva, ♀-genitalia with reduced sclerotization of bursa copulatrix……..…….....*Cyana* (*Strigivulpecula*) *fasciata* spec. nov.
6* fasciae more orange, in ♀ not approximated, ♂-genitalia with thick process, bulge on costa of valva weakly developed; ♀ with more sclerotization of bursa copulatrix ……..…….....*Cyana* (*Strigivulpecula*) *klausruedigerbecki*

Cyana* (*Strigivulpecula*) *rufeola Karisch & Dall'Asta, 2010

New species and subspecies of *Cyana* Walker, 1854 (Lepidoptera, Arctiidae, Lithosiinae) from the collection of the Royal Museum for Central Africa. – Journal Afrotropical Zoology **6**: 123f., figs. 2, 3, 23, 26, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Eala.

Material:

Holotype ♂: "Mus. Congo, Eala, XI-1936, J. Ghesquière", "Gen.-Präp. 2126, präp. Karisch, 2006". In MRAC.

Paratype: **Dem. Rep. Congo (Zaire)**: Eala, 1 ♀ (gen. slide 2127, Karisch) VIII.1936, J. Ghesquière (MRAC); Parc National d'Albert, 1 ♀ (gen. slide 2128, Karisch) 4.VII.1957, P. Vanschuytbroeck (MRAC).

Central Africa: Bangui, 1 ♀ (gen. slide B.M. Arct. 5974) (BMNH);
Cameroon: Efulen, 1 ♂ (gen. slide 2123, Karisch) 7.X.1912, 1 ♂ 3.XII.1912, 1 ♂ (gen. slide 2237, Karisch) 12.XII.1912, 1 ♂ 12.X.1917, 1 ♂ 17.VI.1918, 1 ♂ 22.XII.1918, 1 ♂ 2.XII.1919, 1 ♂ (gen. slide 2238, Karisch) 4.XII.1919, 1 ♂ (gen. slide 2122, Karisch) 20.VII.1921, 1 ♂ (gen. slide 2236, Karisch) 26.XI.1921, 1 ♂ 13.VII.1922, H. L. Weber (CMNH).

Description:
(pl. 18, figs. 102, 103)

Wingspan: ♂♂: 19 – 21 mm, ♀♀: 23 – 31 mm.

Thorax white, with a red transverse fascia. Abdomen white, tip pale orange.
Forewing: white, fasciae orange; basal fascia only slightly dentate; antemedian fascia basad with a blackish-brown line, nearly straight from costa to dorsum; postmedian fascia slightly curved around discal cell, then nearly straight to dorsum, distad with a delicate dark brown line; a pale brown patch above postmedian fascia and an orange strigula to costa and then to apex; marginal fascia of red triangular spots from apex to tornus, sometimes obsolescent; costa orange from base to antemedian fascia; discal spots black, round. Fringes white.
Forewing (underside): white; in ♂ costal field from base to antemedian fascia and between postmedian fascia and apex pale orange; in ♀ only costa orange.
Hindwing: both surfaces without any pattern white, in ♂, marginal area often pale orange; fringes white.

Genitalia ♂ (fig. 177): Tegumen slender, long; uncus small, pointed; valva broad; fold with large costal bulge; cucullus far projecting, tapered, rounded at tip; sacculus broad; process thick, bulky distally, flattened proximally and with a long, strong thorn; vinculum rather broad; saccus quite small. Aedeagus rather long, tapered apically; vesica with three fields of about 5 to 10 stout cornuti.

Genitalia ♀ (fig. 179): Papillae anales not enlarged; ostium bursae slightly enlarged; ductus bursae rather long, gathered, not strongly sclerotized; corpus bursae laterally and anteriorly protruded, with three sclerotized fields, one below ductus bursae, one anterior at lateral protrusion and one laterally of anterior protrusion, gathered and crisped slightly in sclerotized fields elsewhere more extensively. Gland (pl. II, fig. 45) of type "r" (Bendib & Minet, 1998).

Cyana (*Strigivulpecula*) *rufeola* varies in the expression of the marginal fascia. Males from Cameroon are variable in the number of the cornuti of the vesica.

Similar species:
Cyana (*Strigivulpecula*) *rufeola* spec. nov. is very similar to C. (*S.*) *nemasisha*. The fasciae are broader and more orange than red. In genitalia, the ♂ of *C.* (*S.*) *rufeola* has a slender saccus and a more distinctive bulge on costa of valva. The ♀ of C. (*S.*) *nemasisha* lacks sclerotization below ductus bursae.

Remarks:
A ♀ (gen. slide 2119, Karisch) from Uganda: Toro: Ft. Portal, 16.-21.VII.1960, A. C. Twomey (CMNH), has less distinctive protrusions of bursa copulatrix and weaker sclerotizations. Its identity as *C.* (*S.*) *rufeola* is uncertain. Another female from southern Congo Basin (Sankuru: Dimbelenge, 29.XI.1950, Dr. M. Fontaine (MRAC)) has distinctly different genitalia (fig. 183) and cannot be assigned to any known species. A description is deferred until more material is available.

Early stages and biology:
unknown.

Distribution and habitats:
Congo Basin to the East African Rift Valley (pl. XI, fig. 4). Habitats unknown.

Cyana (*Strigivulpecula*) *nemasisha* (Roesler, 1990) **comb. nov.**

Die *Cyana*-Spezies von Afrika. Teil 1: Zwei neue Arten aus den Beständen des Naturhistorischen Museums in Budapest (Lepidoptera, Arctiidae). – Entomofauna **11** (10): 169ff., figs. 4–6, (*Cyana*) – Holotype ♂ (TMB): Tanzania: USA-River.

Material:

Holotype ♂: " Africa, Tanzania, USA River 3900 ft.", " IX.-II.1965-66, leg. Dr, J. Szunyoghy", "*Cyana nemasisha* U. Roesler, Holotypus" [red label]. In TMB.

Paratypes:
Tanzania: USA-River, 3 ♂♂ (1 ♂ gen. slide 2131, Karisch) 1 ♀ (gen. slide 1829, Karisch) IX.1965 – II.1966, Dr. J. Szunyoghy (EMEM); id., 1 ♀ (Allotype) 22.IV.1965, Dr. Szunyoghy (TMB); id., 1 ♀ 23.IV.1965, 1 ♂ (gen. slide 10393, Roesler) 30.IV.1965, 1 ♂ 11.VII.1965, 5 ♂♂ (gen. slide 10369, 10386, 10394, 10396, Roesler) 1 wA 1 ♀ IX.-II.1965-[19]66, Dr. Szunyoghy (TMB); Arusha, 1 ♂ (gen. slide 10375, Roesler) 1 wA 6.-21.VI.1961, Dr. Sáska (TMB); Mt. Meru, E.slope, forestry, 5700 ft., 1 ♂ wA 1 ♀ 21.I.-1.II.1966, Dr. Szunyoghy (TMB).

Uganda: Bw[a]mba, 1 ♂ VI.1956, Carcasson (BMNH);
Kenya: Nairobi, 1 ♀ (gen. slide 2130, Karisch), (MNHN);
Rwanda: Karama, Bugesera, 1 ♀ (gen. slide 1823, Karisch) 22.XI.[19]74, B. Turlin (ZSM);
Uganda: Jinja, 1 ♀ VIII.1928, Dr. van Someren (BMNH);
Zambia: Mbala, 1 ♂ (gen. slide 2120, Karisch) 25.-27.IV.1974, 1 ♀ (wA) 8.-12.V.1974, Locust Contr. Ctr. (BMNH);
Zimbabwe: Bulawayo, Matopo National Park, 1 ♂ (gen. slide 2121, Karisch) 10.XII.1993, Mey & Ebert (ZMB);
Mozambique: Moribane Forest, 20°05'S, 33°15' E, 1 ♂ 6.-11.IX.1972, R. Jones (TMP); Dondo Forest, N. W. of Beira, 1 ♂ 9.-19.VIII.1952, K. M. Pennington (TMP);
South Africa: Transvaal: Pretoriuskop, K. N. P. Survey, 1 ♂ 24.-25.IV.1968, Potgieter & Goode (TMP); Legalameetse, Makhutse camp to Wolf River, 24°12' 30°20' E, 800 m, 1 ♀ (gen. slide 2169, Karisch) 18.V.[19]96, J. Joannou (TMP); N[orth] T[rans]v[aa]l, Letaba Estate, Tzaneen, 23°52'S, 30°19' E, 1 ♂ (gen. slide 2168, Karisch) 8.-25. IX.1977, F. Honiball (TMP).

Description:
(pl. 18, figs. 104, 105)

Wingspan: ♂♂: 19 – 26 mm, ♀♀: 26 – 29 mm.
Forewing: white, fasciae red; basal fascia far from base, dentate; antemedian fascia black basad, quite straight; postmedian fascia black distad, in ♂ slightly curved at costa; marginal fascia incised by white veins; at costa near base a blackish-brown spot; a blackish patch above postmedian fascia; discal spots black, approximated, in ♂ outer one elongated. Fringes white.
Forewing (underside): white, pattern translucent; costa from base to antemedian fascia orange-red, brownish-black at base; costal field in ♂ orange-brown tinged.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 180): Tegumen enlarged; uncus elongated, truncated; valva broad; cucullus very narrow, far projecting and tapered to rounded tip; sacculus very broad; process far projecting, bulky, with small teeth near tip and a delicate thorn at very tip; vinculum broad; saccus very broad. Aedeagus rather long, tapered

apically; vesica with two bundles of a few long, strong cornuti and sometimes a supplementary bundle of smaller spines on opposite side (see Roesler, 1990).

Genitalia ♀ (fig. 182): Papillae anales very large; ostium bursae hardly enlarged; ductus bursae slender, folded and membranous; corpus bursae sac-shaped, with distal protrusions at the base and near end, folded, slightly sclerotized apart from protrusions, more heavily sclerotized, especially longitudinally and semicircularly around lower margin of protrusion. Gland (pl. II, fig. 46) of type "q" (Bendib & Minet, 1998).

Cyana (*Strigivulpecula*) *nemasisha* is very invariable except for some variation in development of the marginal fascia. Specimens from East Africa and South Africa often have narrower red fasciae. A male from Usa-River is brownish dusted between the discal spots.

Similar species:
Closely related to *Cyana* (*Strigivulpecula*) *rufeola*, see above.

Remarks:
A female from South Africa (Transvaal, Duiwelskloof, SE 23 30Ca, 14.-17.XI.1971 (TMP)) has an enlarged corpus bursae, in which sclerotization at the base of the protrusion is nearly absent. It is uncertain whether it comes within the variation of this species. The same applies to the variation in the male genitalia, especially to the size of the fields of cornuti in the aedeagus. In *Cyana* (*Strigivulpecula*) *rufeola*, a study of more extensive material from one locality showed that this came within the range of variation of the species. For *C.* (*S.*) *nemasisha*, there were only single or very few specimens from one locality available.

Early stages and biology:
unknown.

Distribution and habitats:
East and Southeast Africa (pl. XI, fig. 4). Collected on Mt. Meru in the woodland savanna zone (fig. 64), at Legalameetse in moist wooded bushland.

Cyana (*Strigivulpecula*) *fasciata* spec. nov.

Holotype: ♂: "Kamerun, Adamoaua ca. 30 km NE Tignere, 7.34 N, 12.50 E, 1000m, 18.III.-14.IV.1982, Flacke, Klein, Künzmann", "1162", "Gen.-Präp. 2116, präp. Karisch, 2006" In ZfB.

Additional Material:

Nigeria: Zaria, Samaru, 1 ♀ (gen. slide B.M. Arct. 5972) 23.X.1978, J. C. Deeming (BMNH); Ibadan, 1 ♀ 15.XI.[19]76, M. A. Cornes (BMNH).

Description:
(pl. 18, figs. 106, 107)

Wingspan: ♂23 mm, ♀♀: 25 – 26 mm.

Forewing: white, fasciae broad, red; basal fascia far from base, slightly curved; antemedian and postmedian fasciae approximated, rather straight and parallel from costa to dorsum, postmedian fascia slightly angled before costa; a small black patch above postmedian fascia below costa; red fascia from apex to tornus; costa in ♂ red from base to antemedian fascia, near the base a blackish spot; discal spots black, large, all round in ♀, in ♂ the outer one very elongated. Fringes white.
Forewing (underside) white with translucent pattern; costal field in ♂ pale orange; lobus small, elongated oval, with orange and red scales.
Hindwing: on both sides white, without pattern. Fringes white.

Genitalia ♂ (fig. 181): Tegumen rather long; uncus broad, truncated; valva rather broad; cucullus far projecting, very narrow; fold weak, but with strongly developed bulge; sacculus broad; process broad, far projecting but not reaching tip of cucullus, with a short, stout thorn and an additional small one at tip. Aedeagus short, broad; vesica with three bundles of strong spines of about the same length but in different numbers, and some fields with minute teeth.

Genitalia ♀: Papillae anales large; apophyses very delicate and comparatively long; ostium bursae rather broad, membranous; ductus bursae very long and slender, gathered, membranous; corpus bursae egg-shaped and strongly crisped and folded, with a larger upper and a smaller lower protrusion; a folded sclerotization distally in the central area and on lower surface of upper protrusion; a small membranous appendix bursae arising

from from lower protrusion. Gland (pl. II, fig. 47) as type "r" (Bendib & Minet, 1998), but with many small lobes.

An invariable species.

Similar species:
Cyana (*Strigivulpecula*) *fasciata* spec. nov. is simlar to C. (*S.*) *klausruedigerbecki*, but has more fiery fasciae and in ♀ the fasciae are approximated to the discal spots. In ♂-genitalia, the more slender process and the distinctive bulge on costa of valva, and in ♀-genitalia, the different shaped bursa copulatrix with a reduced sclerotization are characteristic of *C.* (*S.*) *fasciata* spec. nov.

Early stages and biology:
unknown.

Distribution and habitats
Cameroon and Nigeria (pl. XI, fig. 4). Habitats unknown.

Cyana (*Strigivulpecula*) *klausruedigerbecki* (Karisch, 2005) **comb. nov.**

Eine neue Art aus der *Cyana amatura* (Walker, 1863)-Artengruppe. – Atalanta **36** (1/2): 169 ff., fig. 1, pl. 8, fig. 7, (*Cyana*) – Holotype ♂ (ZSM): Obervolta: Bobo.

Material:

Holotype ♂: "Obervolta, Bobo, 21.IX.1976, leg. H. Politzar, Staatsslg. München", "Holotypus ♂ *Cyana klausruedigerbecki* spec. nov., des. Karisch, 2004". In ZSM.

Paratypes:

Burkina Faso: Bobo, 1 ♂ (gen. slide 1809, Karisch) 20.IX.1976, 1 ♂ 21.IX.1976, H. Politzar (ZSM);
Nigeria: 1 ♂ (gen. slide 1712, Karisch) 25.4.[19]61, J. Birket-Smith (EMEM).

Guinea: Mt. Nimba, Pl. de Zouguepa, 750 m, 1 ♀ 24.V.1991, Cl. Girard (MNHN);
Ivory Coast: Riv. Bagoé, 1 ♂ (gen. slide 2117, Karisch) 14.III.1984, Krüger & Peterson (ZfB); Gouédié 25 km NW Man, 1 ♀ (gen. slide 1813, Karisch) 20.VIII.1997, T. Süssmuth (CSH); id., 1 ♀ 20.VIII.1997, T. Karisch (CKDT).

Description:
(pl. 18, figs. 108, 109)

Wingspan: ♂♂: 17 – 18 mm, ♀♀: 24 – 25 mm.

Forewing: white, fasciae brick-red; basal fascia far from the base, slightly dentate and nearly straight; antemedian fascia broad and rather straight from about 1/3 of costa to half of dorsum; postmedian fascia broad, between costa and M_3 convex, then nearly straight towards tornus; a small blackish-brown patch above postmedian fascia; from there red line to apex; marginal fascia often composed of red triangular spots; costa between base and antemedian fascia red, a small, brown spot near base; discal spots black, hardly approximated, comparatively large, in ♀ round, in ♂ outer one elongated. Fringes white.
Forewing (underside): white; lobus small, pale yellowish.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 184): Tegumen rather broad and short; uncus broad, truncated; valva very broad; cucullus tapered and tip very narrow; fold weak; bulge on costa distinct, but not very deep; sacculus broad; process thickened, reaching tip of cucullus or slightly beyond, with a small thorn in a field of irregular small teeth at tip. Aedeagus rather long and broad; vesica with three bundles of a few but strong cornuti.

Genitalia ♀ (fig. 186): Papillae anales not very large; ostium bursae broad and membranous; ductus bursae slender, membranous, gathered and moderately long; corpus bursae long, with a larger distal protrusion just below ductus bursae; distal parts of the protrusions sclerotized and partially folded; there also a small, membranous appendix bursae.

Only the expression of the red marginal fascia is slightly variable.

Similar species:
Closely related to *Cyana* (*Strigivulpecula*) *fasciata* spec. nov., see above.

Early stages and biology:
Unknown.

Distribution and habitats:
West Africa (pl. XI, fig. 4). Near Gouédié, in a secondary rain forest with small cultivation areas (fig. 65).

Cyana (*Strigivulpecula*) *capensis* (Hampson, 1903) **comb. nov.**

XLV. – Descriptions of new Syntomidae and Arctiidae. – The Annals and Magazine of Natural Historie, Series VII, Vol. **XI**, No. 64: 347, (*Chionaema*) – Holotype ♂ (BMNH): Cape Colony: Grahamstown.

Material:

Holotype♂: "Cape Colony, Grahamstown". In BMNH.

S. W. Africa: 1♂, 1 ♀ (gen. slide B.M. Arct. 5908)(BMNH);
South Africa: **Natal**: Oribigorge, 1 ♂ 29.III.1954, L. Vari (TMP); Everton Nat. 1 (gen. slide 2170, Karisch) 21.-23.IV.1975, L. & G. Vari (TMP); Eshowe, 1 (gen. slide 2171, Karisch) 7.I.[19]16, A. J. T. Janse (TMP); **Eastern Cape**: Tsitsikama Goesabos Forestry, 1 ♂ 1.-13.III.1980, Kroon & Scoble (TMP); Tsitsikamma Forest near Big Tree, 2 ♂♂ 13.XI.1993, T. Karisch (CKDT); Cape, Kubusie Forest, 1 ♂ 20.II.[19]82, N. J. Duke (TMP); Cape, Buffalo Pass, 1 ♀ 2.IV.1983, N. J. Duke (TMP); Transkei, S[outh]coast, Dwesa forest st., 1 ♂ 4.III.1985, Endrödy-Younga (TMP); Transkei, The Haven, 1 ♂ 24.XII.[19]81, N. J. Duke (TMP); Cape, Kei Bridge, 1 ♀ 02.I.1985, N. J. Duke (TMP).

Description:
(pl. 18, figs. 110, 111)

Wingspan: ♂♂: 20 – 25 mm, ♀♀: 23 – 30 mm.

Palpi rather long, about twice diameter of eye, orange. Patches on thorax orange.
Forewing: comparatively broad, ground colour white, fasciae orange; black spot on costa near base; basal fascia rather straight, distad with interrupted black line; antemedian fascia slightly convex, broad, with a delicate black line basad; postmedian fascia parallel to antemedian fascia, sometime slightly concave, at CuA_1 curved towards base, with a fine black line distad, which is often obsolescent before dorsum; discal spots black, widely spaced, the outer one elongated in ♂; a short blackish line above outer discal spot in ♂; thence an orange line into apex; marginal fascia of triangular orange spots from apex as far as middle of termen. Fringes white.
Forewing (underside): white; costa brownish-orange from base to middle of wing; costal field in ♂ broadly orange-brown; lobus small, oval, white and orange scaled.
Hindwing without any pattern; white. Veins sometimes slightly yellowish. Fringes white.

Genitalia ♂ (fig. 185): Tegumen slender, long; uncus broad, with two tips; valva rather broad; cucullus far projecting, pointed; fold well developed, bulge strongly arched; sacculus very broad; process tapered, projecting far behind tip of cucullus, with a short thorn at tip and a dentate apical flattening; vinculum squared; saccus broad. Aedeagus rather long, slender, with groups of very few but long and strong cornuti; vesica also with fields of minute teeth.

Genitalia ♀ (fig. 187): Papillae anales large; apophyses delicate; ostium bursae rather broad and membranous; ductus bursae short, constricted in middle; corpus bursae large, sac-shaped, upper part with a large membranous protrusion and a membranous appendix bursae at lower end; upper protrusion on lower surface with extensive sclerotization. Gland between types "q" and "r" (Bendib & Minet, 1998)(pl. II, fig. 48).
The number of marginal spots and the extent of the black lines on the orange fasciae are slightly variable.

Similar species:
Cyana (*Strigivulpecula*) *capensis* is rather like C. (*S.*) *nemasisha*, but superficially it is easy to distinguish by the broader forewings, the orange instead of red fasciae and the reduced number of orange (instead of red) marginal spots.

Early stages and biology:
Unknown.

Distribution and habitats:
South Africa (pl. XI, fig. 6). In the Tsitsikamma-Forest found in a relict subtropical humid forest with *Podocarpus* (fig. 66).

Strigivulpecula amatura (Walker, 1863) **comb. nov.**

On some Insects collected in Madagascar by Mr. J. Caldwell. – Proceedings of the Zoological Society London **1863**: 167 f., (*Bizone*) – Syntype ♂ (BMNH): without locality in the original description.
= *hova* Guenée, 1865, Lépidoptères de Madagascar. In Vison, A.: Voyage a Madagascar au couronnement de Radama **II**, Annexe F.: 42 (*Bizone*). – Syntypes ♂♂ (lost): Madagascar.
Synonymized by Kirby (1892): 303.

Material:

Holotype: *Bizone amatura* Walker, 1863 ♂: "Type", "Madagascar, Antananarivo, 63-91", "Bizone amatura".

In BMNH.

Madagascar: **North**: Montagne d'Ambre, Les Roussettes, 1000 m, 1 ♂, 5.-12.II.1959, P. Viette (MNHN); **West**: 12 km N. E. de Sakaraha, rés[erve] for[estière] du Zombitsy, 1 ♂ 11.-13.IV.1956, P. Griveaud (MNHN); **East**: Marojejy, réserve naturelle intégrale XII, Ambatosoratra, [sommet], 1700 m, 1 ♂ XI.1960, P. Soga (MNHN); Marojejy, réserve naturelle intégrale XII, Beondroka, 1200 m, 3 ♂♂ VI.1960, P. Soga (MRAC); id., sommet, 1700m, 4 ♂♂ XI.1960, P. Soga (MNHN); id., Anjanaharibe S. Betsakotsako, 1030 m, 1 ♂ XI.1961, P. Soga (MNHN); id., Masiaposa Sud, 1 ♂ I.1959, P. Soga (MNHN); **Centre**: Imerina, 20 ♂♂, 1 ♀ 1892, 1 ♂ 1902, R. P. Camboué (BMNH); Tananarive, 1 ♂ 26.I.1927, 1 ♂ 31.X.1927, 1 ♂ 24.XII.1927, 1 ♂ 26.XII.1927, 1 ♂ 27.XII.1927, 1 ♂ 29.XII.1927, 2 ♂♂ 28.I.1928, 1 ♂ 26.II.1928, 1 ♂ 4.III.1928, R. Decary (MNHN); id., 1 ♂ 1 § 1915, Waterlot (MNHN); id., 18 ♂♂ 1 ♀ 1889, R. P. Camboué (BMNH); id., 1 ♀ IV.-V.1934, Gén. Abadie (MRAC); env. de Tananarive, 3 ♂♂ 1 ♀ 1921, R. Decary (MNHN); Plateaux de l'Imerina, Tananarive, Parc de Tsimbazaza, 1200 m, 1 ♂ 9.X.1951, 1 ♂ 3.XI.1951, 1 ♂ 4.XI.1951, 1 ♂ 5.XI.1951, 1 ♂ 6XI.1951, 3 ♂♂ 24.XI.1951, 1 ♂ 1 3.XII.1951, 1 ♀ 4.XII.1951, 1 ♂ 15.XII.1951, 1 ♂ 13.I.1952, 1 ♂ 16.I.1952, 1 ♂ 1.II.1952, 1 ♂ 2.II.1952, 3 ♂♂ 3.II.1952, 3 ♂♂ 11.II.1952, 4 ♂♂ 14.II.1952, 8 ♂♂ 1 ♀ 15.II.1952, 3 ♂♂ 23.II.1952, 1 ♀ (gen. slide 2576, Karisch) 25.II.1952, 1 ♂ 3.XII.1954, 10 ♂♂ 1 13.XII.1954, 2 ♂♂ 2.XII.1954, 4 ♂ 12.I.1955, 1 ♂ 16.I.1955, 2 ♂♂ 7.-15.II.1964, P. Viette (MNHN); id., 1 ♀ (gen. slide 1814, Karisch) 12.II.1952, P. Viette (ZSM); id., 1 ♂ XII.1951, 1 ♂ 1952, P. Viette (MRAC); Nanisana near Tananarivo, 11 ♂♂ 5 ♀ XII.1931, Mme. N. d'Olsoufieff (BMNH); Mantasoa, 1500 m, 1 ♂ II.1967, B. Turlin (MNHN); massif de l'Ankaratra, forêt d'Antarivady, 1 ♂ 10.-14.I.1967, 2130 m, P. Griveaud (MNHN); Manjakatombo, forêt d'Ambahona, 1 ♂ 27.X.1951, P. Viette (MNHN); Andranotobaka, 1400 m, 1 ♂ 1 ♀, IV.[19]57, P. Griveaud (MNHN); Bekily, 2 ♂♂ (MNHN); route d'Ambositra à Ambohimanga du Sud, km 39, 1350 m, 1 ♂ 6.-11.XI.1963, P. Viette (MNHN); Ambatofinandrahana, 1180 m, 4 ♂♂ 26.-28.VII.1957, P. Griveaud (MNHN); env. d'Ambohimahasoa, Tsarafidy, forêt d'Ankafina, 1 ♂ 31.XII.1959, P. Griveaud & R. Vieu (MNHN); Plateau Central, Fianarantsoa, [Bekily], 1 ♂, [A. Seyrig] (MNHN).

Description:

(pl. 18, figs. 112, 113)

Wingspan: ♂♂: 19 – 25 mm, ♀♀: 22 – 33 mm.

Forewing: white, fasciae carmine; basal fascia short, dentate; antemedian fascia decidedly dentate; postmedian fascia curved around discal cell, then dentate and slightly angled outward to dorsum; marginal fascia of red triangles from apex to tornus; discal spots black, in ♂ very approximated, the inner one round, the outer elongated, in ♀ the discal spots not approximated, the basal one round and the apical spot semicircular; in ♂ a small black diagonal line above the terminal margin of the cell and from there a red line to the apex. Fringes white.

Forewing (underside): white, pattern translucent; basal discal spot with dark red scales; apical discal spot paler; terminal fascia of red spots; in ♂, costal field red, narrow between antemedian and postmedian fascia, broader between base and antemedian fascia and from postmedian fascia to apex; lobus small, oval, carmine; in ♀, costa between base and antemedian fascia narrow, carmine.

Hindwing on both surfaces white, unmarked, sometimes with a delicate orange marginal line. Fringes white.

Genitalia ♂ (fig. 188): Tegumen slender, long; uncus broad, truncated; valva rather broad; cucullus long, tapered, tip pointed; sacculus rather broad; process slender, long, with a long thorn at tip; fold very distinct; bulge weak. Aedeagus short, broad, slightly tapered at coecum; vesica with three groups with numerous spines, one group with more and longer cornuti.

Genitalia ♀ (fig. 190): Papillae anales large; apophyses slender and quite long; ostium bursae broad; ductus bursae broadened near ostium, membranous, in the basal part gathered and more strongly sclerotized laterally; corpus bursae elongated oval, strongly crisped; sclerotization of ductus bursae extending laterally on both sides into corpus bursae and into beginning of appendix bursae.

Cyana (*Strigivulpecula*) *amatura* is variable in the colour of the fasciae.

Similar species:

Cyana (*Strigivulpecula*) *amatura* resembles *C.* (*S.*) *lobata* spec. nov., for differences see below.

Remarks:

Cyana (*Strigivulpecula*) *amatura* and *C.* (*S.*) *lobata* spec. nov. are slightly different from the other species of the subgenus. The fasciae are more dentate and not accompained by black lines. In ♂, the approximated discal spots are notable. In aedeagus, a very large field with cornuti in addition to two others. In ♀-genitalia, sclerotization of corpus bursae is continued into the folded and broad ductus bursae. In *C.* (*S.*) *lobata* spec. nov., the large and split lobus is different from all other species of the subgenus.

Early stages and biology:

unknown.

Distribution and habitats:
Mainly in Central and North Madagascar (pl. XI, fig. 6) in a wide range of different forest-like habitats, from botanical gardens (Parc de Tzimbazaza) to the cloud forests (le Marojejy) (Viette, 1962).

Cyana (*Strigivulpecula*) *lobata* spec. nov.

Holotype♂: "Madagascar est, Marojejy, Anjanaharibe S. Betsakotsako 1030 m, XI-1961 P. Soga". In MNHN.

Paratypes:
Madagascar: North: Nosy Be, 1 ♂ 25.II.1955, R. Paulian (MNHN); id., forêt de Lokobe, 150 m, 1 ♂ 3.-9.XI.1958, P. Viette (MNHN); 10 km d'Ambanja, route du Haut Sambirano, col du Bekaka, 140 m, 2 ♂♂ 1 ♀ 16.-17.XII.1963, P. Viette & P. Soga (MNHN); E d'Ambanja, N de Beangona-Ambevy, vallée d'Antremabe, 400 m, 1 ♂ II.1964, P. Soga (MNHN); Haut Sambirano, vallée de la Besanetrikely, [1100 m], 1 ♂ 9.-12.XII.1963, P. Viette (MNHN); East: dist[rict] d'Andapa, Ambatoarano, 830m, 2 ♂♂ X.1963, P. Soga (MNHN); distr[ict] Sambava, Ambinanitelo, 500 m, 1 ♂ XII.[19]58, P. Griveaud (MNHN); Ambodivoangy, 1 ♂ II.1949, J. Vadon (MNHN); Ambodivoangy, dist. Maroantsetra, 20 m, 18.III.[19]58, P. Griveaud (MNHN); dist. Maroantsetra, stat[ion] forest[ière] de Farankaraina, r[ou]te de Navana, km 16,5, vallée d'Antoroka, 100 m, 6 ♂♂ 3 ♀♀ (1 ♀ gen. slide 2575, Karisch) 8.-18.I.1964, P. Viette (MNHN); Masoala Péninsule, Tampolo, 1 ♂ 9.XI.2001, J. Minet (MNHN); Andranomalaza, réserve naturelle intégrale III, Antenina, 1 ♂ IV.[19]57, (MNHN); Île Sainte-Marie, forêt de Kalalao, 1 ♂ III.1960, P. Griveaud (MNHN); Brickaville, 1 ♀ 1916, Lamberton (BMNH); env. Brickaville, 1 ♂ IX.1954, A. Robinson (MNHN); route de Tamatave km 181, entre Beforana et Ampasimbe, 540 m, 1 ♀ 22.-28.IX.1972, P. Griveaud (MNHN); Périnet, 1 ♂ 9.VI.1951, P. Viette (MNHN); env. de Périnet, 910 m, 1 ♂ 22.XII.1954, P. Viette (MRAC); id., forêt d'Analamazoatra, 910 m, 1 ♂ (gen. slide 2574, Karisch) 25.XII.1954, P. Viette (MNHN);); Route d'Anosibe, [km 57], 1 ♂ 15.II.1955, 1 ♂ 16.II.1955, P. Viette (MNHN); Ambinanindrano, W of Mahanoro 2 ♀♀ 15.XII.[without year], G. K. Kestell-Cornish (BMNH); id., 2 ♀♀ VIII.1913, 1 ♀ 19.X.1914, 1 § V.1912, 1 ♀ III.1912, 1 ♂ 22.VIII.1914, G. K. Kestell-Cornish (BMNH); Ranomafana National Park, Centre Valbio, 917 m 1 ♂ 1.+4.-21.XI.2005, G. Martin, D. L. J. Quicke & L. P. Holland (BMNH); id., Setam Lodge Hotel, 917 m (21°15' S 47°25' E), 2 ♀♀ 4.-21.XI.2005, G. Martin, D. L. J. Quicke & L. P. Holland (BMNH); Fianarantsoa env., Ranomafana, 900 m, 1 ♂ 5.-15.I.2001, S. Murzin (MWM); Mananjary, 1 ♂ XI.1918, [ex coll. - Viette, i. l. 2010] Le Moult (BMNH); id., 2 ♂♂ 1918, G. Melou (BMNH); Sakavondro, forêt Isaka, 225 m, 1 ♂ 24.II.[19]58, P. Griveaud (MNHN); Sakavondro, 40 m, 1 ♂ 23.VI.1957, P. Griveaud (MNHN).

Description:
(pl. 18, figs. 114, 115)

Wingspan: ♂♂: 19 – 24 mm, ♀♀: 25 – 30 mm.

Forewing: white, fasciae red; basal fascia short, dentate; antemedian fascia decidedly dentate; postmedian fascia curved around discal cell, then dentate and slightly angled outward to dorsum; marginal fascia of red triangles from apex to tornus; discal spots black, in ♂ closely approximated, inner one round, outer elongated, in ♀, they are not approximated, basal one round, distal one comma-shaped; in ♂, a small black diagonal line above terminal margin of cell and thence a red line to apex. Fringes white.
Forewing (underside): white, pattern translucent; some red spots of terminal fascia visible; in ♂, costal field red, narrow between antemedian and postmedian fasciae, broader between base and antemedian fascia from postmedian fascia to apex; lobus large, round to oval, split opposite the costa, oval, pink, red towards base of wing; in ♀, costa between base and antemedian fascia narrowly carmine.
Hindwing on both surfaces white, unmarked sometimes with a delicate orange terminal line. Fringes white.

Genitalia ♂ (fig. 189): Tegumen slender, long; uncus broad, truncated; valva rather broad; cucullus long, tapered, tip pointed; sacculus rather broad; process slender, long, with a long thorn at tip; fold very distinct, but only slightly bulged. Aedeagus short, broad, slightly tapered at coecum; vesica with three groups of numerous spines, in one group more and longer cornuti.

Genitalia ♀ (fig. 191): Papillae anales large; apophyses slender and quite long; ostium bursae broad; ductus bursae broadened near ostium, membranous, folded longitudinally in basal part; corpus bursae elongated oval, well sclerotized, with many longitudinal grooves towards appendix bursae; appendix bursae membranous, located at proximal end of corpus bursae.

Cyana (*Strigivulpecula*) *lobata* varies in the expression of the terminal fascia.

Similar species:
Cyana (*Strigivulpecula*) *lobata* is similar to *C.* (*S.*) *amatura*, but easily distinguished by the more approximated antemedian and postmedian fasciae in both sexes, the large lobus on underside of forewing in males and the

much larger female genitalia with strong sclerotization, strongly developed longitudinal grooves on corpus bursae and a well separated appendix bursae.

Early stages and biology:
unknown.

Distribution and habitats:
The nominate subspecies in the eastern and particularly in the northern parts of Madagascar (pl. XI, fig. 5). Habitats include palm-rich forests (forêt de Lokobe) and rain forests with abundant epiphytic plants, tree-ferns and orchids (forêts d'Analamazoatra, Ranomafana) (Viette, 1962).

Cyana (*Strigivulpecula*) *lobata comorana* subspec. nov.

Holotype: ♂ "Mayotte, Convalescence 380 m, XI-58 P. Griveaud". In MNHN.

Paratypes:
Comoro Islands: **Mayotte**: Convalescence, 380m, 1 ♂ XI.[19]58, 1 ♂ 1 (gen. slide 2573, Karisch) IX.[19]58, P. Griveaud (MNHN); Kavani-M'sapéré, 15/25 m, 1 ♂ 27.IV.1968, P. Dubernet (MNHN); Coconi, 126 m, 1 ♂ VI.1974, H. Reneaud (MNHN); **Anjouan**: M'Rémani, 800 m, 3 ♂♂ 1 ♀ X.[19]58, P. Griveaud (MNHN); Ajaho, 50 m, 1 ♂ X.[19]58, P. Griveaud (MNHN); **Moheli**: Fomboni, 10 m, 1 ♂ X.[19]58, P. Griveaud (MNHN).

Description
(pl. 18, fig. 116, 117)

Like the nominotypical subspecies, but fasciae lighter red and broader.
In ♂ (fig. 192) genitalia, only one instead of two bundles with smaller spines, ♀-genitalia (fig. 193) as in nominate subspecies.

Early stages and biology:
Unknown.

Distribution and habitats:
At the archipelago of the Comoro Islands, but not yet collected on Grande Comore (pl. XI, fig. 5). Habitats are probably more or less humid (Mayotte) or semi-humid (Anjouan) tropical forests.

Subgenus: ***Bizone*** Walker, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 548.

Description:
Head: white; proboscis well developed; palpi long, about 1¼ diameter of eye, 3rd joint cudgel-like, with short scales; eye dark brown, with black patches; antenna with bristles and cilia in two rows, scaled on the upper side, cilia nearly 1½ diameter of shaft.
Thorax white, with a red transverse fascia and red spots on each tergite; 1st and 2nd pair of legs orange and dark brown, white annulated and with white patches; 3rd pair of legs whitish, tarsi dark brown, white annulated.
Abdomen yellowish or pink-white, in ♂ the last four, in ♀ the last two segments pink or orange; in ♂, scales on tip of abdomen yellowish.

Wings.
Venation (male, fig. 67):
Forewing: Sc short; R_1 and costal vein of discal cell transformed by the large lobi; R_2/R_3 from same point at apical angle of cell; R_4/M_1 long stalked and arising below apical angle of cell; M_2 curved towards base; M_3 from anal angle of cell; CuA_1 arising before anal angle of cell and curved towards M_3 at margin; CuA_2 from just behind half of cell. Two very large lobi, basal one long elongated and more oval, distal one nearly round and overlapping just behind middle of discal cell.
Hindwing: Rs/M_1 and M_3/CuA_1 short stalked; M_2 tubular in proximal part; discal cell divided; CuA_2 arising from far behind middle of cell.
Venation (female, fig. 68):
Forewing: R_3/R_4 shortly stalked, approximated to M_1 at cell, but separate; M_2 curved towards M_3 at base, but arising separately; CuA_1 strongly approximated M_3, but arising just before terminal vein of cell; CuA_2 from just short of half of cell.

Hindwing: Rs/M_1 and M_3/CuA_1 rather short stalked, branch of M_3/CuA_1 shorter than that of Rs/M_1; M_2 very delicately tubular; CuA_2 from about 4/5 of cell.

Pattern and colour (pl. 18, figs. 118, 119): Forewing rather long and narrow; in ♂ with distinct long fringes along costa on upperside from antemedian fascia to outer lobus; fascia red; antemedian fascia basad and postmedian fascia distad accompained by a delicate black line; marginal fascia weak; in a red patch from the outer lobus via costa to the marginal fascia; only a single distinct, black, round to oval discal spot in terminal part of cell. Hindwing without any pattern; white, sometimes pink tinged in marginal area.
Sexual dimorphism is considerable. The females have broader wings with a reduced or absent marginal fascia, absence of the red patch between postmedian fascia and costa and narrow fasciae, which are not approximated.

Genitalia ♂ (fig. 194): Uncus very long and slender; valva broad, divided at tip; cucullus shortly projecting, broad, rounded at tip and curved along costa; sacculus broad; process rather slender and short, tapered to a thorn; juxta weakly sclerotized. Aedeagus very long; tube slender, with a distinct, strongly sclerotized and nearly triangular sclerotization at apex and with a very short, broadened coecum; vesica strongly emarginated, but without spines or teeth.

Genitalia ♀ (fig. 195): Papillae anales very small; apophyses rather long and slender; ostium bursae slightly broadened; lamella postvaginalis uniformly and strongly sclerotized; ductus bursae long, flat, smooth and strongly sclerotized; bursa copulatrix spherical, strongly folded; ductus of appendix bursae from near ductus bursae; appendix bursae larger than bursa copulatrix, membranous, sac-shaped; signum a slight depression with minute teeth.

Distribution: South East Asia.

Type species: *Cyana* (*Bizone*) *perornata* Walker, 1854. L. t.: Bangladesh: Silhet.

Subgenus: *Tomea* subgen. nov.

Description:
Head: white, frons orange-red; Proboscis well developed; length of palpi about 1¼ diameter of eye; eye dark greyish-brown, black spotted; antenna with bristles and cilia in two rows, scaled on upper side; cilia about twice as long as diameter of shaft.
Thorax and abdomen white; 1st pair of legs orange-red; 2nd pair with tibia and tarsi distally orange-red, white annulated, proximally whitish; 3rd pair with tibia pale orange and outer tarsi orange-red, other parts white. Abdomen white.

Wings.
Venation (male, fig. 69):
Forewing: R_1 and R_2 transformed by lobus and faded; R_3 and R_4 stalked, strongly curved to costa; M_1 parallel to R_4/R_5 and curved into apex; M_3 approximated to CuA_1; CuA_2 from about 2/3 of cell, convex to dorsum, then in terminal area approximated to CuA_1; costal vein of discal cell curved and transformed at lobus, terminal vein between M_2 and M_3 extending obliquely beneath lobi; lobus divided in two parts, basal one larger and more oval, apical one smaller and nearly circular.
Hindwing: M_3/CuA_1 longer stalked than Rs/M_1; M_2 very weak; CuA_2 from about 2/3 of cell.
Venation (female, fig. 70):
Forewing: Sc + R_1 anastomosed; R_3/R_4/M_1 stalked, arising from apical angle of cell; M_2 curved proximally to M_3; M_3 and CuA_1 approximated and arising from same point at anal angle of cell; CuA_2 from about half of cell.
Hindwing: Rs/M_1 and M_3/CuA_1 stalked, M_2 absent; CuA_2 from before middle of cell.

Pattern and colour (pl. 18, figs. 120, 121): Forewing: rather broad and stout; upperside lacking pattern, white, ♂with a delicate red costa; discal spots absent.
Hindwing: without any pattern, white.

Sexual dimorphism is insignificant: ♀♀ slightly larger and ♂♂ with coloured costa.

Genitalia ♂ (fig. 196): Uncus very long and slender; tegumen long; valva narrow, divided at tip; cucullus rather far projecting, very elongated triangular with a rounded tip; sacculus broad; process slender and long projecting, with a small thorn at tip; fold weakly bulged and costa between base and fold strongly arched; juxta weakly sclerotized. Aedeagus broad and short; vesica with a field of small or medium-sized, flat teeth and pyramids, a bundle of long, slender and curved spines and another bundle of small, slender and curved cornuti.

Genitalia ♀ (fig. 198): Papillae anales rather small; apophyses very long and slender; ostium bursae enlarged, membranous; ductus bursae rather short, slightly sclerotized and strongly folded longitudinally; a short membranous part below ostium, ductus then enlarged towards bursa copulatrix and sclerotized; corpus bursae with a spherical appendix in basal part, in lower part ductus of appendix bursae, appendix bursae slender, sac-shaped, membranous; corpus bursae sclerotized and folded in basal part and around spherical appendix, towards ductus bursae with a larger field of minute thorns.

Distribution: Island Sao Tomé.

Etymology: after the island Tomé.

Type species: *Cyana* (*Tomea*) *rufifrons* (Rothschild, 1912) (monotypic subgenus)

Cyana* (*Tomea*) *rufifrons (Rothschild, 1912) **comb. nov.**

New Lithosiinae. – Novitates Zoologicae **XIX**: 246, (*Chionaema*). – [Holo]type ♂ (BMNH): Sao Thomé Island.

Material:

[Holo]type ♂: "St. Thomé, X. XI. 99, (Mocquerys).", "*Chionaema rufifrons* Type Rothschild". In BMNH.

Sao Tomé: 1 ♂ X.-XI.1932, 1 ♂ 17.XI.[19]31, 1 ♂ 2.XI.1932, 1 ♂ 2.XI.1932, 1 ♀ [without date], 1 ♀ 18.XI.1932, 1 ♀ 24.XI.1932, 1 ♀ 18.XI.1932, 1 ♀ 2.XI.1932, W. H. T. Tams (BMNH); edge of virgin forest, 3 ♂♂ 3 ♀♀ 10.I.-24.I.[19]26, T. A. Barns (BMNH); 2 ♂♂ 4 ♀♀ X.XI.[18]99, Mocquerys (BMNH); Bombain, Traz-os-Montes, 450 m, 1 ♂ (gen. slide 1810, Karisch) 2 ♀♀ (1 ♀ gen. slide 1811, Karisch) 6.-8.VI.[19]56, P. Viette (ZSM); id., 3 ♂♂ 4 ♀♀ 06.-08. VI.1956, P. Viette (MNHN).

Description:
(pl. 18, figs. 120, 121)

Wingspan: ♂♂: 26 – 34 mm, ♀♀: 28 – 33 mm.
Forewing shiny white on both surfaces; in ♂, costa pink-red from base to middle of wing. Fringes white.
Forewing (underside): costal field in ♂ with many orange scales; lobus large, in two parts parallel to costa, inner part with an orange patch, outer one yellowish.
Hindwing unicolorous white, shiny. Fringes white.

Genitalia ♂ (fig. 196): Tegumen slender, long; uncus very long, strong, slender; valva narrow, long; cucullus broad, tapered to tip and not projecting very far; fold well developed, costal bulge very long and prominent; sacculus rather small; process slender, projecting far behind tip of cucullus, with a small thorn on the tip; vinculum and saccus slender. Aedeagus very short and broad. Cornuti and teeth as mentioned in description of subgenus.

Genitalia (fig. 198): Papillae anales small; ostium bursae broad, membranous, curtain-like; ductus bursae membranous, long, broadened towards corpus bursae and slightly sclerotized and folded there; corpus bursae also sclerotized and folded in basal and medial parts, with a round protrusion at halfway in the lower part of bursa; a round and sclerotized structure, with some small, delicate thorns near base of corpus bursae. Gland of type "r" (Bendib & Minet, 1998), but laterally produced (pl. II, fig. 49).

An invariable species.

Similar species:
Cyana (*Tomea*) *rufifrons* is a very distinctive species and cannot be confused with any other African ones.

Early stages and biology:
unknown.

Distribution and habitats:
Sao Tomé island (pl. XII, fig. 1). Collected by Barns on the border of a primary rain forest.

Subgenus: ***Chionaema*** Herrich-Schäffer, 1855

Systmatische Bearbeitung der Schmetterlinge Europas **6**: 100, 101

Description:
Head: white, frons in ♂ yellowish, in ♀ white; proboscis well developed; length of palpi about 1½ diameter of

eye, strongly curved upward; eye greyish brown, partially black spotted; antenna with bristles and cilia in two rows; scaled on the upper side; cilia about twice diameter of shaft.
Thorax white, with a red transverse fascia, a red spot on each scapula and on second and third tergite; 1st and 2nd pair of legs reddish-orange, narrowly annulated white; 3rd pair of legs white, only the tarsi pale orange and white annulated. Abdomen whitish, with some yellowish to pink at tip.

Wings.
Venation (male, fig. 71):
Forewing: R_1 and R_2 transformed through lobus and very feeble; R_3 and R_4 stalked, curved to costa; M_1, M_2 and M_3 approximated and nearly parallel to just before terminal margin; M_1 arising below lobus; M_2 connected at dorsal end of lobus with terminal vein of discal cell; M_3 and CuA_1 from anal angle of cell; M_3 angled just behind cell; CuA_2 arising just before anal angle of cell; discal cell distinctively broadened in terminal part; two lobi, basal one small and curved, distal one very elongated, oval and large; wing between costa and lobi covered with long, straight scales; costa depressed above lobi.
Hindwing: Rs/M_1 very shortly stalked; M_2 weak; M_3/CuA_1 very long stalked, divided just before termen; CuA_2 from just before end of cell (7/8).
Venation (female, fig. 72):
Forewing: costal vein of the cell sinuous; R_1 long curved; $R_3/R_4/M_1$ stalked and together with R_2 arising from same point at apical angle of cell; M_1 extending into apex; M_2 and M_3 long stalked, arising from anal angle of cell; CuA_1 distinctively separated from M_2/M_3; CuA_2 from about 2/3 of cell.
Hindwing: Rs/M_1 short stalked; M_2 delicate, but reduced tubular; M_3/CuA_1 rather long stalked; CuA_2 from about 4/5 to 5/6 of cell.

Pattern and colour (pl. 18, figs. 122–125): Forewing: in ♂ rather narrow and long, broader in ♀, but also long; fasciae reddish-orange; antemedian fascia with a fine black line basad and postmedian distad, and partly obsolescent; marginal fascia distinct; in ♂ an orange line from postmedian fascia at lobus to costa, thence to marginal fascia; ♂ with three small, black and closely approximated discal spots, ♀ with a single larger, round, black spot.
Hindwings without pattern, pale orange to pink, paler near base.

Sexual dimorphism is very distinct (see *Cyana* (*Chionaema*) *puella postflavida*).

Genitalia ♂: Uncus very long and slender; tegumen long; valva small, divided at tip; cucullus broad, far projecting, tip rounded; sacculus broad; process broad and long projecting, tip thorny; fold rather weak. Aedeagus short and broad, tube more strongly sclerotized at apex; vesica with a large field with rather long and slender spines and other extensive areas with minute teeth.

Genitalia ♀: Papillae anales small; apophyses rather long, slender; ostium bursae hardly broadened, membranous; ductus bursae rather long, folded longitudinally, more strongly sclerotized proximally; ductus of appendix bursae from close to ductus bursae, appendix bursae rather small, membranous; signum larger, a depression with delicate teeth.

Distribution: Western Oriental region, Arabian Peninsula, East and Northeast Africa.

Type species: *Cyana* (*Chionaema*) *puella* (Drury, 1773). L. t.: India: Madras.

Cyana (*Chionaema*) *puella puella* (Drury, 1773)

Illustrations of Exotic Entomology **2**, p. 3, pl. II, fig. 2, (*Phalaena*) – [Holo]type ♀ (depository unknown): India: Madras.

Cyana (*Chionaema*) *puella postflavida* (Rothschild, 1924) **stat. rev.**

XXXV. – Some new or Noteworthy Madagascar and African Heterocera. – Annals and Magazine of Natural History, Ser. IX, Vol. **XIV**: 308, (*Chionaema puella postflavida*) – Syntypes 1 ♂ 1 ♀ (♀ within a series from the unlocalised type locality) (BMNH): B.E.A.: Kibwezi [after hand-written notices in the BMNH; published from Diego Suarez, Madagascar].
= *fugax* Berio, 1939, Contributi alla conoscenza dei Lepidotteri Eteroceri dell'Eritrea. I. Liste delle specie con descrizioni delle nuove entitá raccolte negli anni 1934 al 1937 dal Sig. Francesco Vaccaro. – Memoire della Società Entomologica **XVII** (1938), Fasc. II: 48, Taf. I, fig. 8 (*Chionaema*). – [Holo]type ♀ (Museo Civico di Storia Naturale Genova): Eritrea: Dorfù.

Material:

Syntype ♂: "Kibwezi, B. E. A., 14.May 1917, (W. Feather)", "Cyana puella postflavida Type Rothsch.", "Arctiidae Brit. Mus. slide No. 5914". In BMNH.

Cameroon: Mandara, 1 ♂ (MNHN);
Ethiopia: Harar, 6500 ft., 1 ♂ 15.II.37, 1 ♀ 18.XII.[19]26, T. Wikeley (BMNH); Dire Daoua, 1 ♀ VI.1936, H. Uhlenhut (BMNH);
Dem. Rep. Congo (Zaire): Ituri: Abok, 1 ♀ (wA) 1926, Ch. Scops (MRAC);
Uganda: Entebbe, 1 ♂, F. J. Jackson (BMNH); Kampala, 1 ♂ IV.1900, Capt. H. B. Rattray (BMNH);
Kenya: Kibwezi, 2 ♂♂ 2 ♀♀ 16.IV.1917, 1 ♂ 27.I.1917, 1 ♀ 9.V.1917, W. Feather (BMNH); Taita Hills, Mbololo Plantation, 1 ♀ 21.VI.1998, 5 ♀♀ 22.VI.1998, 1 ♂ (gen. slide 2233, Karisch) 27.VI.1998, 1 ♀ 7.III.1999, U. Dall'Asta (MRAC); South-Ukasbasi, 2.IV.[20]05, Politzar (MWM); Aberdares Mts., Gatamayo, ca. 2300 m, 1 ♀ 20.-30.X.1995, Dr. Politzar (MWM); Marsabit Nat. Reserve, campsite, 1 ♀ 17.III.1988, A. Vojnits (TMB);
Tanzania: Amani, 1 ♂ III-IV.1936, B. Cooper (BMNH); Usambara, Amani, 1 ♀ (gen. slide 1822, Karisch) 21/30.IV.[19]76, (ZSM); W Usambara Mts., Mazumbai U[niversity] f[orest] s[tation], 1 ♂ (gen. slide 10335, Roesler) 1 ♀ (wA) 4 ♀♀ (1 ♀ gen. slide 10334, Roesler) 18.I.1985, L. Peregovits (TMB), id., Shume Forest, 1876 m, 1 ♀ 28.XI.2008, Ph. Darge (MNVD), id., Irente view point, 1376 m, 1 ♂ 2 ♀♀ 26.XI.2008, Ph. Darge (ZSM, MNVD).

Description:
(pl. 18, figs. 124, 125)

Wingspan: ♂♂: 26 – 30 mm, ♀♀: 27 – 35 mm.
Forewing: white, fasciae orange to red; basal fascia close to base, concave; antemedian fascia curved outward from costa to inner vein of cell, then quite straight to dorsum, with a fine black line basad; postmedian fascia in ♂ approximated to antemedian fascia, in ♀ not so, dentate, angled outward before dorsum, distally with a fine black line; marginal fascia from apex to tornus; in ♂, a grey or orange-brown strigula above postmedian fascia, which extends to apex; costa from base to antemedian fascia orange or red; discal spots distinct, black, in ♂ closely approximated and outer one divided into upper and lower spots; in ♀, only outer discal spot present, large and round. Fringes white.
Forewing (underside): whitish, orange to reddish tinged, especially near costa and termen; in ♂, lobus large, oval, orange-red, thence median part of wing more or less reddish dusted; in ♀, costa broadly red from base to antemedian fascia.
Hindwing on both surfaces pale orange yellow, slightly darker towards apex, especially in ♀♀. Fringes yellowish.

Genitalia ♂ (fig. 197): Tegumen rather broad and long; uncus very long, finger-like, pointed; valva rather narrow; cucullus broad, tip rounded, far projecting; sacculus broad; process large, far projecting, but not reaching tip of cucullus, tapered into a strong tip; vinculum broad, saccus slender. Aedeagus short, broad; vesica with a bundle of stout and rather long cornuti and some fields with minute teeth.

Genitalia ♀ (fig. 199): Papillae anales small; lamella postvaginalis very slender; ostium bursae rather broad, membranous; ductus bursae long and broad; corpus bursae long sac-shaped, with an extended lateral protrusion which, together with ductus bursae is strongly sclerotized in places.

Sexual dimorphism is considerable. Females are larger, have only one discal spot, the red fasciae are not approximated and median part of underside of forewings is not reddish dusted.

Cyana (*Chionaema*) *puella* varies in the colour of the fasciae, in the distance between antemedian and postmedian fasciae, and in ♂, in the amount of reddish colour of the median part of the underside of the forewing and in the colour of the hindwing.

Similar species:
Cyana (*Chionaema*) *puella postflavida* is unmistakable in pattern and genital structure, and cannot be confused with any other African species.

Remarks:
African specimens are identical in genitalia with the nominate form of this species from India. Most of the African specimens show more distinct black lines along the red fasciae of the forewing and more orange yellow rather than pink hindwings. Therefore the former status of the taxon *postflavida* as a subspecies of *Cyana* (*Chionaema*) *puella* is restored.

Early stages and biology:
Unknown.

Distribution and habitats:
Northern Central Africa and East Africa from Ethiopia to Tanzania (pl. XII, fig. 1). Also known from Oman (CKDT), Yemen and Saudi-Arabia (Hacker, 1999). In the Taita Hills (Kenya) the species has been found in plantations, along forest borders and in anthropogenically influenced forests (fig. 73).

Subgenus: ***Cyana*** WALKER, 1854

List of the Specimens of Lepidopterous Insects in the Collection of the British Museum **2**: 528.

Head: Proboscis well developed. Palpi long, length about twice diameter of eye. Eyes dark grey brown, slightly black spotted. Antennae with bristles and cilia in two rows, scaled on upperside; cilia about twice diameter of shaft.
Thorax ochre, with brown transverse band and brown spots on scapulae. 1st and 2nd pair of legs grey brown, slightly ochreous-brown annulated; 3rd pair of legs pale ochreous, last four tarsomeres white; tibial spurs long, posterior more than twice diameter of tibia. Abdomen pale ochre.

Wings.
Venation (male, fig. 14):
Forewing: Sc prolonged along costa; R_1 and R_2 transformed by lobus and in parts rudimentary; R_3/R_4 stalked, branches divergent; M_1 from below outer lobus; M_2 nearly parallel to M_1; M_3 approximated to CuA_1, but arising from a different point on anal angle of cell; CuA_2 from about 2/3 of cell. Two round lobi, outer one larger, separated from each other; area between lobi and along costa covered with long, dense scales; forewing upperside distal of lobus with a longer, distinct depression, continued under scales at opening of lobus.
Hindwing: Sc approximated to Rs/M_1; Rs/M_1 and M_3/CuA_1 stalked, branches not divergent; M_2 very weak; CuA_2 from about ¾ of cell.
Venation (female, fig. 15):
Forewing: R_1 clearly separated from the other radiales; $R_{3/4}$ with long stalk and very shortly stalked with M_1, arising with R_2 apically from discal cell; M_2 basally slightly curved to M_3; M_3 and CuA_1 narrowed, but arising clearly separated; CuA_2 from about 2/3 of cell.
Hindwing: Rs/M_1 and M_3/CuA_1 shortly stalked; M_2 obsolescent; CuA_2 from about 2/3 of cell.

Pattern and colour (pl. 19, figs. 126, 127): Forewing rather broad and stout; apex rather acute, especially in males; fasciae dark brown and faded; three narrowed, greyish brown discal points, in male the anal and proximal ones containing white dots, in female all with white dots.
Hindwing without any pattern and white, sometimes slightly ochreous at margin.

Sexual dimorphism not distinct.

Genitalia ♂ (fig. 200): Uncus long and slender; tegumen rather broad and long; valva slender, apically bipartite; cucullus broad and far projected; sacculus broad, process long, medially gradually tapered and distally slightly thickend with a long, thorn-like tip; fold most stongly developed in median part, arising from middle of costa; juxta moderately sclerotized. Aedeagus short, rather broad; tube broadened in the apical third and with a semicircular ring of strong teeth in several rows; vesica with some small fields with minute teeth.

Genitalia ♀ (fig. 202): Papillae anales moderately large; apophyses anteriores short, a. posteriores moderatly long and slender; ostium bursae very broad, membranous; lamella postvaginalis stronger sclerotized proximally, this sclerotization extends, triangular and frayed dorsally, into ductus bursae; ductus bursae broad and with minute teeth, basally strongly sclerotized; corpus bursae rather small and sac-shaped; appendix bursae without separate ductus, membranous; signum rather big, hemispherical, spiny and strongly sclerotized.

Distribution: Oriental region.

Type species: *Cyana detrita* WALKER, 1854. L. t.: Bangladesh: Silhet.

Subgenus: ***Paravulpeculella*** **subgen. nov.**

Description:
Head: Proboscis well developed; length of palpi about 1¾ diameter of eye, slightly curved upwards; eye greyish ochre, black spotted; antennae with bristles and cilia in two rows, scaled on upper side, cilia about 1½ diameter of shaft.
Thorax white, with brown patches on each tergite, collar and scapulae; in ♀, patches reddish; 1st and 2nd pair of legs orange, white annulated; 3rd pair of legs white, only tarsi at end slightly orange. Abdomen white.

Wings.
Venation (male, fig. 74):
Forewing: Radiales transformed at lobi; R_3/R_4 rather long stalked, angled to costa, R_4 arising above the angle; M_1 approximated to R_4/R_5 below lobus and strongly curved to apex; M_2 and M_3 rather straight; CuA_1 strongly

curved to M_3, both of which arise from same point on anal angle of cell; CuA_2 sinuous, from just behind half of cell; two lobi developed, but basal one sometimes reduced; lobi closely approximated to costa, outer larger than inner one and covering wing towards termen; long, dense scales along the costa between Sc and outer margin of distal lobus.
Hindwing: Rs/M_1 and M_3/CuA_1 rather short stalked; M_2 obsolescent; CuA_2 from about half of cell.
Venation (female, fig. 76):
Forewing: R_3/R_4 long stalked; M_1 separated from R_3/R_4 at apical angle of cell; M_2 approximated to M_3 basally; M_3 and CuA_1 approximated at base, but arising separately from anal angle of cell; CuA_2 sinuous, from just behind half of cell.
Hindwing: Sc very shortened from before half of cell; Rs/M_1 and M_3/CuA_1 rather short stalked; M_2 very weak; CuA_2 from about half of cell, anal vein of cell angled at this point.

Pattern and colour: Forewing rather broad; ground colour white, fasciae red; antemedian and postmedian fasciae dentate and sinuous; marginal fascia of triangular spots, faded at tornus; discal spots distinct, black, round, closely approximated in ♂, inner one slightly larger than outer one, in ♀, both are same size and not approximated.
Hindwing without any pattern, white, sometimes pale pink tinged.

Sexual dimorphism considerable, in shape and pattern of forewings, and discal spots.

Genitalia ♂: Tegumen rather short, uncus long, slender; valva broad, divided at tip; cucullus narrow and long, far projecting, tip rounded,; sacculus very broad; process broad, flat, with two strong, lobe-like projections at tip; juxta well sclerotized; saccus very distinct and broad. Aedeagus short, coecum short and strongly tapered; proximal part thickened, then narrowed, and distally with a strongly sclerotized enlargement with strong teeth dorsally and two strong tips ventrally; vesica with fields with minute teeth.

Genitalia ♀: Papillae anales rather large; apophyses anteriores short, very broad, distally bevel, a. posteriores rather long and strong; ostium bursae enlarged, dorsally with flat, arched, very strong sclerotizations; VII. sternite on each side of ostium with bag-like, very strongly sclerotized invagination, thence with two more strongly sclerotized, wing-like portions; ductus bursae below ostium bursae broad, membranous, crisped; bursa copulatrix nearly hemispherical, without appendix, but with signum as a slight depression with minute teeth.

Remarks: Females which have been examined are provisionally assigned to this species, according to wing pattern. No males and females have been collected from the same locality, so some doubt remains.

Distribution: Rain forest from West Africa to the Congo Basin.

Type species: *Cyana* (*Paravulpeculella*) *pallidilinea* Karisch, 2003.

Key to the species

1 red fasciae more dentate, in ♂-genitalia, aedeagus with several stout thorns and teeth at end of tube ……..... *Cyana* (*Paravulpeculella*) *pallidilinea*
1* fasciae more curved, in ♂-genitalia, aedeagus with a row of teeth at end of tube …… ……..... *Cyana* (*Paravulpeculella*) *suessmuthi* spec. nov.

Cyana (*Paravulpeculella*) *pallidilinea* (Karisch, 2003) **comb. nov.**

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera, Arctiidae). – Atalanta **34** (1/2): 171 f., figs. 6 a, b, pl. XIVc, fig. 2, (*Cyana*). – Holotype ♂ (ZSM): Dem. Rep. Congo, Irangi, Fluß Lucho.

Material:

Holotype: ♂ " Zaire, Irangi, Station Rech. Scient., Fluß Lucho, 800 – 1000 m, 3.-6.3.1984, leg. Burmeister, Fuchs, Kühbandner". In ZSM.

Paratypes:

Dem. Rep. Congo: Irangi, Station Rech. Scient., Fluß Lucho, 800 – 1000 m, 2 ♂♂ (gen. slides 1641, Karisch; 1642, Karisch) 3.-6.III.1984, Burmeister, Fuchs, Kühbandner (ZSM); nr. Walikali, middle Lowa Valley, 3000 – 4000 ft., 3 ♂♂ (1 ♂ gen. slid. B.M. Arct. 398) II.[19]24, T. A. Barns (BMNH); Kivu, Pinga 96 km NW Goma, Flußtal 4 km NNO Ort, 1 ♂ (gen. slide 1643, Karisch) 20.VIII.1991, T. Karisch (cKDT).
Cameroon: Efulen, 1 ♂ XI.1917, 1 ♂ (gen. slide. 2106, Karisch) 17.VIII.1918, 1 ♂ 27.XI.1918, 1 ♂ 11.-20.II.1923, H. L. Weber (CMNH);
Congo: D'Ozala Parc National, 400 – 500 m, 1 ♂ 29.I.-03.III.1997, S. Murzin & V. Siniaev (MWM);

Dem. Rep. Congo (Zaire): Eala, 1 ♂ (gen. slide 2107, Karisch) IX.1936, J. Ghesquière (MRAC); Sankuru: Katako-Kombe, 1 ♀ (gen. slide 2101, Karisch) 28.XII.1951, Dr. M. Fontaine (MRAC); 180 km W Bukavu, rainforest, 1 ♂ (gen. slide 2402, Karisch) 14.V.1988, A. Vojnits (TMB).

Description:
(pl. 19, figs. 128, 129)

Wingspan: ♂♂: 18 – 21 mm, ♀♀: 23 mm.

Forewing: white, fasciae orange to blazing red; basal fascia extends from costa to median part of wing; antemedian fascia strongly dentate, nearly parallel to termen; postmedian fascia concave to M_3, then slightly curved inward, projecting to middle and weakly dentate to dorsum, slightly angled outward; marginal fascia a delicate wavy line, or small red triangles; discal spots distinct, black, in ♂ closely approximated, basal one larger, distal one shifted in direction of dorsum; in ♀, discal spots not approximated, nearly parallel to costa; in ♂, a greyish strigula above postmedian fascia just before costa. Fringes white.
Forewing (underside): white; discal spots indicated; in ♂, costa between base and median part of wing orange-yellow; lobus large, pale red or brown, basally with a lobus-like depression, covered with long (androconial?) scales; in ♀, costa narrowly orange-yellow, median area pale pink tinged.
Hindwing on both surfaces white, unmarked; in ♀, tinged very pale pink. Fringes white.

Genitalia ♂ (fig. 201): Tegumen rather long, narrow; uncus long, very slender; valva rather narrow; cucullus long, narrow, tip rounded; bulge short, field of bristles very elongated; sacculus broad, rather weakly sclerotized; process strongly sclerotized, with two broad tips, ventral one broader; vinculum and saccus broad; juxta rather narrow with more strongly sclerotized wings. Aedeagus short, stout; coecum slightly projected and rapidly tapered; apex of tube dorsally with a field of delicate thorns, ventrally with a double tooth on a more strongly sclerotized tube; vesica with some stronger spines on a sclerotized plate and a field with minute teeth.

Genitalia ♀ (fig. 203): Papillae anales rather small; apophyses anteriores very broad at tip, a. posteriores rather slender; lamella postvaginalis only slightly sclerotized, triangular, forming a complex structure with VII. sternite with two flat, arched, slightly creased and strongly sclerotized areas at ostium bursae; rather broad, posteriorly positioned and sclerotised excavations, and broad and especially anteriorly, strongly dentate and sclerotized “wings”; ductus bursae very broad and rather short, folded longitudinally; corpus bursae spherical, strongly crisped, signum a slightly sclerotized depression with minute teeth. Glands as type “s” (Bendib & Minet, 1998), but laterally prolonged (pl. II, fig. 54).

The colour and width of the red fasciae is variable in ♂♂. A few specimens show a reduced pattern and the grey strigula between postmedian fascia and costa is sometimes faded.

Remarks:
With regard to the assignment of the female, see description of the subgenus.

Similar species:
Cyana (*Paravulpeculella*) *pallidilinea* Karisch, 2003 is closely related to C. (*P.*) *suessmuthi* spec. nov. For differences see below.

Early stages and biology:
unknown.

Distribution and habitats:
From the rain forests of the Gulf of Guinea to the mountains east of the Congo Basin (pl. XII, fig. 2). The specimen from Pinga (Prov. Kivu) was collected at the border of a mountain rain forest in a valley (fig. 76).

Cyana (*Paravulpeculella*) *suessmuthi* spec. nov.

Holotype: ♂ “2 Al.“, “Ifan, Nimba (Guinée), Lamotte et Roy, VII-XII.51“, “Muséum Paris, Nimba (Guinée)“. In MNHN.

Paratypes:
Guinea: Massadou nr. Macenta, 1600 ft., 1 ♂ (gen. slide B.M. Arct. 397) 13.-17.v.[19]26, C. L. Collenette (BMNH);
Ivory Coast: Forêt classée Bossematié, 1 ♂ (gen. slide 2103, Karisch) 08.x.[19]96, Ugo Dall’Asta (MRAC).

Additional material:
Ivory Coast: Danane, 2 ♂♂ 1 ♀ (gen. slide 2579, Karisch) 12.XII.1980, 3 ♂♂ (1 ♂ gen. slide 2578, Karisch) 4.III.1981, 1 ♂ 23.-24.IV.[19]82, Dr. Politzar (ZSM); Nationalpark Tai, 1 ♂ 11.XII.1982, (ZSM).

Description:
(pl. 19, figs. 130, 131 [female?])

Wingspan: ♂♂: 17 – 19 mm.

Forewing: white, fasciae red, in ♂ with slight pink tinge; basal fascia a single red brown costal patch, below a small black basal spot; antemedian fascia rather broad, slightly sinuous, tapered to costa; postmedian fascia slightly concave from costa to middle costa to middle of terminal area, there angled at about 85° and curved inward to dorsum, broadened from middle of wing, especially in male; marginal fascia distinct, with fine white lines on veins, often obsolescent towards tornus; discal spots distinct, black, closely approximated in ♂; inner spot often more than twice size of outer one. Fringes white.
Forewing (underside): white; in ♂, costal field broad reddish orange from base to postmedian fascia, broad and brownish between antemedian and postmedian fasciae; a depression covered with long scales before round, large, brownish to orange lobus.
Hindwing without any pattern, white, pink tinged on upperside. Fringes white.

Genitalia ♂ (fig. 204): Tegumen slender, long; uncus very slender, long, pointed; valva broad; cucullus rather broad and long, rather irregularly rounded at tip; bulge large, especially towards sacculus; field with bristles rather small, rounded; sacculus broad, tapered into the pointed process; vinculum rather broad; saccus strongly arched medially; juxta broad, arched medially and with two elongated wings. Aedeagus comparatively long, enlarged and bulbous above ductus ejaculatoris; coecum short, strongly tapered; distal third of tube constricted at first, then broadened and bent at apex as a blade-like row of teeth; vesica with three to eight stout spines on a sclerotized plate, a smaller, dentate plate, a further high-arched, larger and stronger sclerotized plate with slightly dentate margin and a field with minute teeth.

♀: unknown.

Variability in wing pattern is insignificant. Variation occurs in the size of the depression on the lobus and in distance of lobus from costa.

Remarks:
Cyana (*Paravulpeculella*) *suessmuthi* spec. nov. is similar to C. (*P.*) *pallidilinea*, but the red fasciae on the forewing of the ♂ are much more curved and less dentate.
In genitalia, the ♂ of *C.* (*P.*) *suessmuthi* spec. nov. has only one tip on the process, a longer aedeagus with several plates and a row of teeth at the apical end of the tube.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forests of West Africa (fig. 77; pl. XII, fig. 2).

Subgenus: ***Vulpeculella* subgen. nov.**

Description:
Head: Proboscis well developed; palpi short, about as long as diameter of eye; eye brownish, with black spots; antenna with bristles and cilia in two rows; scaled on the upper side; cilia about as long diameter of shaft.
Thorax white, with brown patches on scapulae and tergites; 1st pair of legs bright orange; tibia of 2nd pair of legs white, basally orange, tarsi orange in *C.*(*V.*) *basisticta*, or white, orange or brown annulated; 3rd pair of legs white, tarsi tinged pale orange and occasionally white annulated. Abdomen white.

Wings.
Venation (male, fig. 78):
Forewing: $R_1$and R_2 fused, vein only slightly transformed by lobus; R_3/R_4 stalked; M_1 curved towards R_4 in direction of termen; M_3 from near middle of terminal vein of cell; M_3 and CuA_1 slightly approximated basally; M_3 from just above, CuA_1 from just before anal angle of cell; CuA_2 from about half of cell and nearly straight; lobus not especially large, round, sac-like based at R_2 above discal cell.
Hindwing: Rs/M_1 rather long stalked and divergent at margin; M_2 obsolescent; M_3/CuA_1 with a very short stalk and comparatively less divergent at margin; CuA_2 from just behind half of cell.
Venation (female, fig. 79):
R_1 and R_2 widely spaced; R_3/R_4 long stalked, branches not divergent; R_2, R_3/R_4 and M_1 closely approximated and arising around apical angle of cell; M_2 slightly curved towards M_3 at base; M_3 and CuA_1 arising separately;

CuA_2 only slightly curved basally and arising from about half of cell.
Hindwing: R_1/M_1 and M_3/CuA_1 comparatively short stalked; M_2 very weak; CuA_2 from about 2/3 of cell.

Pattern and colour: Forewing very broad and short, longer in ♀, termen strongly rounded; Ground colour white; fasciae red; antemedian and postmedian fasciae clearly dentate and sinuous; postmedian fascia emarginated towards termen between M1 and CuA1; marginal fascia lacking or only triangular marginal spots; as a rule two distinct, black, round discal spots, approximated in ♂; in ♀ the outer discal spot sometimes divided; an additional black spot between postmedian fascia and costa present in ♂♂ of many species.

Sexual dimorphism distinct, in shape of forewing, pattern and position of discal spots.

Genitalia ♂: Tegumen rather broad; uncus rather long, pointed; valva quite narrow, divided at tip; cucullus broad, circular projecting; sacculus broad; process comparatively short, stout, arched, with a delicate thorn at tip and in some species with an additional, lateral, thorny dentation; bulge strong, with a large, oval field of bristles. Aedeagus stout, with a semicircular ring, often with strong teeth arranged in one or more rows apex; coecum short, tapered; vesica with a small, very strong sclerotized section, sometimes set with one or more stout thorns, a small sclerotized plate and fields with minute teeth.

Genitalia ♀: Papillae anales large; apophyses anteriores short, very broad; a. posteriores rather long and very strong; ostium bursae only slightly enlarged; VII. sternite with sclerotized areas ("wings") on both sides of ostium, which are sometimes more dentate or frayed and often projected as a bulge over ostium bursae, there sometimes covered with small teeth; ostium bursae more strongly sclerotized laterally and forming two clasps; ductus bursae very short, broad, crisped; corpus bursae large, rounded, folded and crisped especially basally and more strongly sclerotized laterally or longitudinally; signum absent or consisting of a very slight, flat and delicate thorned depression; no appendix bursae.
Remarks: It is very difficult to associate the females in this subgenus with males of the known species, because in many areas several species occur in a single locality. Only in a few cases, e.g. the more West African distributed *C*. (*V*.) *basistica*, a firmer association of females with males is possible.

Distribution: From West Africa to the Congo Basin and the western part of the East African Rift Valley.

Etymology: vulpecula = little fox.

Type species: *Cyana* (*Vulpeculella*) *basisticta* (Hampson, 1914) comb. nov.

Key to the species

1 black costal point present behind postmedian fascia ……..2
1* no distinct black costal point behind postmedian fascia ……..*Cyana* (*Vulpeculella*) *basisticta*
2 black costal point distinct, outer discal spot absent ….....*Cyana* (*Vulpeculella*) *loloana*
2* black costal point small, both discal spots present ……..3
3 inner discal spot large, fasciae distinct, not approximated ……..*Cyana* (*Vulpeculella*) *luchoana*
3* inner discal spot not especially large, fasciae paler, more or less approximated ……..4
4 ♂-genitalia without single stout thorn on vesica ……*Cyana* (*Vulpeculella*) *rawlinsi* spec. nov.
4* ♂-genitalia with thorns in semicircular rows on vesica ……..5
5 stronger thorns in only one row ……..*Cyana* (*Vulpeculella*) *ueleana*
5* smaller thorns in more than one row ……..*Cyana* (*Vulpeculella*) *rubritermina*

Cyana (*Vulpeculella*) *basisticta* (Hampson, 1914) comb. nov.

Catalogue of the Lepidoptera Phalaenae in the British Museum, Supplement 1: 635, pl. 32, f. 22, (*Chionaema*). – [Holo]type ♀ (BMNH): Gold Coast: Aburi.
= *additica* Prout, 1919, XIII. – New and insufficiently known Moths in the Joicey Collection. – The Annals and Magazine of Natural History, Series IX, Vol. **III**, No. 14: 166 f., (*Chionaema*). – [Holo]type ♀ (BMNH): Sierra Leone: Pujehun. Synonymised by Karisch (2003): 169.

Material:

[Holotype ♀: "Gold Coast. Aburi. 20.iii.1911, L. Armstrong, 1913 - 14", "Arctiidae genitalia slide 334", "*Chionaema basistica* type + Hmpsn". In BMNH.

[Holo]type ♀ *Chionaema additica*: "Type H. T.", "Pujehun, Sierra Leone", "Joicey Bequest. Brit. Mus. 1934-120", "Arctiidae genitalia slide No. 336", "A. M. N. H. (9) iii: 166." In BMNH.

Guinea: Mt. Nimba, 1 ♀ (wA) VII.-XII.[19]51, Lamotte & Roy (MNHN);
Côte d'Ivoire: Gouédié 25 km NW Man, 1 ♂ (gen. slide 1699, Karisch), 20.VIII.1997, T. Karisch (CKDT); id., 1 ♀ (gen. slide 1566, Karisch) 20.VIII.1997, Th. Süssmuth (CSH);
Ghana: Umg. Yamfo, 1 ♂ (gen. slide 1744, Karisch) 1 ♀ (gen. slide 320/2004, Kühne) 15.-20.X.1993, L. Kühne (CKP); Kumasi, 1 ♀ (gen. slide B. M. Arct 6197) 9.II.[19]58, M. J. L. (BMNH); Kwad[a]so, 1 ♂ (gen. slide 10372, Roesler) 3.X.1967, Dr. Endrödy-Yunga (TMB).

Description:
(pl. 19, figs. 132, 133)

Wingspan: ♂♂: 19 – 20 mm, ♀♀: 22 – 23 mm.

Forewing: white, with a pale yellow tint; fasciae orange red; basal fascia a single patch on costa, below a black basal point; antemedian fascia dentate, but rather straight from costa to dorsum, broadened towards dorsum; postmedian fascia oblique from costa towards terminal area, then angled and nearly parallel to termen, with a small projection below M_3, reaching dorsum just before tornus; marginal fascia delicate, formed in part by spots; discal spots small, black, round, in ♂ parallel to dorsum, in ♀ parallel to costa and outer spot often divided into a larger costal and a smaller dorsal one, the latter sometimes faded. Fringes white.
Forewing (underside): whitish; discal spots orange tinged; lobus rather large, distinct, round, pale orange; costal field pale orange in ♂ between antemedian fascia and base; in ♀, only costa near base pale orange, discal spots brownish translucent.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 205): Tegumen rather broad; uncus pointed; valva broad; cucullus rather broad, irregularly rounded at tip; fold bulged, field of bristles large, oval; sacculus broad with a slight dentation at base of cucullus; process broad, tapered; vinculum rather broad; saccus quite small. Aedeagus short, distally with a ring of teeth; vesica with a sclerotized field with a short but strong thorn (sometimes absent) and fields with minute teeth.

Genitalia ♀ (fig. 207): Papillae anales broad; apophyses anteriores short, a. posteriores rather long; ostium bursae with slightly sclerotized clasps, broad; ductus bursae short; corpus bursae sac-like, rather broad, folded longitudinally, basal part only moderately sclerotized; "wings" of VII. sternite with broad projections over ostium, very broad, not very distinctively sclerotized. Glands of type "r" (Bendib & Minet, 1998)(pl. II, fig. 50).

Another rather invariable species.

Similar species:
Cyana (*Vulpeculella*) *basisticta* is similar to C. (*V.*) *rubritermina* (Bethune-Baker, 1911) and other species of the group and should be identified by reference to genitalia. In ♂-genitalia, it is characterized by a broader sacculus with weaker dentation, a longer process, distal rows of teeth on aedeagus and vesica with a slender, sometimes absent, thorn on the sclerotized plate. The ♀-genitalia of *C.* (*V.*) *basisticta* and *C.* (*V.*) *rubritermina* are also similar, but corpus bursae is broader and the "wings" of VII. sternite narrower in *C.* (*V.*) *basisticta*.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forests and humid savannah in West Africa (pl. XII, fig. 3). In Ivory Coast, collected in an area with small plantations and remains of tropical rain forests (fig. 80).

Cyana (*Vulpeculella*) *loloana* (Strand, 1912) **comb. nov.**

Zur Kenntnis äthiopischer Lithosiinae. – Archiv für Naturgeschichte **78** (Abteilung A) (7): 190, (*Chionaema*). – Holoype ♂ (ZMB): Cameroon: Lolodorf.

Material:

Holotype ♂: " 42779", "26/6 95", "S. O. Kamerun; Lolodorf, L. Conradt 95", "*Chionaema loloana* m. ♂ Strand det.", "Type", "6796", "Gen.-Präp. 1634, präp. Karisch, 2002". In ZMB.

Cameroon: Lolodorf, 2 ♂♂ 26.IV.1895, 1 1 ♂ 20.IV.1895, L. Conradt (BMNH); Johann-Albrechts-Höhe, Station Kamerun, 1 ♂ (gen. slide B.M. 396) 1896, L. Conradt (BMNH); Efulen, 1 ♂ 15.VII.1912, 1 ♂ 4.XI.1912, 2 ♂♂ 13.XI.1912, 1 ♂ 20.XI.1912, 1 ♂ 3.I.1913, 1 ♂ 3.X.1913, 1 ♂ (gen. slide 2266, Karisch) 21.XII.1918, 1 ♂ (gen. slide 2096, Karisch) 16.XI.1920, 1 ♂ 19.XI.1920, 1 ♂ 16.II.1923, H. L. Weber (CMNH).

Description:
(pl. 19, fig. 134)

Wingspan: ♂♂: 17 – 18 mm.

Forewing: white, fasciae orange; basal fascia a single point on costa; below a distinct, black basal point; antemedian fascia slightly dentate from costa to dorsum, nearly disappearing in discal cell; postmedian fascia nearly straight from costa to middle of terminal area, between M_2 and M_3 parallel to termen, below angled inward and then nearly parallel to termen as far as dorsum; marginal fascia only in apex, red; discal spots black, only the inner one distinct, sometimes oval, outer one often absent or only indicated by a few black scales, in ♂ parallel to dorsum; a distinct black spot above postmedian fascia near costa. Fringes white.
Forewing (underside): white; lobus large, round, proximal brown tinged; costa orange from base to median part of wing.
Hindwing: both surfaces without any pattern, white. Fringes white.

Genitalia ♂ (fig. 206): Tegumen rather broad; uncus basally broad, short, pointed; valva broad; cucullus narrow, long projecting, waved, tip rounded; sacculus very broad; process with an acute tooth ventrally, tapered into a stout tip with a delicate thorn; fold bulged, field of bristles semicircular, rather small; vinculum rather broad; saccus strongly arched medially. Aedeagus short; coecum tapered nearly triangular; vesica with a ring of irregularly set thorns near shaft, a stout thorn without sclerotized plate and a large field with minute teeth.

Female unknown (see above).

Cyana (*Vulpeculella*) *loloana* is slightly variable in colour of the fasciae and size of the discal spots.

Similar species:
Cyana (*Vulpeculella*) *loloana* is readily identified by the very distinct inner discal spot and distinct black spot between postmedian fascia and costa. In genitalia, *C.* (*V.*) *loloana* shows a closer relationship to *C.* (*V.*) *basisticta*, but with a broader process with a very distinct thorn, aedeagus with a very small ring of irregularly set teeth and vesica with a rather slender thorn without sclerotized plate.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forest belt in Cameroon (pl. XII, fig. 3). Habitats unknown.

Cyana (*Vulpeculella*) *ueleana* (Karisch, 2003) **comb. nov.**

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera, Arctiidae). – Atalanta **34** (1/2): 175 ff., figs. 9 a, b, pl. XIVc, fig. 4, (*Cyana*). – Holotype ♂ (MRAC): Dem. Rep. Congo: Uele: Paulis.

Material:

Holotype ♂: " Coll. Mus. Congo, Uele: Paulis, 10-ix-1959, Dr. M. Fontaine", "Genit.-Präp. 1539, präp. Karisch, 2001". In MRAC.

Dem. Rep. Congo (Zaire): Uele: Paulis, 1 ♀ (gen. slide 1573, Karisch) 9.I.1958, Dr. M. Fontaine (MRAC);
Uganda: Toro, Fort Portal, 2 ♂♂ (1 ♂ gen. slide 1920, Karisch) 16.-21.VII.1960, A. C. Twomey (CMNH).

Description:
(pl. 19, fig. 135)

Wingspan: ♂♂: 18 – 23 mm; ♀ 22 mm.

Forewing: white, fasciae red; basal fascia a single red point on costa, below a black basal point; antemedian and postmedian fasciae from a bright red costal patch; antemedian fascia strongly dentate, curved concavely between discal cell and CuA_2; postmedian fascia concave from costa to M_3, then nearly parallel to the margin to CuA_1, below CuA_1 strongly angled basad and reaching dorsum in a short circle; marginal fascia of triangular spots, obsolescent towards tornus; discal spots distinct, black, round, outer one smaller, inner sometimes slightly elongated; in ♂, a small black point between postmedian fascia and costa, discal spots nearly parallel to dorsum; in ♀, no spot above postmedian fascia, discal spots nearly parallelt costa. Fringes white.
Forewing (underside): white; inner dorsal spot slightly red, outer one blackish; lobus round, orange; costa in ♂ bright orange between base and antemedian fasciae and at beginning of postmedian fascia; in ♀, only costa narrowly orange.

Hindwing without any pattern; white; fringes white.

Genitalia ♂ (fig. 208): Tegumen rather broad; uncus slender, pointed; valva rather narrow; cucullus narrow, irregularly rounded at tip; fold with a distinct bulge, field of bristles round, small; sacculus broad, with a lateral, pointed projection; process strong and curved upward, with a stong thorn at tip; vinculum and saccus broad; juxta with two triangular, sclerotized wings. Aedeagus rather long; coecum long, strongly tapered; tube nearly parallel; a row of long and strong teeth from the tube into vesica; vesica with a very strong cornutus on an extended sclerotized base and a large field with minute teeth.

Genitalia ♀ (fig. 210): Papillae anales large; apophyses short; ostium bursae broad, with broad clasps; "wings" on the VII. sternite at the apical margin delicately toothed and distally emarginate; ductus bursae broad, folded, sclerotized proximally into the short and sac-like corpus bursae; signum a small depression with minute teeth.

Another invariable species.

Similar species:
Cyana (*Vulpeculella*) *ueleana* is superficially very similar to C. (*V.*) *rubritermina* and C. (*V.*) *basisticta*. In ♂-genitalia, *C*. (*V*.) *ueleana* can be distinguished by the single row of strong teeth on the aedeagus, whereas in (*C*.(*V*.) *rubritermina* teeth in several rows and in *C*. (*V*.) *basisticta* teeth are much more delicate, and the very strongly sclerotized base of the cornutus in the vesica.
The female of *C*. (*V*.) *ueleana* is different from those of all other *Vulpeculella*-species from West Africa in the dentate and emarginate "wings" of the VII. sternite.

Remarks:
♂♂ from Uganda are larger and have a smaller number of stronger teeth on the aedeagus. Too little material is available to evaluate these features.

Early stages and biology:
unknown.

Distribution and habitats:
From the eastern Congo Basin to the western Rift Valley (pl. XII, fig. 3). Habitats unknown.

Cyana (*Vulpeculella*) *rubritermina* (Bethune-Baker, 1911) **comb. nov.**

LXIII. – Descriptions of new African Heterocera. – The Annals and Magazine of Natural History, Series VIII, **7**: 534, (*Chionaema*). – [Holo]type ♂ (OUM): [Nigeria]: Lagos.

Untersuchtes Material:

Holotype: ♂ " 4 p. m, Apr. 7, 1910, On top leaf nr. Lagos, in forest within 5 miles of Oni, Dry Season, W. A. Lamborn", "7.4.10, within 5 mls. Oni, on leaf, 4 pm" [handwritten], "*Chionaema rubritermina* Type, BB.", "t. 1910, G. T. Bethune-Baker", "Holo-Type, O. U. M.", "Type Lep. No. 529, *Chionaema rubritermina* Bethune Baker, Hope Dept: Oxford", "Genitalia 354-1955", "Genitalia photographed. B. M. Neg. 15934/34a". In OUM.

Cameroon: Efulen, 1 ♂ (gen. slide 2282, Karisch) 23.III.1917, 1 ♂ 07.XII.1918, H. L. Weber (CMNH);
Congo: Odzala National Parc, 400 – 500 m, 4 ♂♂ (2 ♂♂ gen. slide 2353, 2354 Karisch) 29.I. – 03.III.1997, Siniaev & Murzin (MWM).

Description:
(pl. 19, fig. 137)

Wingspan: ♂♂: 17 – 20 mm.

Forewing: white, very occasionally yellow tinged; fasciae orange red; basal fascia just a patch on costa; small black basal point; antemedian fascia delicate, fading towards costa, dentate to dorsum; postmedian fascia slightly dentate from costa to middle of marginal area, then curved in a semicircle and projecting basad, reaching dorsum quite straight; marginal fascia interrupted except at apex; discal spots very large, round, black, in ♂, nearly parallel to dorsum and with an additional black spot between postmedian fascia and costa. Fringes white.
Forewing (underside): white; discal spots pale brownish orange; lobus large, round, pale orange; costa orange between base and antemedian fascia.
Hindwing without any pattern, white. Fringes white.

Genitalia ♂ (fig. 209): Tegumen rather slender; uncus broad, pointed; valva quite narrow; cucullus narrow, far projecting, irregularly rounded at tip; fold a distinct bulge, with a broad sclerotized lobe on costa and a large, rounded field of bristles; sacculus broad, at base of cucullus with a nearly rectangular, ventral dentation with

a small thorn; process strong, tapered to tip which bears a small but strong thorn; vinculum and saccus broad. Aedeagus short; vesica with a ring of stout thorns in several rows, a very strong thorn with an extended and strongly sclerotized base and a field with minute teeth.

Female unknown.

Another invariable species.

Similar species:
Cyana (*Vulpeculella*) *rubritermina* is most closely related to C. (*V.*) *basisticta*. For differences above.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forest belt from Nigeria to the Congo (fig. XII, fig. 4). Habitats unknown.

Cyana (*Vulpeculella*) *rawlinsi* spec. nov.

Holotype ♂: "Efulen, Kamerun. H. L. Weber, Ac. 4938", "Feb. 10, 1913", "*Chionaema rubritermina* Bethune-Baker.", "Gen.-Präp. 2261, präp. Karisch, 2007". In CMNH.

Description:
(pl. 19, fig. 138)

Wingspan: ♂: 16.5 mm.

Forewing: white, fasciae pale red; basal fascia a single dark brown costal patch; a small black basal spot below; antemedian fascia dentate and quite straight from costa to dorsum; postmedian fascia oblique from costa to termen, between M_3 and CuA_1 parallel to termen, then angled towards the middle and continued, slightly dentate, to dorsum; marginal fascia formed by patches; discal spots distinct, black, in ♂ parallel to dorsum; between postmedian fascia and costa a small black spot. Fringes white.
Forewing (underside): white; costa orange red from base to postmedian fascia; costal field paler orange; lobus round, with pale orange scales.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 211): Tegumen very long and rather slender; uncus pointed, short; valva rather narrow; cucullus very long, with parallel margins, irregularly rounded at tip; bulge distinct, field of bristles crescent-shaped; sacculus broad; process far projecting, flattened laterally, with an acute tooth and tapered towards tip, which has a smaller thorn; vinculum broad, saccus arched. Aedeagus slender, slightly curved; tube with a stronger sclerotization and covered semicircular with a row of small teeth at one side towards apex; vesica with a large, curled sclerotization, partially covered with strong throns, and a field with minute teeth.

Female and variations unknown.

Similar species:
Superficially, *Cyana* (*Vulpeculella*) *rawlinsi* spec. nov. is almost impossible to distinguish from *C.* (*V.*) *rubritermina*. The genitalia are more like those of *C.* (*V.*) *loloana*, but the cucullus is longer and narrower; the aedeagus is longer, and the row of teeth on the tube covers only a part of it. Furthermore *C.* (*V.*) *rawlinsi* spec. nov. has a large sclerotized field in the vesica, which is covered partially with broad, small teeth instead of a single long cornutus.

Early stages and biology:
unknown.

Distribution and habitats:
Rain forest belt of Cameroon (pl. XII, fig. 5). Habitats unknown.

Cyana (*Vulpeculella*) *luchoana* (Karisch, 2003) **comb. nov.**

Beitrag zur Kenntnis der Gattung *Cyana* Walker, 1854 in Afrika (Lepidoptera, Arctiidae). – Atalanta **34** (1/2): 170 f., fig. 5 a, b, (*Cyana*) – Holotype ♂ (ZSM): Dem. Rep. Congo (Zaire), Irangi, Fluß Lucho.

Material:

Holotype ♂: " Zaire, Irangi, Station Rech. Scient., Fluß Lucho, 800 – 1000 m, 3.-6.3.1984, leg. Burmeister, Fuchs, Kühbandner",

"Gen.-Präp. 1646, präp. Karisch, 2002". In ZSM.

Nigeria: Warri, 1 ♀ (gen. slide B.M. Arct. 337) V. [18]97, Dr. Roth (BMNH);
Cameroon: Efulen, 1 ♀ (gen. slide 2094, Karisch) 14.IX.1912, 1 ♂ (gen. slide 2283, Karisch) 22.XI.1913, 1 ♂ 17.II.1917, 1 ♂ 23.II.1917, 1 ♂ 12.VIII.1917, 1 ♂ XI. 1917, 1 ♂ (gen. slide 2285, Karisch) 11.XII.1918, 1 ♂ (gen. slide 2281, Karisch) 22.XII.1918, 1 ♂ (gen. slide 2093, Karisch) 17.I.1921, 1 ♀ 10.XI.1922, 1 ♀ (gen. slide 2267, Karisch) 27.XII.1922, H. L. Weber (CMNH); Lolodorf, 1 ♀ 4.XII.1914, A. I. Good. Coll. (CMNH); Dept. Meme, Ediki südlich Kumba, ca. 150 m, 1 ♀ (Gen.-Präp. 2268, Karisch) 21.I.1995, Aistleitner (MWM);
Congo: Odzala National Parc, 400 – 500 m, 2 ♂♂ (gen. slide 2262, 2352, Karisch) 2 ♀♀ (1 ♀ gen. slide 2263, Karisch) 29.I. – 03.III.1997, Siniaev & Murzin (MWM); id., 1 ♀ 29.I. – 03.III.1997, Siniaev & Murzin (MNVD);
Dem. Rep. Congo (Zaire): 180 km W Bukavu, rainforest, 1 ♂ (gen. slide 2401, Karisch) 16.V.1988, A. Vojnits (TMB).

Desciption:
(pl. 19, figs. 139, 140)

Wingspan: ♂♂: 19 – 22 mm, ♀♀: 20 – 23 mm.

Forewing: white, fasciae orange; basal fascia simply an orange costal patch; a distinct black basal spot; antemedian fascia slightly dentate from costa to dorsum, tapered at discal cell; postmedian fascia slightly sinuous from costa to middle of termen, then curved in a semicircle and continued, slightly undulate, to dorsum; marginal fascia red, interrupted in median part; discal spots black, the basal one large, sometimes elongated oval, outer one in ♂ small, sometimes extremely faint, in ♀ very elongated, often divided, but then upper part usually faded; discal spots in ♂ parallel to dorsum, in ♀ parallel to costa; in ♂, an additional black spot between postmedian fascia and costa. Fringes white.
Forewing (underside): white; in ♂, discal spots pale orange; lobus large, round, brown orange at base; bright orange brown costal field in ♂ from base to the postmedian fascia, in ♀ only yellow orange between base and antemedian fascia and at base of postmedian fascia.
Hindwing: on both sides without pattern white. Fringes white.

Genitalia ♂ (fig. 212): Tegumen rather broad; uncus very slender, long pointed; valva rather broad; cucullus far projecting, narrow, margins parallel, irregularly rounded at tip; bulge weak, field of bristles rather small, round; sacculus very broad; process strongly sclerotized, broadly triangular projecting and tapered towards tip, which lacks any thorn or tooth; vinculum broad; saccus small, arched medially. Aedeagus short; coecum short, fairly tapered; vesica with two small fields with strong thorns, a stout and strong thorn on a sclerotized base and a field with minute teeth.

Genitalia ♀ (fig. 213): Papillae anales large; apophyses anteriores rather short and broad; ostium bursae broad, clasps strongly sclerotized; "wings" on VII. sternite narrow, oval, with a long lobe into ostium; ductus bursae short; corpus bursae rather long, sac-like, folded and crisped, with a lateral sclerotization from ductus bursae to upper third of corpus bursae. Glands of type "s" (Bendib & Minet, 1998)(pl. II, fig. 55).

Variation: In ♀♀ the fasciae are often paler, sometimes faded. In ♂♂, the number of spines in the vesica is variable.

Similar species:
Cyana (*Vulpeculella*) *luchoana* is superficially very like C. (*V.*) *rubritermina*. The inner discal spot in ♂ of *C.* (*V.*) *luchoana* is larger than the outer one, and the distance between postmedian and antemedian fasciae is greater. In ♀ of *C.* (*V.*) *luchoana*, postmedian fascia is more dentate and discal spots are slightly stronger than in other females of the group.

In genitalia, ♂ of *C.* (*V.*) *luchoana* has a very broad process, and the tube of the aedeagus is without a ring of teeth. The female of *C.* (*V.*) *luchoana* differs from others in the sclerotized clasps and more extensive sclerotization of ductus and corpus bursae.

Early stages and biology:
unknown.

Distribution and habitats:
Forest zone from the Gulf of Guinea to the Congo Basin (pl. XII, fig. 4). Habitats unknown.

Species incertae sedis

Cyana (*Vulpeculella*) *rubriterminalis* (Strand, 1912) **comb. nov.**

Zur Kenntnis äthiopischer Lithosiinae. – Archiv für Naturgeschichte **78** (Abteilung A) (7): 188f., (*Chionaema*). – Holotype ♀ (ZMB): Cameroon.

Material:

Holotype ♀: " Kamer. int. Pr.", "*Chionaema rubriterminalis* B.- B. ? – (*rubriterminalis* m. n. ad int.) ♀ Strand det.", "Type", "*Chionaema* n. spec.", "Staudinger K. 1185", "423." In ZMB.

Description:
(pl. 19, fig. 136)

Wingspan: ♀: 21 mm.

Forewing: white, fasciae pale red; basal fascia weak, slightly darker at costa; antemedian fascia distinct, dentate, quite straight from costa to dorsum; postmedian fascia strongly curved outward just before middle, otherwise only sligtly dentate; marginal fascia weak, only at apex; discal spots distinct, not approximated, parallel to costa. Fringes white.
Forewing (underside): white, veins partially pale orange tinged; costa dark yellow.
Hindwing: both surfaces white, without any pattern. Fringes white.

Genitalia ♀ (fig. 214, photograph from BMNH, original not found): Papillae anales large; ostium bursae broad; clasps long-oval, moderately sclerotized; "wings" of VII. sternite broad, oval, with a folded, round and well sclerotized lobe around ostium; ductus bursae short; corpus bursae sac-like, broad, folded, at least basally sclerotized as far as can be seen in the photo.

Remarks:
Cyana (*Vulpeculella*) *rubriterminalis* is probably synonymous with C. (V.) *rubritermina*. However, at least two other species of the subgenus with unknown females occur in the same region, a clear placement of *C.* (*V.*) *rubriterminalis* is not possible at present, and currently the name *C.* (*V.*) *rubriterminalis* should be used only for identical females.

Subgenus: *Louisia* subgen. nov.

Description:
Head: Proboscis slightly reduced; palpi as long as diameter of eye; eye greyish brown, black spotted; antenna with bristles and cilia in two rows; scaled on upper side; cilia about 1½ as long as diameter of shaft.
Thorax white with a few orange scales; 1st and 2nd pair of legs orange; 3rd pair of legs white, tarsi orange and white annulated. Abdomen whitish, tip yellowish.

Wings.
Venation (male, fig. 81):
Forewing: R_1 and R_2 slightly transformed by lobus; R_3/R_4 stalked; M_1 closely approximated to R_3/R_4; M_2 distant from M_3, arising from terminal vein of discal cell below lobus; M_3 and CuA_1 quite long stalked, from anal angle of cell; CuA_2 from just behind middle of cell; A_1 rudimentary; lobus quite large, based on R_1 and formed as a lobe into the wing.
Hindwing: Rs/M_1 and $M2/CuA_1$ stalked, branches of Rs and M_1 M_2 very weak; CuA_2 from about ⅔ of cell.
Venation (female, fig. 82):
Forewing: R_1 – R_3 nearly parallel; R_3/R_4 rather short stalked, R_4 reaching costa well before apex; M_1 and R_3/R_4 arising from same point in apical angle of cell; M_2 from about middle of terminal vein of cell; M_3/CuA_1 short stalked, branches divergent at margin; CuA_2 from about half of cell.
Hindwing: Rs/M_1 and M_3/CuA_1 stalked, branches of Rs and M_1 divergent at margin; M_2 very weak; CuA_2 from just behind half of cell.
Forewing in male very short and broad, in female broad and rounded at termen.
Forewing ground colour white; fasciae red, strongly dentate, partially broken into red spots; marginal fascia a row of arrow-like patches; two distinct, round, black discal spots, approximated in male.
Hindwing without any pattern, white.

Sexual dimorphism is distinct, in wing shape and arrangement of the discal spots.

Genitalia ♂: Uncus long, conical; tegumen rather slender; valva broad, divided at tip; cucullus very narrow, long projecting; sacculus broad; process long and pointed, tapered towards tip; bulge or fold weakly developed, but costa of valva strongly arched and with a cone-like projection; juxta on both sides with delicate thorns on a dorso-ventral arched, hemispherical special formation. Aedeagus very short and broad; vesica with slightly sclerotized fields, a sclerotized plate and areas of minute teeth.

Genitalia ♀: Papillae anales very large; apophyses anteriores very short, broad; a. posteriores rather long and strong; ostium bursae very broad; ductus bursae as broad as bursa copulatrix; corpus bursae slightly sclerotized distally and strongly fluted; appendix bursae, which is proximally strongly sclerotized and folded, arising in distal part of corpus; two round fields in corpus bursae at base of appendix, with bristle-like, delicate and dense thorns; signum a dense thorny sclerotization.

Distribution: From Equatorial Guinea (Bioko). to the western part of the East African Rift Valley.

Type species: *Cyana* (*Louisia*) *quentini* Karisch, 2003 (monotypic subgenus)

Cyana (*Louisia*) *quentini* Karisch, 2003 **comb. nov.**

Zwei neue afrikanische *Cyana*-Arten (Lepidoptera, Arctiidae). – Lambillionea **CIII**: 120 f., figs. 1, 4 a, b, (*Cyana*). – Holotype ♂ (CKDT): Dem. Rep. Congo (Zaire): Equateur: Kalamba.

Material:

Holotype: ♂ "Zaire, Prov. Equateur, Kalamba 55 km südl. Mbandaka, 3 km östlich Ort, 450 m NN, Rand des Tieflandregenwaldes, 0°25' s. Br., 18° 19' ö. L., 10.VIII.1991 LF 125 W HQL, T. Karisch legit", "Gen.-Präp. 1628, präp. Karisch, 2002". In CKDT.

Equatorial Guinea (Bioko).: Moka Malabo, 1400 m, 1 ♀ (gen. slide 2092, Karisch) 15.-21.i.2004, H. & T. Hoppe (CKDT);
Congo: D'Ozala Parc National, 400 – 500 m, 4 ♂♂ (2 ♂♂ gen. slides 1707, 1708, Karisch) 29.I.-03.III.1997, S. Murzin & V. Siniaev (MNVD); id., 4 ♂♂ (1 ♂ gen. slide 2221, Karisch) 1 ♀ (gen. slide 2356, Karisch) 29.I.-03.III.1997, Siniaev & Murzin (MWM);
Dem. Rep. Congo (Zaire): Eala, 1 ♂ (gen. slide 2107, Karisch) IX.1936, J. Ghesquière (MRAC); Sankuru: Katako-Kombe, 1 ♀ (gen. slide 2100, Karisch) 13.XII.1951, Dr. Fontaine (MRAC);
Uganda: Jinja, Mabira Forest, 1 ♂ (gen. slide 2260, Karisch) X.1962, R. H. Carcasson (BMNH).

Description:

(pl. 19, figs. 141, 142)

Wingspan: ♂♂: 14 – 18 mm, ♀♀: 18 – 21 mm.

Forewing: white; fasciae orange to red orange; basal fascia absent; a small black basal point; antemedian fascia slightly convex and dentate from costa to dorsum, often broken into three patches, one on costa, one below discal cell and one at dorsum; postmedian fascia parallel to the antemedian, strongly dentate near dorsum, fairly straight at cell and indented basad at costa; marginal fascia a series of more or less connected triangular spots between the veins; discal spots small but distinct; closely approximated in ♂, in ♀ rather far apart; in ♂, outer discal spot closer to dorsum than inner one; in ♀, spots are parallel to costa. Fringes white. Forewing (underside): white, in ♂ with a brownish outer discal spot; lobus large, rounded, in a larger depression, orange, connected to a patch of partially orange androconial scales, which rise into the cell; in ♂, costal field between base and postmedian fascia broadly orange, darker and more brownish orange on costa; in ♀ only costa orange yellow to red orange, from base to antemedian fascia.
Hindwing on both surfaces white, unmarked. Fringes white.

Genitalia ♂ (fig. 217): as described in the diagnosis of the subgenus.

Genitalia ♀ (fig. 219): as described in the diagnosis of the subgenus.
Glands broad (type "q" in Bendib & Minet, 1998)(pl. II, fig. 52).

Variation: Antemedian and postmedian fasciae are often broken into patches or spots.

Early stages and biology:
unknown.

Distribution and habitats:
In the tropical rain forest zone from the Gulf of Guinea to the western African Rift Valley (pl. XII, fig. 5). In Kalamba, the author found the species in a clearing in a lowland rain forest (fig. 83). The specimen from Moka

Malabo is from a plantation on the border of a mountain rain forest.

Subgenus: *Cyabarda* subgen. nov.

Head: Proboscis well developed; palpi about 1¼ diameter of shaft; eye greyish brown; antenna with bristles and cilia in two rows, scaled on the upper side; cilia at base as long diameter of shaft, apically about 1½ times as long.
Thorax whitish, with brown transverse line and a brown spot on 2nd and 3rd tergites; legs white, with sparse brown spots. Abdomen white, tip brownish yellow.

Wings.
Venation (male, fig. 84):
Forewing: $R_{3/4}$ long stalked; R_2 and R_3/R_4 transformed at lobus, closely approximated at base and partly connected; M_1 sinuous; M_2 and M_3 nearly parallel; CuA_1 and M_3 clearly separated at base; terminal vein of discal cell reduced between M_2 and M_3; CuA_2 from about 3/5 of cell; lobus small, oval, between R_1 and R_2 above cell.
Hindwing: Rs/M_1 longer stalked than M_3/CuA_1; M_2 tubular at margin, but obsolescent towards cell; terminal vein of cell reduced between M_2 and Rs/M_1; CuA_2 from about 2/3 of cell.
Venation (female, fig. 85):
Forewing: R_3/R_4 long stalked; approximated with M_1 at base; M_2 approximated to M_3, but arising separately from cell; CuA_1 from before anal angle of cell; CuA_2 from about 2/3 of cell; terminal vein of cell reduced between M_1 and M_2.
Hindwing: Rs/M_1 and M_3/CuA_1 rather short stalked; M_2 weak; terminal vein of cell obsolescent between M_2 and Rs/M_1; CuA_2 from about 2/3 of cell.
Forewing: ground colour whitish; fasciae greyish brown, in ♂, broken into large, indistinctly defined patches; in ♀, fasciae are broad towards dorsum; a brown or blackish brown basal spot; discal spots faded, approximated in both sexes.
Hindwing in ♂ whitish, slightly brown tinged in apex, in ♀, greyish-brown apart from basal region.

Genitalia ♂: Uncus rather long, pointed; tegumen slender; valva broad, divided at tip; cucullus broad, tip rounded; fold distinct but narrow; costa of valva with a lobed projection at the fold; sacculus broad; process strongly sclerotized, arched nearly at a right angle, upwardly tapered into a long, thorny tip; vinculum strong; saccus broad. Aedeagus rather short and broad; longer sclerotized dorso-laterally, and tube folded to form a sharp ridge (in situ character); coecum slightly elongated and tapered; vesica with a sclerotized plate, a bundle of delicate but longer cornuti and a field of minute teeth.

Genitalia ♀: Papillae anales rather small; apophyses anteriores quite short and broad, a. posteriores comparatively long and slender; VII. sternite enlarged, with two large bulges; ductus bursae rather long and slender, slightly sclerotized; ostium bursae broad; bursa copulatrix with a sclerotized basal protrusion, a laterally arising sclerotized, appendix and a membranous proximal prolongation of corpus; basal bulge of corpus bursae and the sclerotized appendix bursae are situated in bulges of VII. sternite (fig. 86).

Distribution: West Africa to Rwanda.

Etymology: Composed from *Cyana* and *Cabarda*, the genus in which the species was originally placed by Holland.

Type species: *Cyana* (*Cyabarda*) *torrida* (Holland, 1893) (possibly monotypic subgenus)

Cyana (*Cyabarda*) *torrida torrida* (Holland, 1893)

Descriptions of new Species and Genera of West African Lepidoptera. – Psyche **6**: 399, (*Cabarda*) – [Holo]type ♀ (CMNH): W. Africa: Benita, Mrs. L. Rentlinger.

Material:
Holotype ♀: "*Cabarda torrida*, *Chionaema*. Holland, ♀ type. Benita, W. Africa. Mrs. L. Rentlinger", "HoloType No. –242– Carn.Mus.Ent.", "204". In coll. CMNH.

Ghana: Bibianaha, 700 ft., 1 ♀ (gen. slide B.M. Arct. 5909) XI.1911, H. G. F. Spurell (BMNH);
Dem. Rep. Congo (Zaire): Uele, Paulis, 1 ♂ (gen. slide 2425, Karisch) 30.XII.1956, Dr. M. Fontaine (MRAC); Sankuru: Katako-Kombe, 1 ♀ (gen. slide 2426, Karisch) 17.I.1952, Dr. M. Fontaine (MRAC).

Description:
(pl. 19, figs. 144-146)

Wingspan: ♂: 20 mm, ♀♀: 20 mm.

Forewing: white, slightly brownish tinged; fasciae greyish brown, in ♂ interrupted into indistinct patches; greyish brown or dark brown basal spot; antemedian fascia slightly curved outward, in ♂ broadened at dorsum, in ♀ broadened between cell and anal vein (A); postmedian fascia in ♂ curved along outer margin of discal cell, then nearly straight to dorsum, in ♀ sinuous from costa to M_3, then strongly curved and extending into a large brown patch towards dorsum; marginal fascia of brown patches, connected in apex and sometimes with an additional brown patch in the apical area; discal spots greyish brown or dark brown, approximated, the inner one large and sometimes connected with the outer elongated one. Fringes whitish.
Forewing (underside): white, brown tinged especially in costal area and marginal field; pattern translucent; lobus very small, with golden brown scales.
Hindwing: white, in ♂ with slightly brownish colour in apex and in ♀ greyish brown with a paler basal field. Fringes whitish.

Genitalia ♂ (fig. 216) as described under the subgenus.

Genitalia ♀ (fig. 218) as described under the subgenus. Glands simple, only elongated laterally (pl. II, figs. 56, 57).
The size of the brown patches of the fasciae is variable.

Similar species:
Cyana (*Cyabarda*) *torrida* is very distinctive, and cannot be confused with any other African *Cyana* species.

Early stages and biology:
Unknown.

Distribution and habitats:
West Africa to the western slopes of the mountains of the Rift Valley (pl. XII, fig.6).

Cyana (*Cyabarda*) *torrida maculata* subspec. nov.

Holotype ♂: "Rwanda, Nyungwe, 2000 m. K6, B. Turlin, 23.IV.77", "Mus. nat. Hist. Nat., don de H. de Toulgoet", "*Cyana maculata* Karisch, des. T. Karisch, 2008". In MNHN.

Paratypes:

Rwanda: Nyungwe, 2000 m, 1 ♂ 19.X.[19]74, 1 ♂ 29.XI.[19]75, 2 ♂♂ (1 ♂ Gen.-Präp. 2388, Karisch) 23.IV.[19]77, B. Turlin (MNHN); Nyungwe, Rte. Delvaux, 2200 m, 1 ♂ 7.V.[19]75, B. Turlin (MNHN).

Description:
(pl. 19, figs. 143)

Wingspan: ♂♂: 27 – 30
Specimens of this subspecies (or species?) are considerably larger than nominate *C. torrida*, the ground colour of the forewing is white and the pattern is more distinct and darker brown. The spots of the postmedian fascia are smaller; the inner discal spot is not very close to the outer one.
The size of the brown spots of the pattern is variable.

In ♂-genitalia, no differences from nominat *C. torrida* could be found, and for this reason these specimens are provisionally treated as subspecies.

♀ unknown.

Early stages and biology:
unknown.

Distribution and habitats:
Rwanda. Only known from the Nyungwe forest (pl. VIII, fig. 6).

Genus *incertae sedis*

Palaeosiccia schaeferi (Gaede, 1924) **comb. nov.**

Arctiiden-Studien (Lep.). Neue und wenig bekannte Arctiiden des Zoologischen Museums Berlin. – Mitteilungen aus dem Zoologischen Museum in Berlin **11** (2): 243 f., (*Chionaema*). – [Holo]type ♀ (ZMB): Cameroon: Japoma.

Material:

Holotype ♀: "Kamerun, Japoma, Schäfer S. G.", "Type", "692a", "Gen.-Präp. 1747, präp. Karisch, 2003). In coll. ZMB.

This specimen was described by Gaede (1924) (pl. 19, fig. 147; ♀-genitalia fig. 215) as *Chionaema schaeferi*, with considerable differences from other species of African *Cyana* known at the time, and compared it with *Cyana* (*Cyabarda*) *torrida*. Comparision with the type species of *Palaeosiccia* Hampson, 1900, *P. punctata* Hampson, 1900 in the collection at the BMNH suggests that Gaede's specimen belongs in this genus. Unfortunately however, the female of *P. punctata* is not known with absolute certainty. It is therefore impossible to decide whether *P. schaeferi* belongs here, but it seems rather unlikely.

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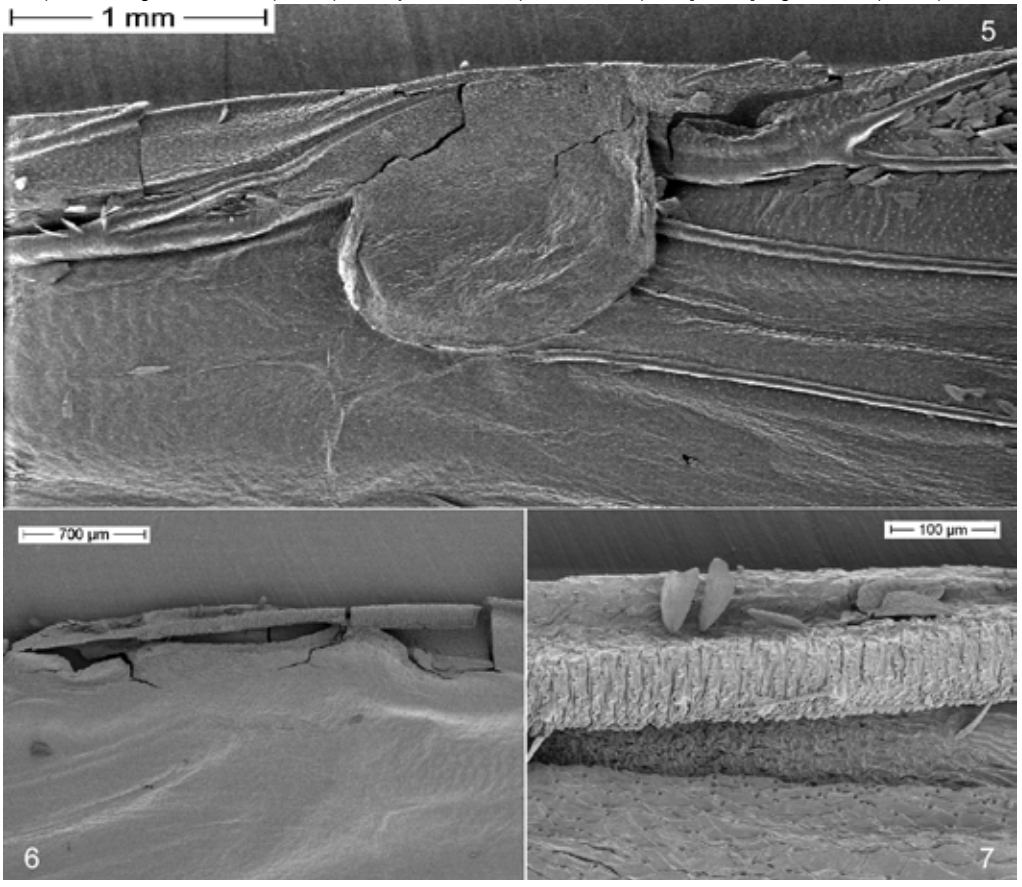
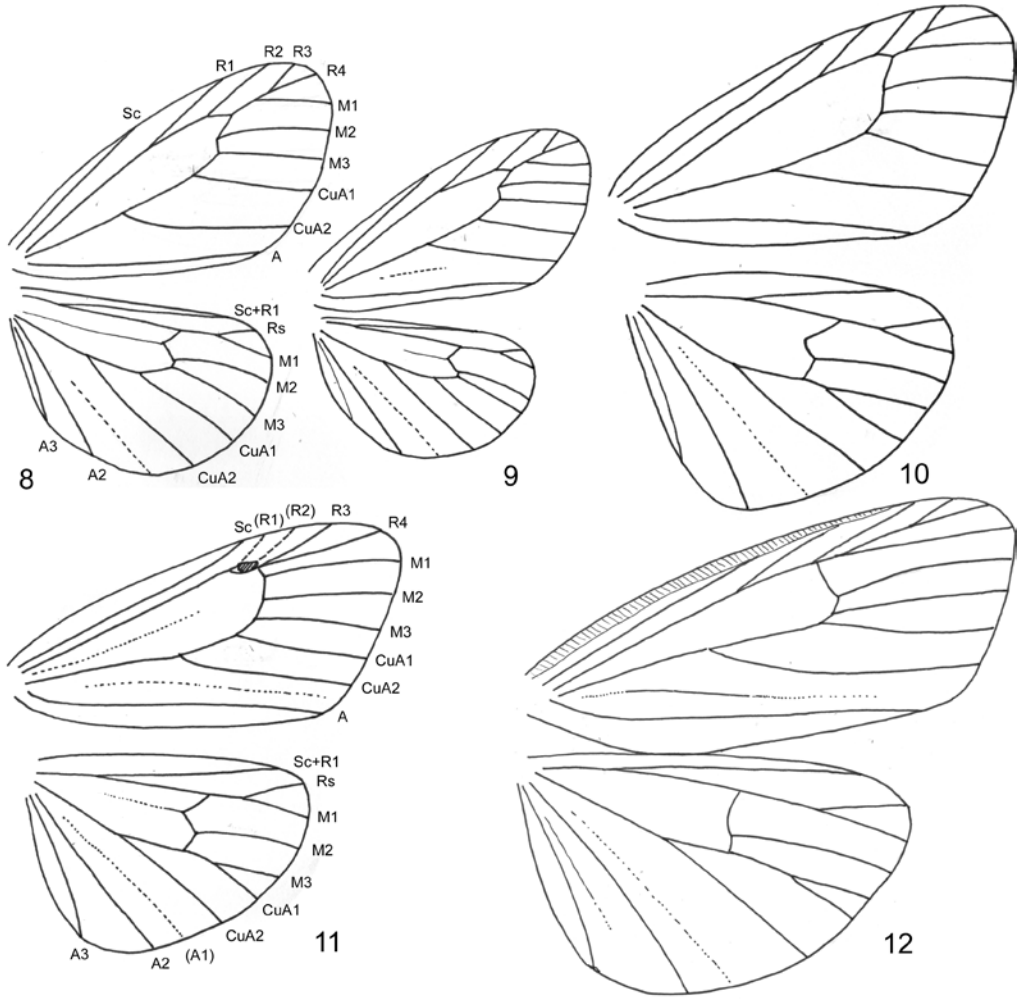
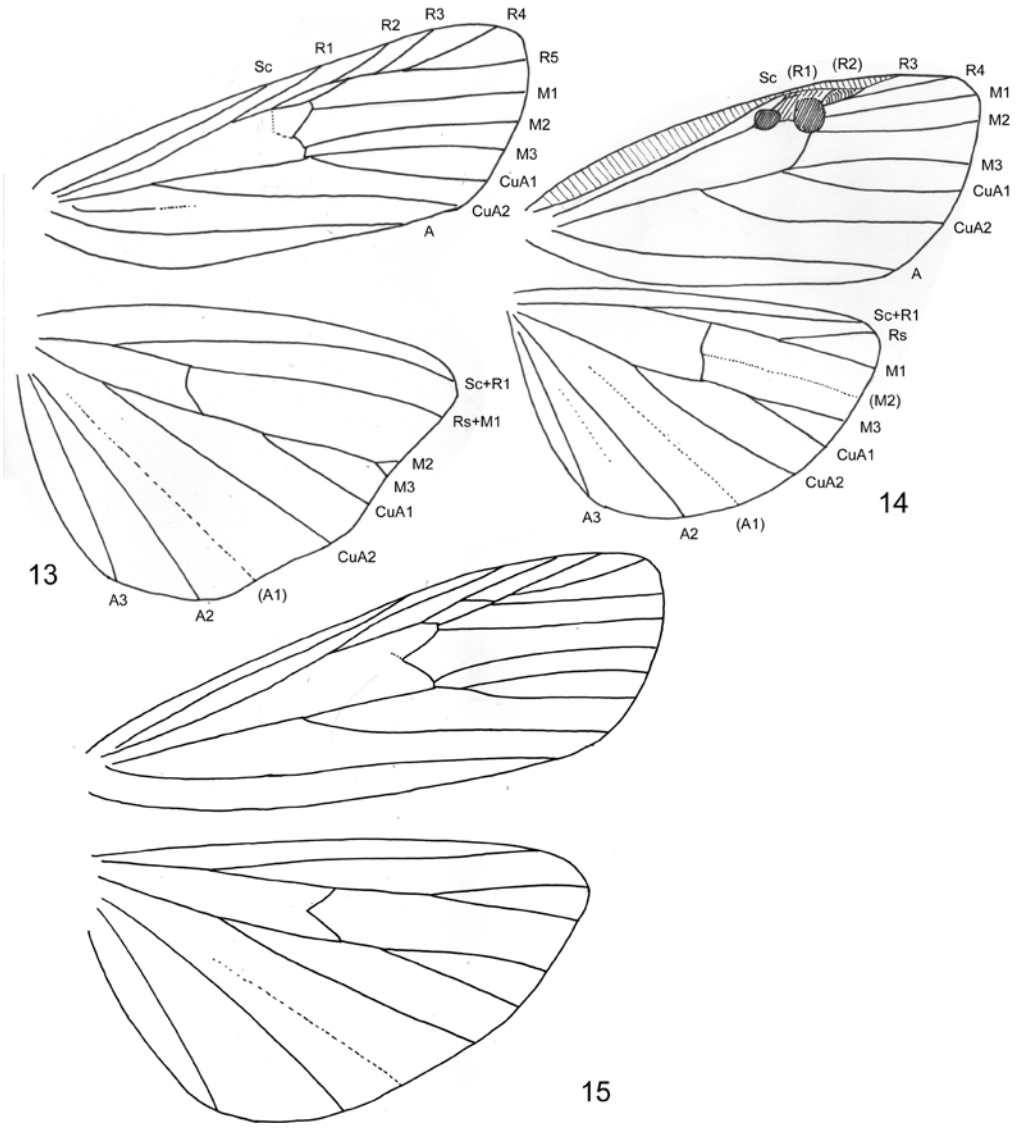
Figs. 1 – 4. Typical drawing of the wings in *Cyana*. – 1. *Cyana costifimbria* (Walker, 1862), ♂, Vietnam, Ninh-Bin (TMB). – 2. *Cyana griseilinea* (de Joannis, 1930), ♂, Vietnam, Lao-cai, Sa-pa (TMB). – 3. *Cyana saalmuelleri saalmuelleri* (Butler, 1882), ♂, Madagascar, Perinet (MNHN). – 4. *Cyana africana* (Holland, 1893), ♀, [Gabun], Ogové River (CMNH).



Figs. 5 – 7. Lobus on forewing of *Cyana flammeostrigata* Karisch, 2005. – 5. underside of forewing. – 6. opening on upperside of forewing. – 7. detail of the opening, showing the immense number of [Ansatzstellen] of the hair-like scales on the upper border [Rand] of the opening (photographies: T. Rutten, IPG)..



Figs. 8 – 12. Venation of Lithosiinae. – 8. *Nudaria mundana* (L., 1761), ♂, [Poland], Zaleszczyki (MNVD). – 9. *Nudaria mundana* (L., 1761), ♀, [Poland], Zaleszczyki (MNVD). – 10. *Paidia rica* (Freyer, 1858), ♀, Spain, Escorial (TMB). – 11. *Paidia rica* (Freyer, 1858), ♂, Spain, Ulcés (TMB). – 12. *Cyana detrita* (Walker, 1875), ♀, [India], Kangra (BMNH).



Figs. 13 – 15. Venation of Lithosiinae. – 13. *Lithosia quadra* (L., 1758), ♂, [Poland], Ludwigkowo (MNVD). – 14. *Cyana detrita* (Walker, 1875), ♂, [India], Kangra Valley (BMNH). – 15. *Lithosia quadra* (L., 1758), ♀, Germany, Annaburg (MNVD).

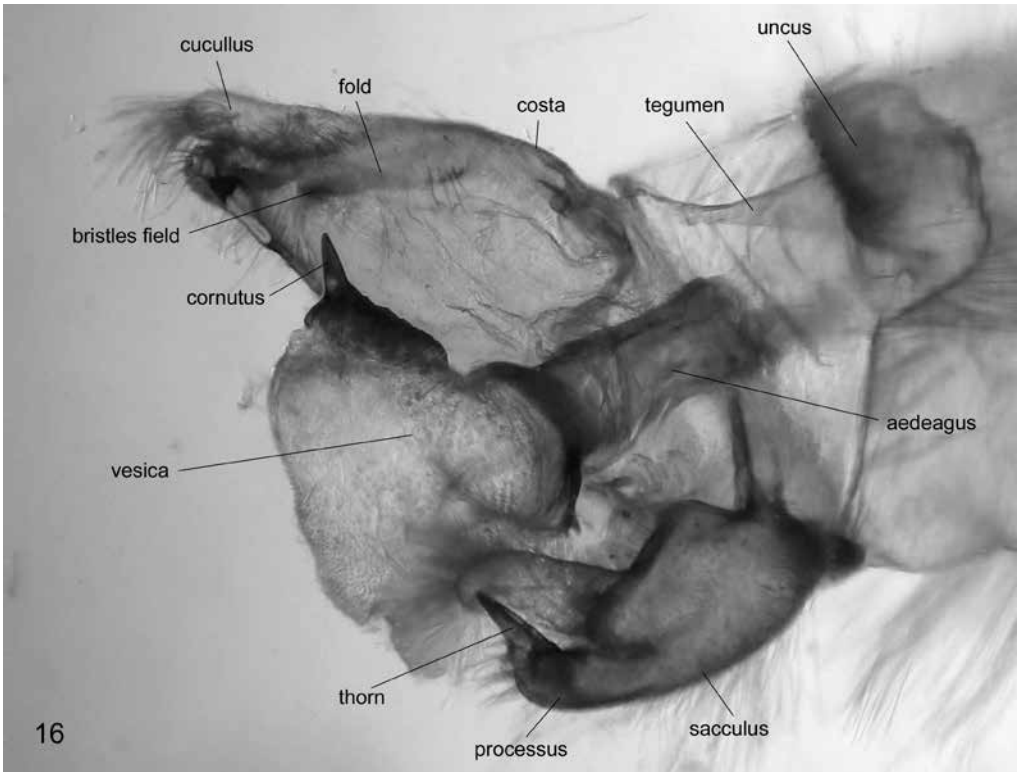


Fig. 16. Used terminology in ♂ genitalia.

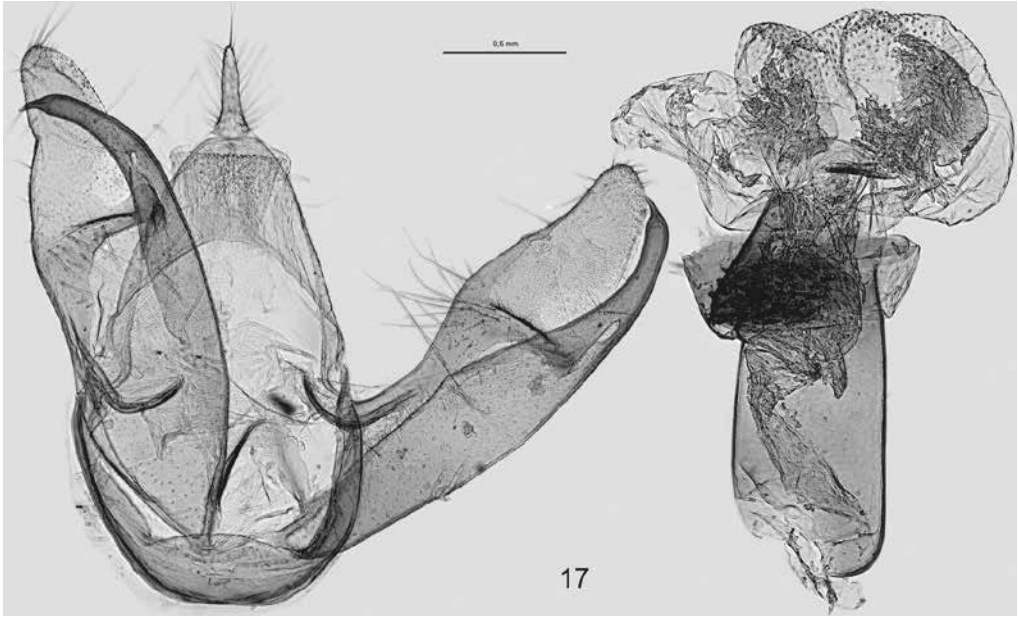


Fig. 17. *Cyana detrita* (Walker, 1875), ♂-genitalia (gen.-slide 2340, Karisch), [India], Kangra Valley (BMNH).

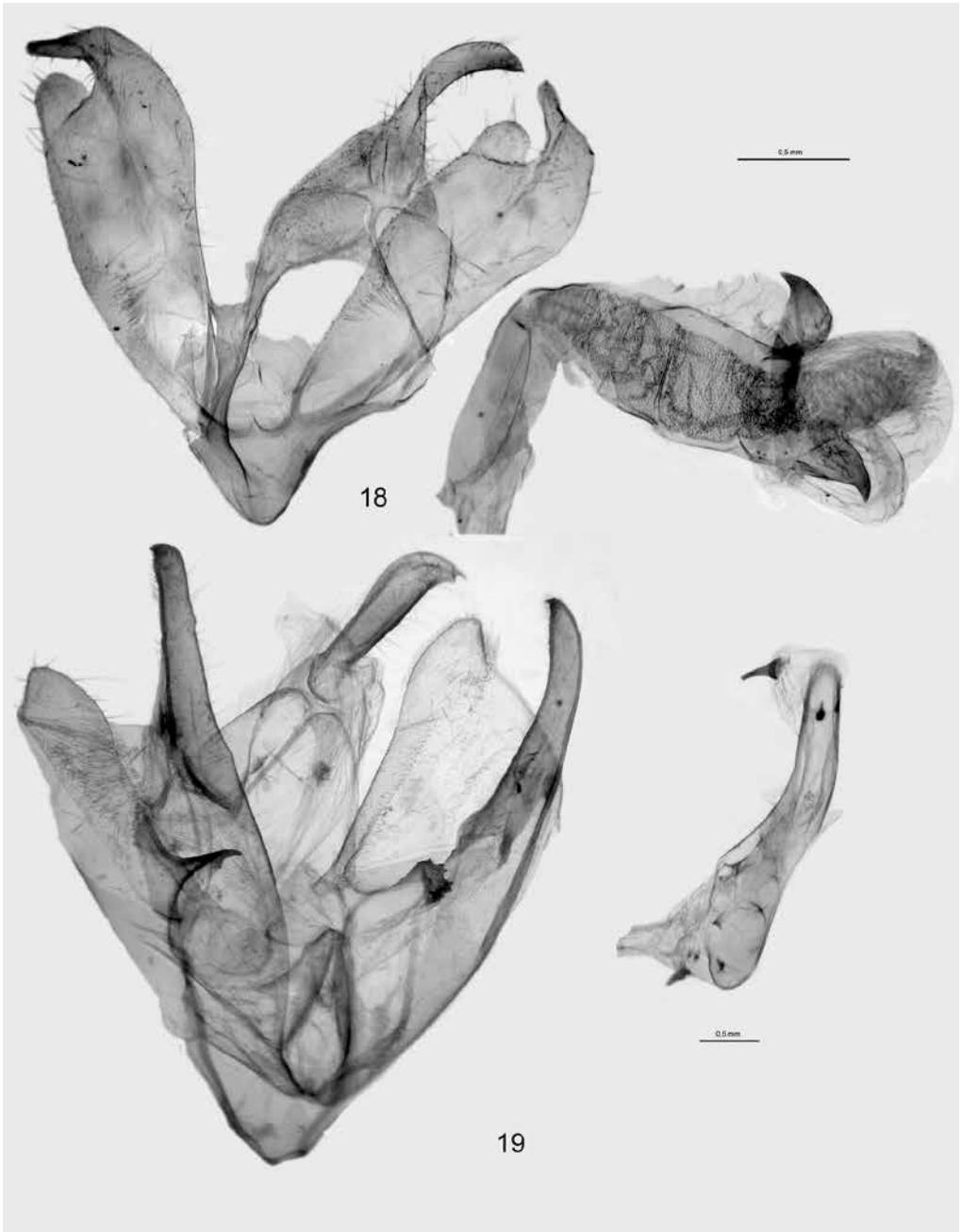


Fig. 18. *Nudaria mundana* (L., 1761), ♂-genitalia (gen.-slide 1924, Karisch), [Poland], Zaleszcyki (MNVD).

Fig. 19. *Lithosia quadra* (L., 1758), ♂-genitalia (gen.-slide 1926, Karisch), Bulgaria, Ropotamo riv. (MNVD).

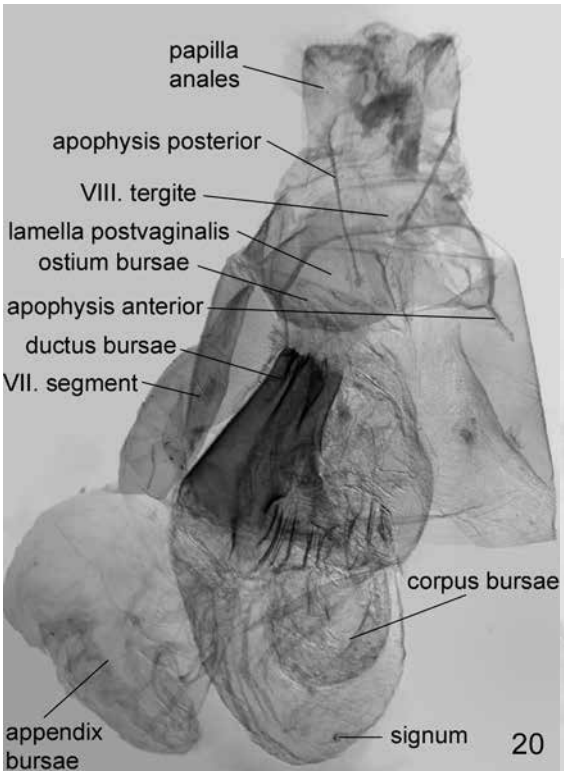


Fig. 20. Used terminology in ♀ genitalia.

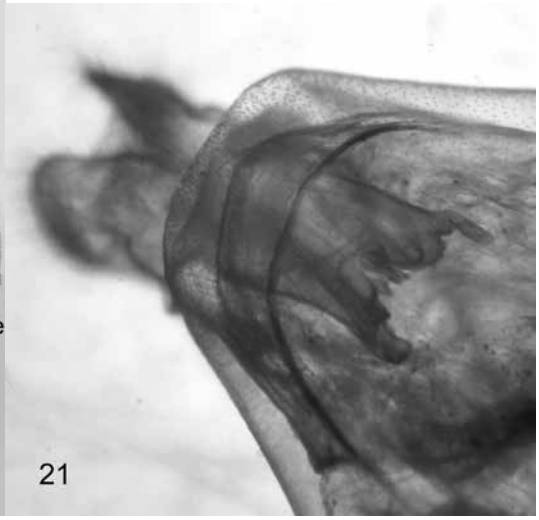
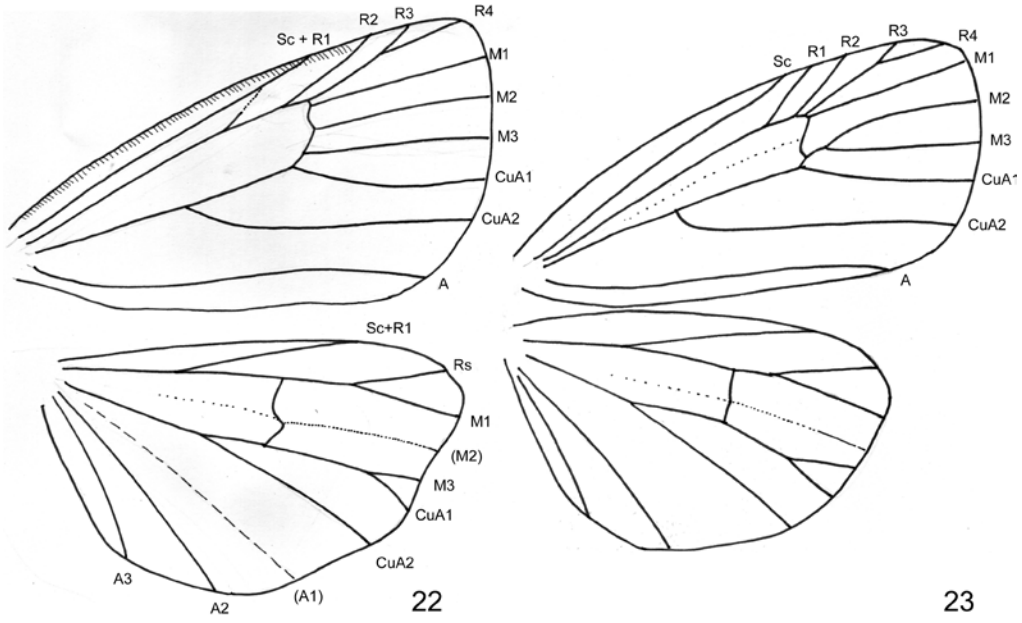


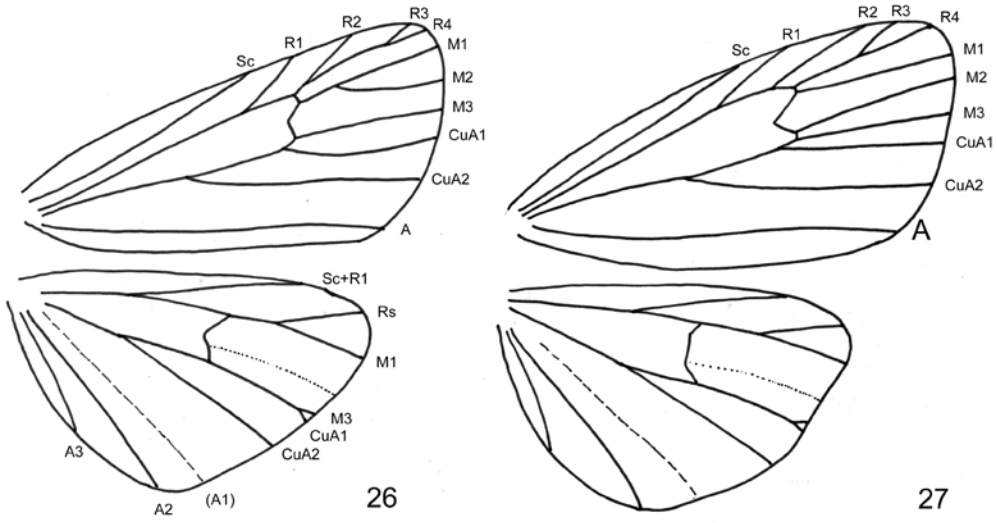
Fig. 21. Pheromone glands in *Cyana saalmuelleri saalmuelleri* (Butler, 1882).



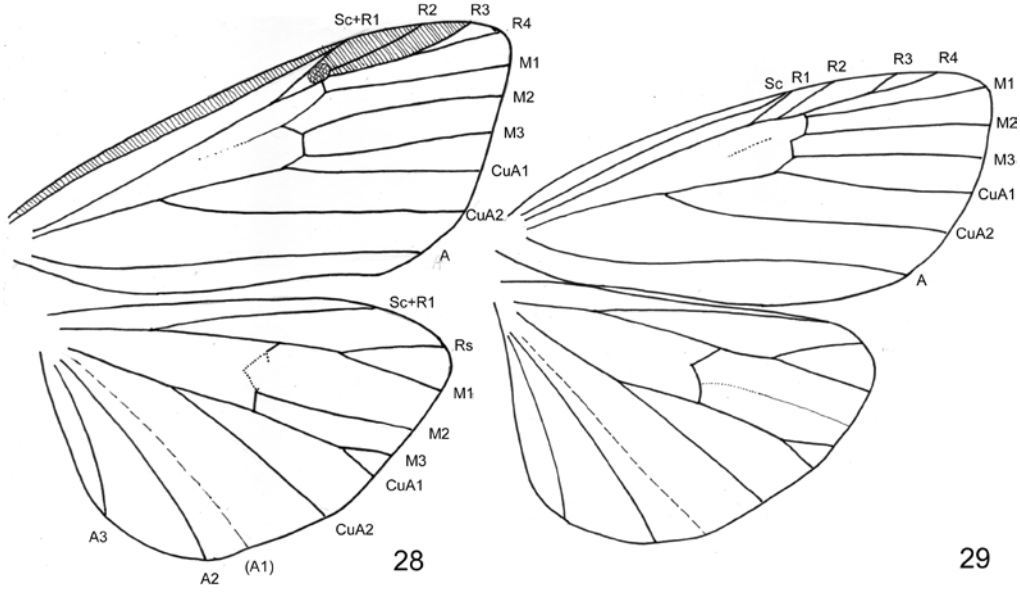
Figs. 22–23. Venation of *Cyana* (*Isine*) *trigutta*. – 22. ♂, Cameroon, Bekingili (CMNH). – 23. ♀, Cameroon, Bekingili (CMNH).

Fig. 24. Habitat of *Cyana rubristriga rubristriga* in the humid savanna near Ferkéssedougou (Côte d'Ivoire) (photo: T. Karisch, 1997).

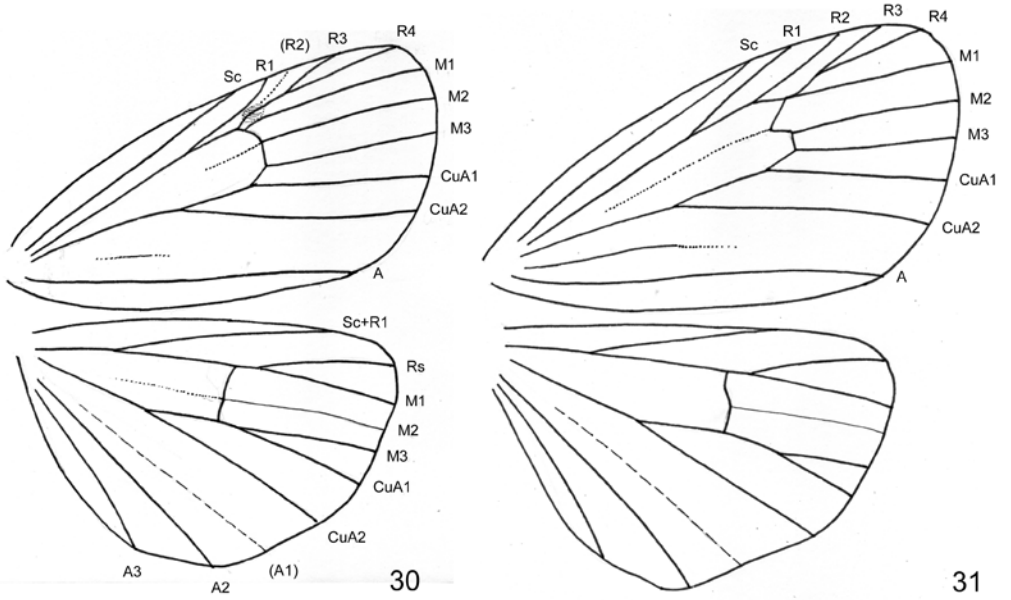
Fig. 25. Habitat of *Cyana rubristriga ugandana* in the rainforest of a valley near Pinga in Kivu (photo: T. Karisch, 1991).



Figs. 26–27. Venation of *Cyana* (*Frankmuelleria*) *arenbergeri*. – 25. ♂. Tanzania, Amani (CAA). – 26. ♀. Tanzania, Amani (CAA).

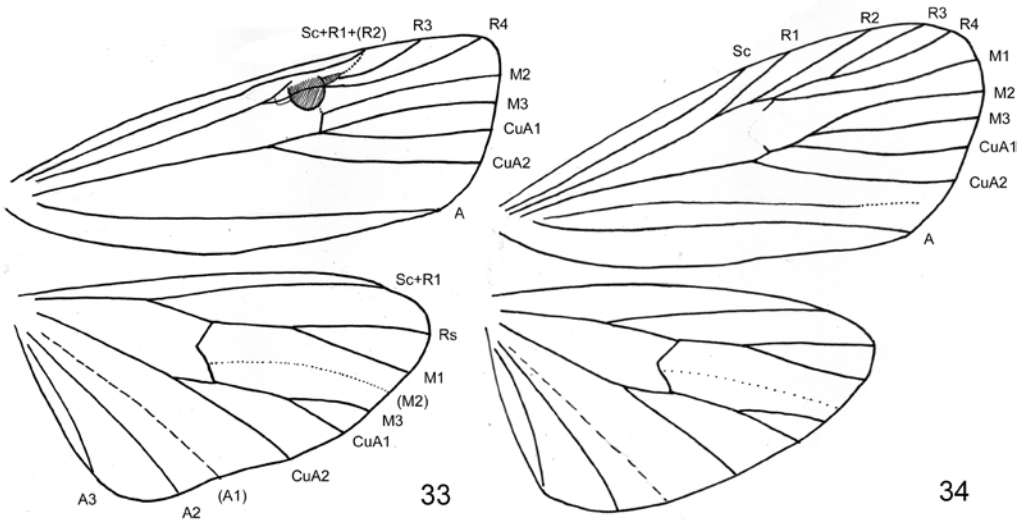


Figs. 28–29. Ventation of *Cyana* (*Oblocutora*) *ruwenzoriana*. – 28. ♂. Uganda, Ruwenzori (MNVD). – 29. ♀. Uganda, Nyinabitaba (BMNH).

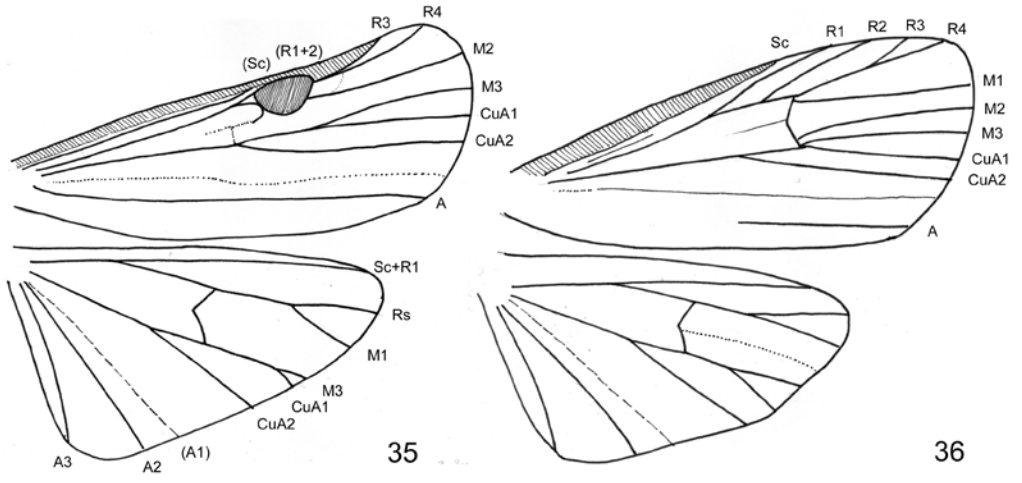


Figs. 30–31. Venation of *Cyana* (*Australisine*) *marshalli*. – 30. ♂. South Africa, Ofcolaco (TMP). – 31. ♀. South Africa, Pilgrim's Rest (TMP).

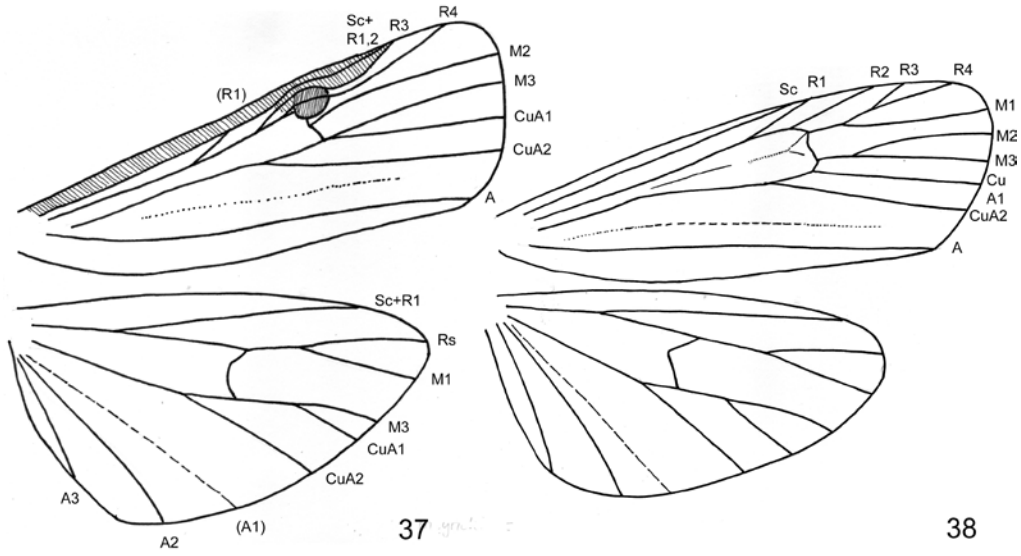
Fig. 32. Habitat of *Cyana marshalli* in *Acacia*-bushland at the Lebombo Mountains near Nsoko (photo: T. Karisch, 2007).



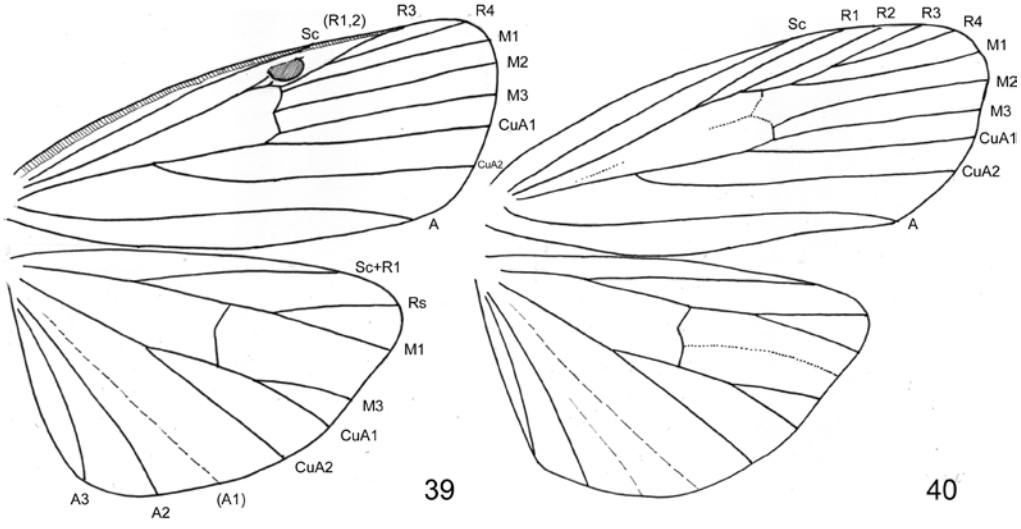
Figs. 33–34. Venation of *Cyana* (*Clerckia*) *fulvia*. – 33. ♂. Papua New Guinea, woodlark (BMNH). – 34. ♀. Papua New Guinea, St. Aignan (BMNH).



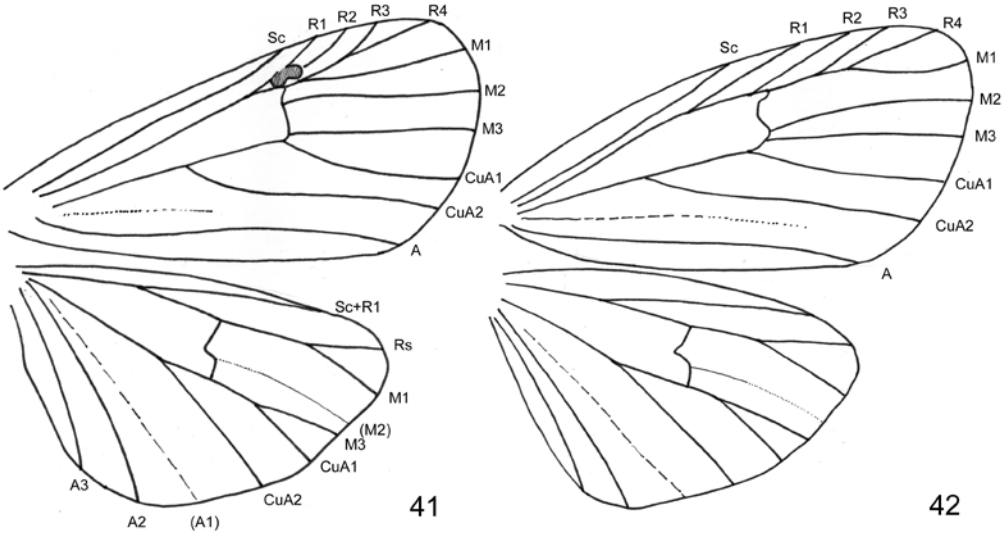
Figs. 35–36. Venation of *Cyana* (*Sphragidium*) *miles*. – 35. ♂. Solomon Islands, Treasury Island (BMNH). – 36. ♀. Solomon Islands, Treasury Island (BMNH).



Figs. 37–38. Venation of *Cyana* (*Exotrocha*) *meyricki*. – 37. ♂. Australia, Mackay (BMNH). –38. ♀. Australia, Brisbane (BMNH).



Figs. 39–40. Venation of *Cyana* (*Doliche*) *gelida*. – 39. ♂. India, Sultanpore (BMNH). – 40. ♀. India, Sikkim (BMNH).



Figs. 41–42. Venation of *Cyana* (*Volitivulpecula*) *ellipsis*. – 41. ♂. Dem. Rep. Congo (Zaire), Paulis (MRAC). – 42. ♀. Dem. Rep. Congo (Zaire), Paulis (MRAC).

Fig. 43. Kakamega Forest in western Kenya, habitat of *Cyana margarethae* (photo: L. KÜHNE, 2001).

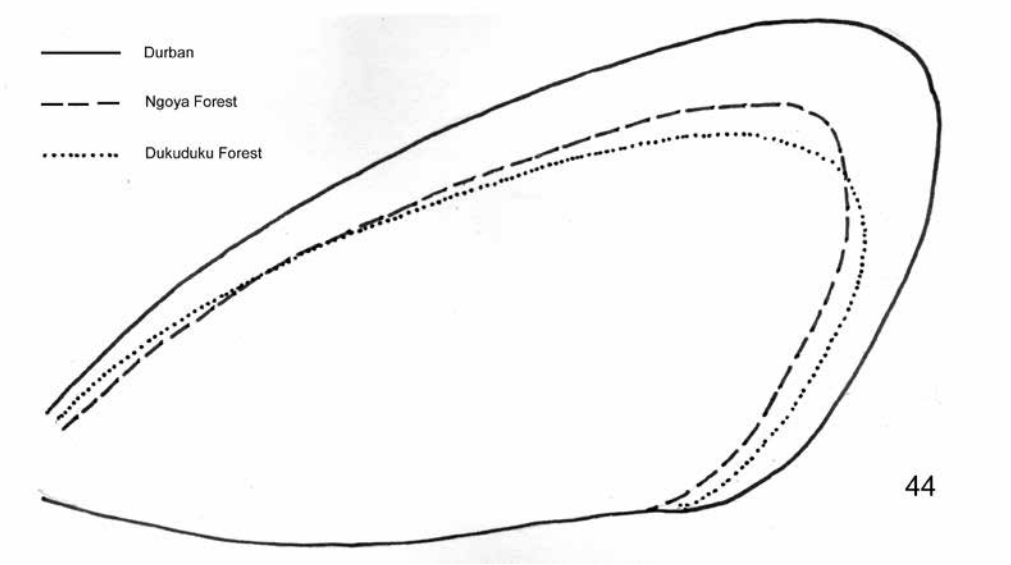
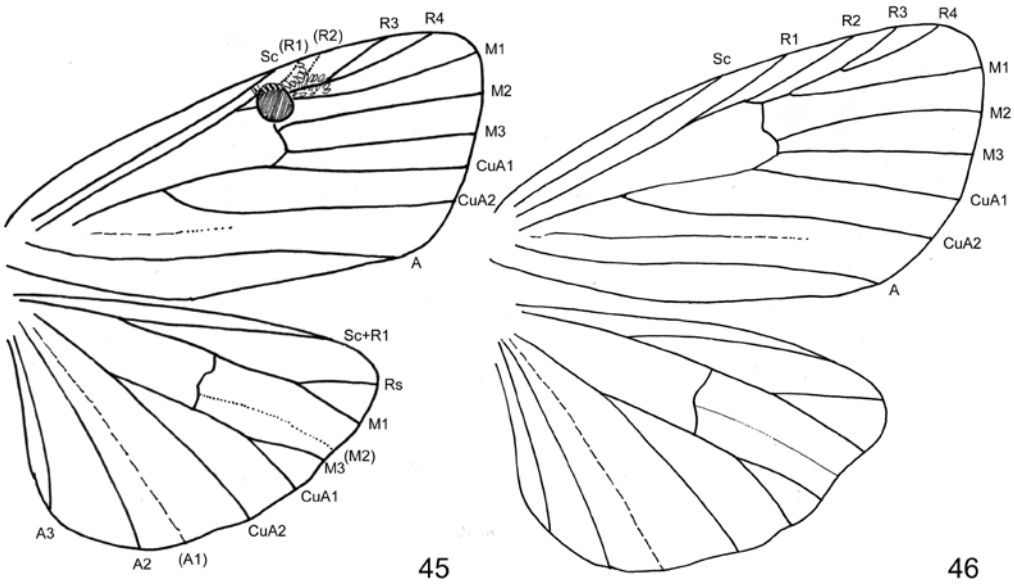
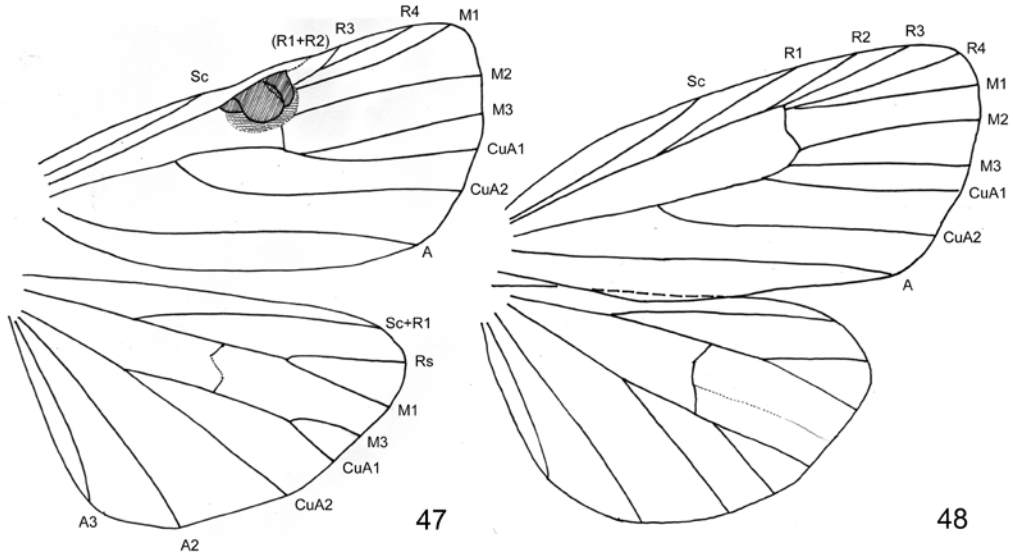


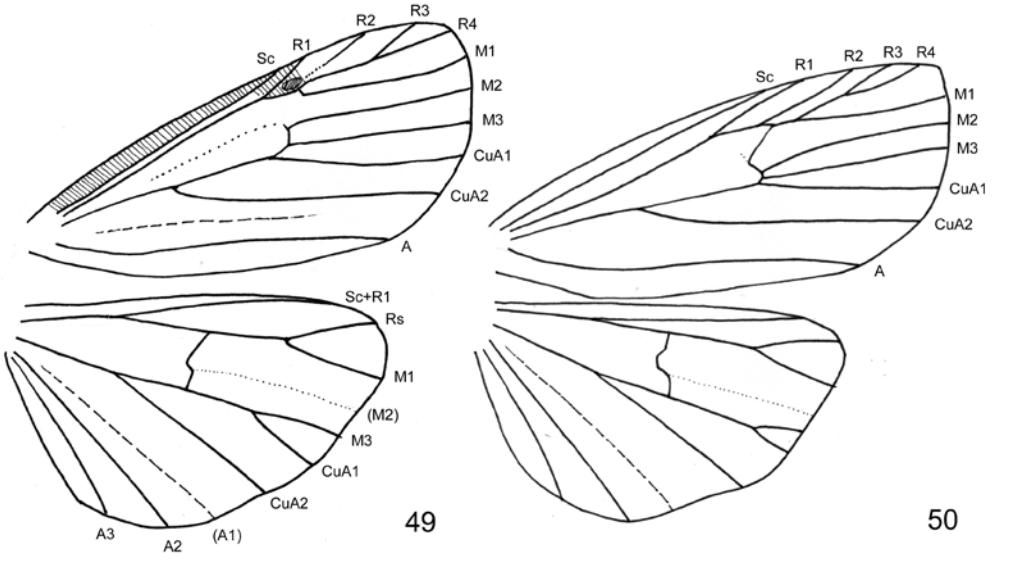
Fig. 44. Shapes of the forewing of *Cyana natalensis* from different localities in South Africa.



Figs. 45–46. Venation of *Cyana* (*Gigantovulpecula*) *saalmuelleri*. – 45. ♂. Madagascar, Périnet (ZSM). – 46. ♀. Madagascar, Matsabory (ZSM).



Figs. 47–48. Venation of *Cyana* (*Comorocyana*) *tripuncta*. – 47. ♂. Grande Comore, Hantsongoma (MNHN). – 48. ♀. Grande Comore (BMNH).

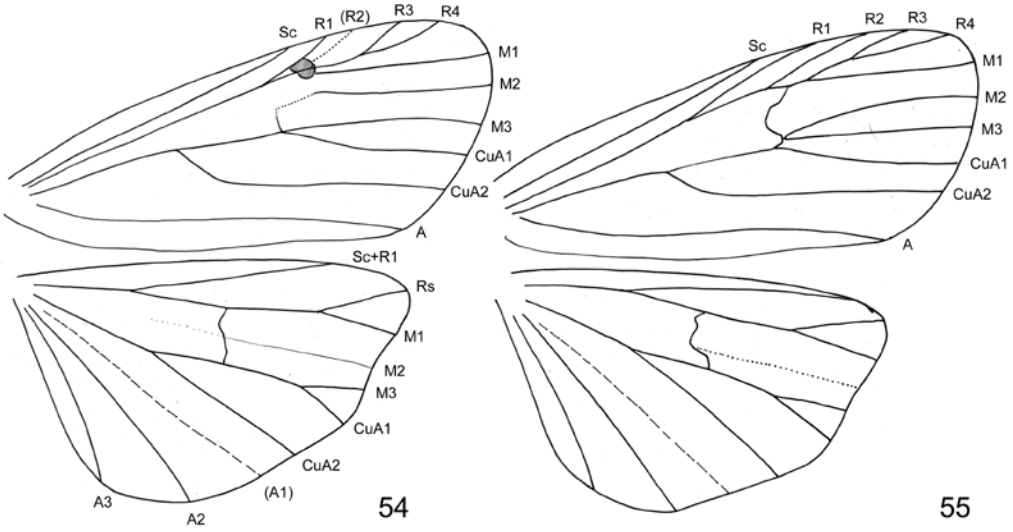


Figs. 49–50. Venation of *Cyana* (*Cornutivulpecula*) *klohsi*; 49. ♂. Dem. Rep. Congo (Zaire), Rumangabo (cKDT). – 50. ♀. Dem. Rep. Congo (Zaire), Rumangabo (cKDT).

Fig. 51. Habitat of *Cyana klohsi* in the mountain rain forest at the slopes of the Nyiragongo volcano near Goma (Dem. Rep. Congo) (photo: T. Karisch, 1991).

Fig. 52. Shume forest at the Usambara mountains, habitat of *Cyana usambara* spec. nov. (photo: P. Darge).

Fig. 53. Border of a mountain rain forest at the Nyika Plateau (Malawi), where *Cyana nussi* spec. nov. was collected (photo: M. Nuss, 1996).



Figs. 54–55. Venation of *Cyana* (*Idiovulpecula*) *pretoriae*. – 54. ♂. South Africa, Bushman Rock (TMP). – 55. ♀ South Africa, Irene (TMP).

Fig. 56. Savannah in the Lubumbashi district in Congo (Zaire), where *Cyana pretoriae spectabilis* is distributed (photo: Stéphane Hanot, 2007).

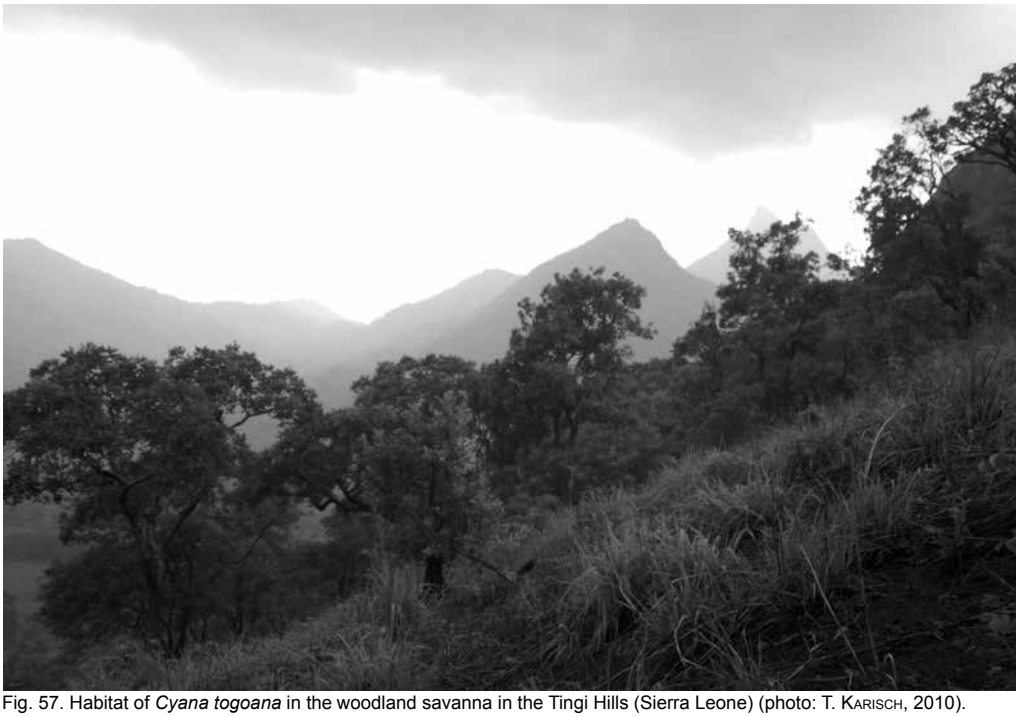
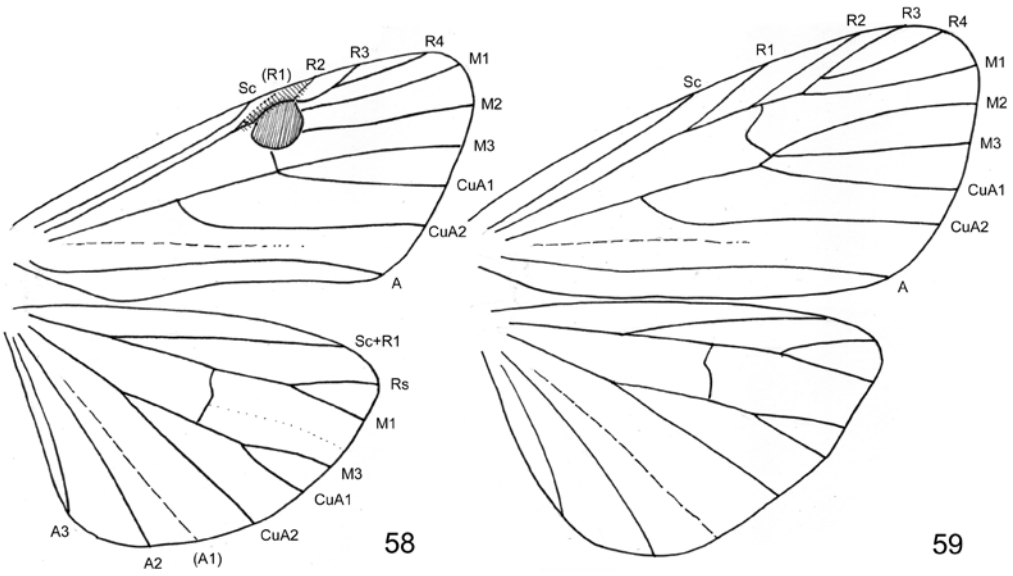


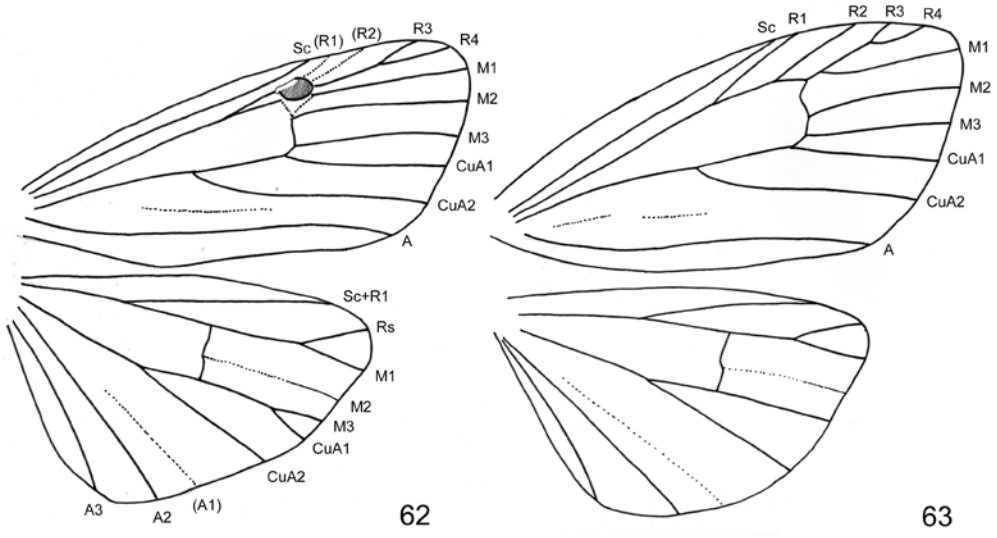
Fig. 57. Habitat of *Cyana togoana* in the woodland savanna in the Tingi Hills (Sierra Leone) (photo: T. Karisch, 2010).



Figs. 58–59. Venation of *Cyana* (*Caudovulpecula*) *delicata*. – 58. ♂. Ivory Coast, Gouédié near Man (CKDT). – 59. ♀. Ivory Coast, Divo (MRAC).

Fig. 60. Habitat of *Cyana delicata* in the anthropogen influenced rain forest near the summit of the Mt. Tonkpi near Man (Ivory Coast) (photo: T. Karisch, 1997).

Fig. 61. Plantations in the rain forest zone at the slopes of the Gran Caldera de Luba (Bioko), habitat of *Cyana flammeostrigata flammeostrigata* (photo: T. Karisch, 1994).



Figs. 62–63. Venation of *Cyana* (*Strigivulpecula*) *rufeola*. – 62. ♂. Dem. Rep. Congo (Zaire), Eala (MRAC). – 63. ♀. Dem. Rep. Congo (Zaire), Eala (MRAC).

Fig. 64. Habitat of *Cyana nemasisha* on the lower slopes of Mt. Meru (Tanzania) (photo: M. A. Thies).

Fig. 65. Disturbed secondary rain forest in North western Ivory Coast near Man, habitat of *Cyana klausruedigerbecki* (photo: T. Karisch, 1997).

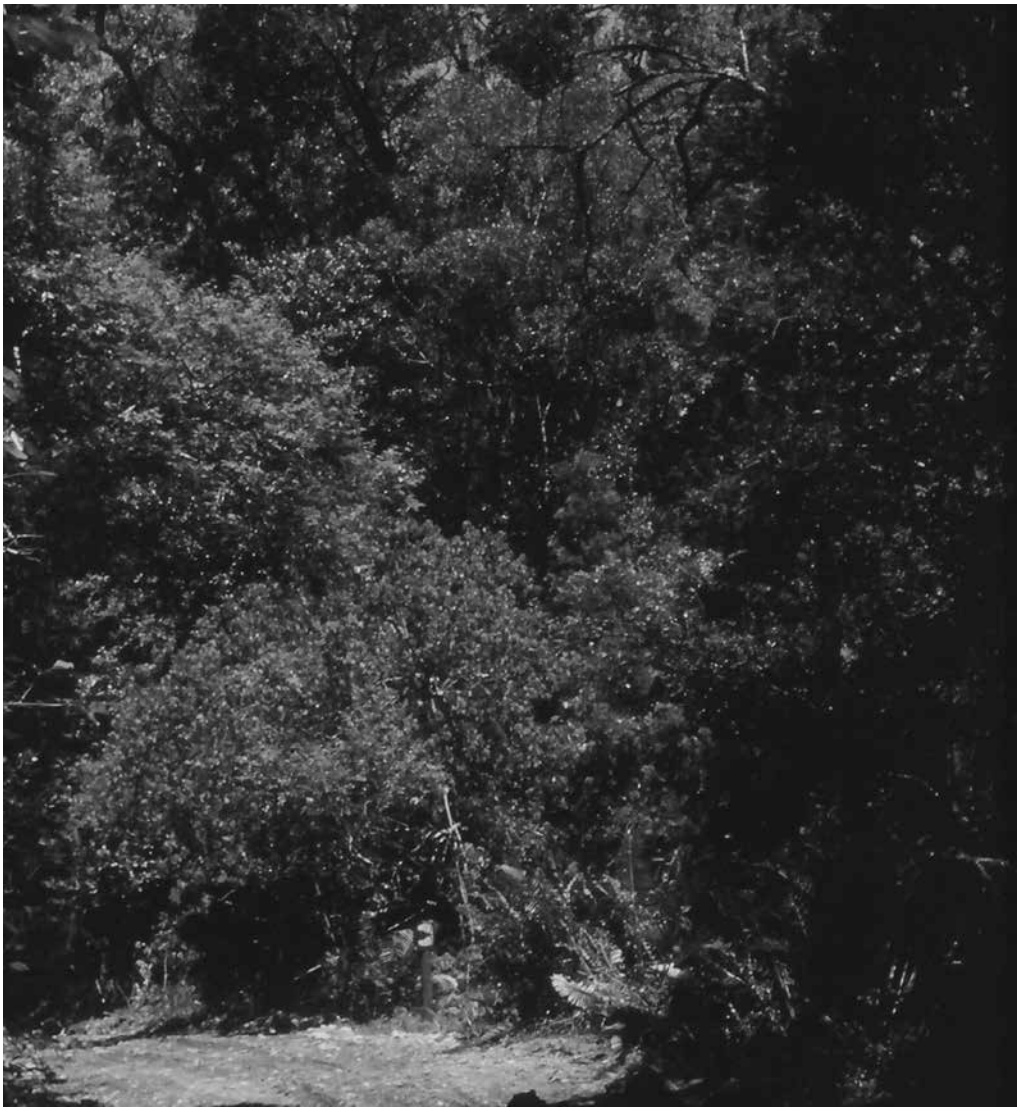
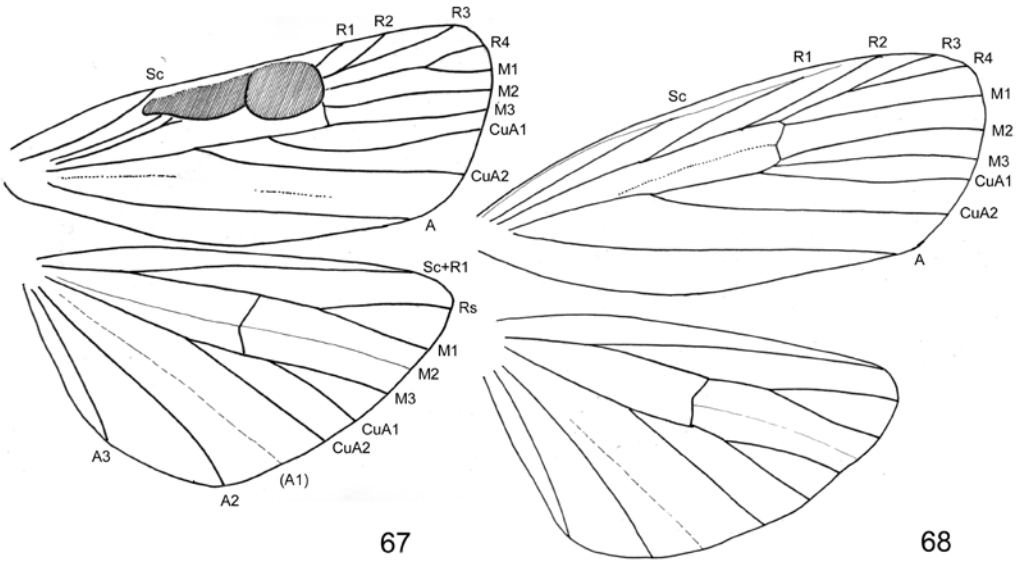
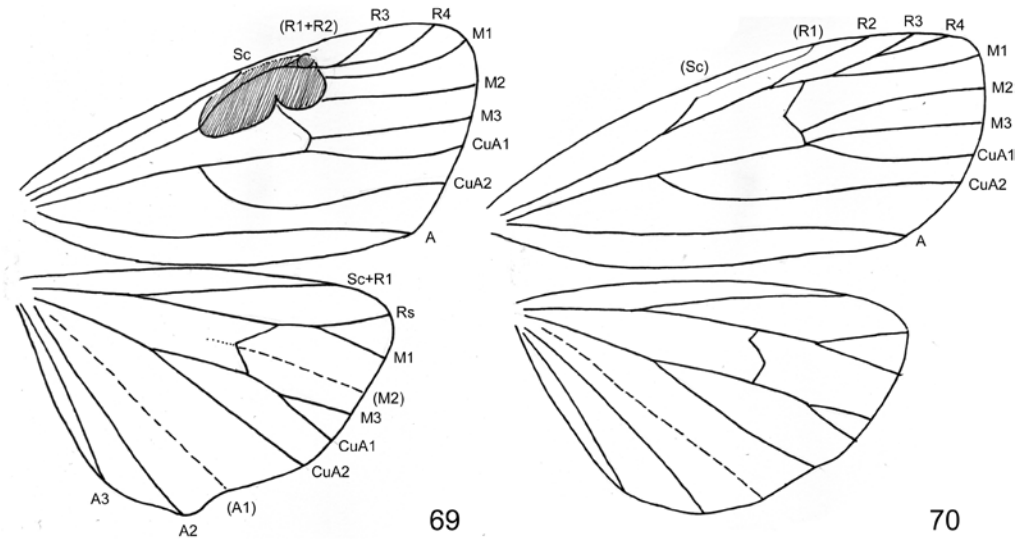


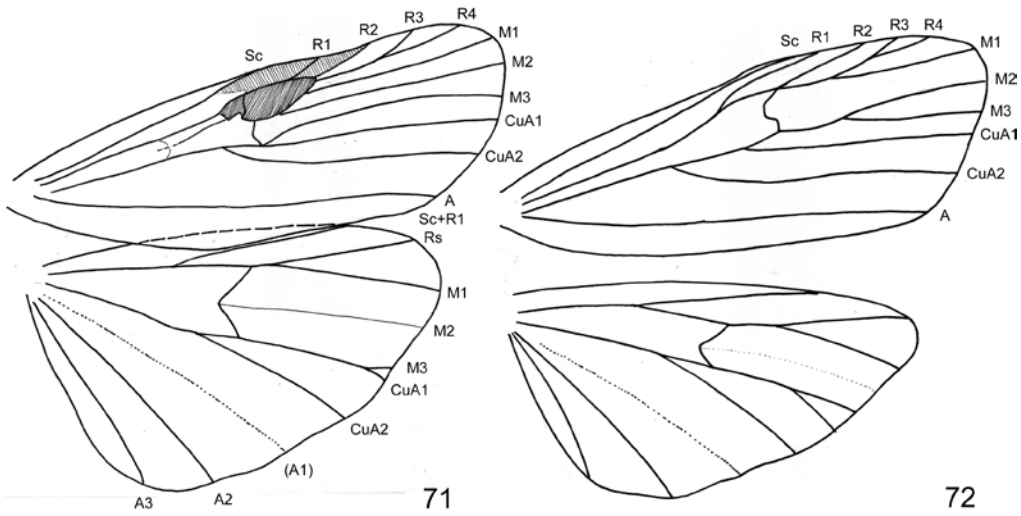
Fig. 66. Tsitsikamma forest, an old indigenous forest with *Podocarpus*, is the habitat of *Cyana capensis* (photo: T. Karisch, 1993).



Figs. 67–68. Venation of *Cyana* (*Bizone*) *perornata*. – 67. ♂. (BMNH). – 68. ♀. Indonesia, Sarawak, Gunong (BMNH).



Figs. 69–70. Venation of *Cyana* (*Tomea*) *rufifrons*. – 69. ♂. Sao Thomé, Bombain (ZSM). – 70. ♀. Sao Thomé, Bombain (ZSM).



Figs. 71–72. Venation of *Cyana* (*Chionaema*) *puella*. – 71. ♂. India, Kangra (BMNH). – 72. ♀. Kenya, Taita Hills (MRAC).

Fig. 73. Habitat of *Cyana puella postflavida* in the Usambara Mountains (Shume Forest, Tanzania) (photo: P. Darge).

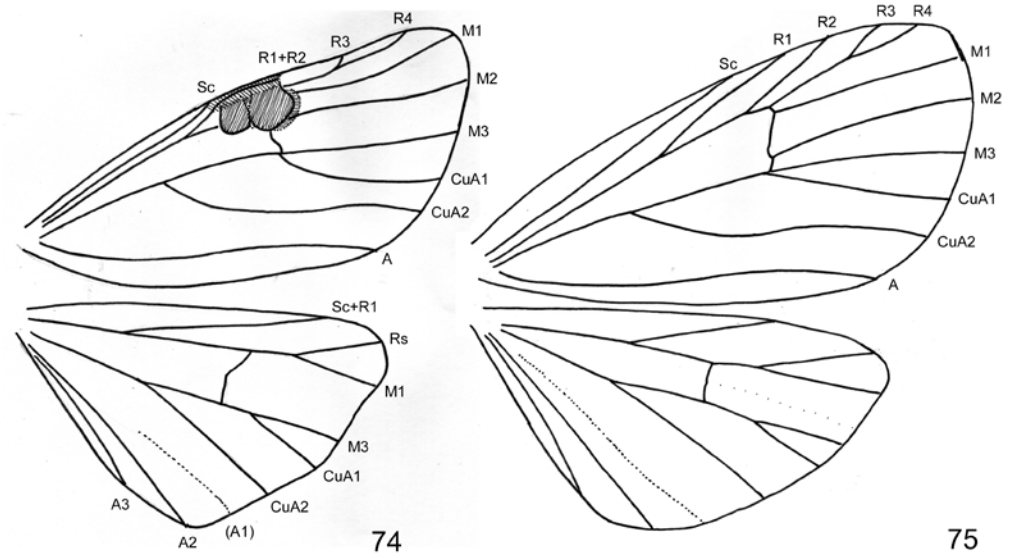
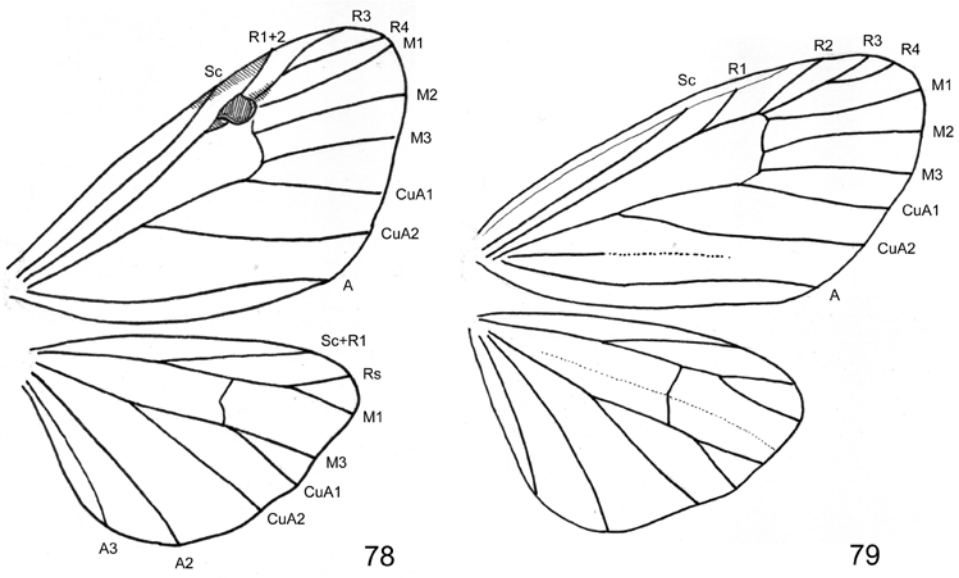


Fig. 74–75. Venation of *Cyana* (*Paravulpeculella*) *pallidilinea*. – 74. ♂. Cameroon, Efulen (CMNH). – 75. ♀. Dem. Rep. Congo (Zaire), Katako-Kombe (MRAC).

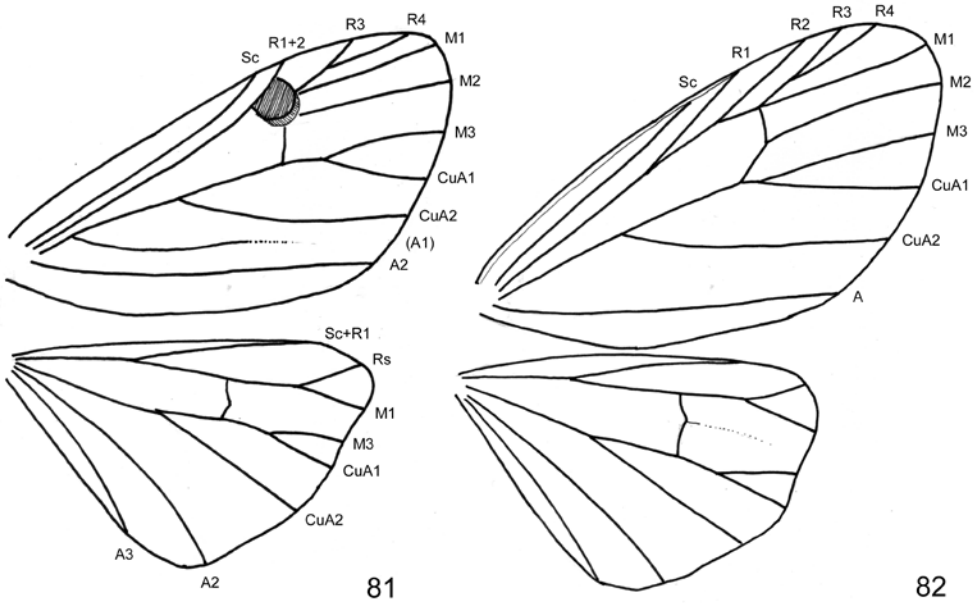
Fig. 76. Habitat of *Cyana pallidilinea* in a rain forest in a valley between Pinga and Peti (Dem. Rep. Congo) (photo: T. Karisch, 1991).

Fig. 77. Rain forest belt around Mt. Nimba (view from the South), habitat of *Cyana suessmuthi* spec. nov. (photo: T. KARISCH, 1997).



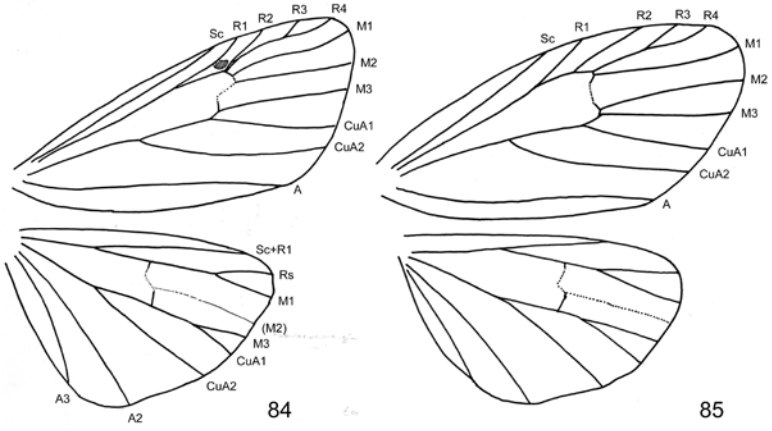
Figs. 78–79. Venation of *Cyana* (*Vulpeculella*) *basisticta*. – 78. ♂. Ivory Coast, Gouédié (CKDT). – 79. ♀. Ghana, Kumasi (BMNH).

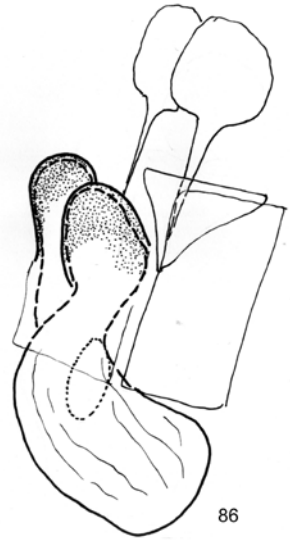
Fig. 80. View from Mt. Tonkpi near Man to North East into the mountain area with patches of secondary forests in the western Ivory Coast, habitat of *Cyana basisticta* (photo: T. Karisch, 1997).



Figs. 81–82. Venation of *Cyana* (*Louisia*) *quentini*. – 81. ♂. Congo, Odzala N. P. (MNVD). – 82. ♀. Bioko, Moca Malabo (CKDT).

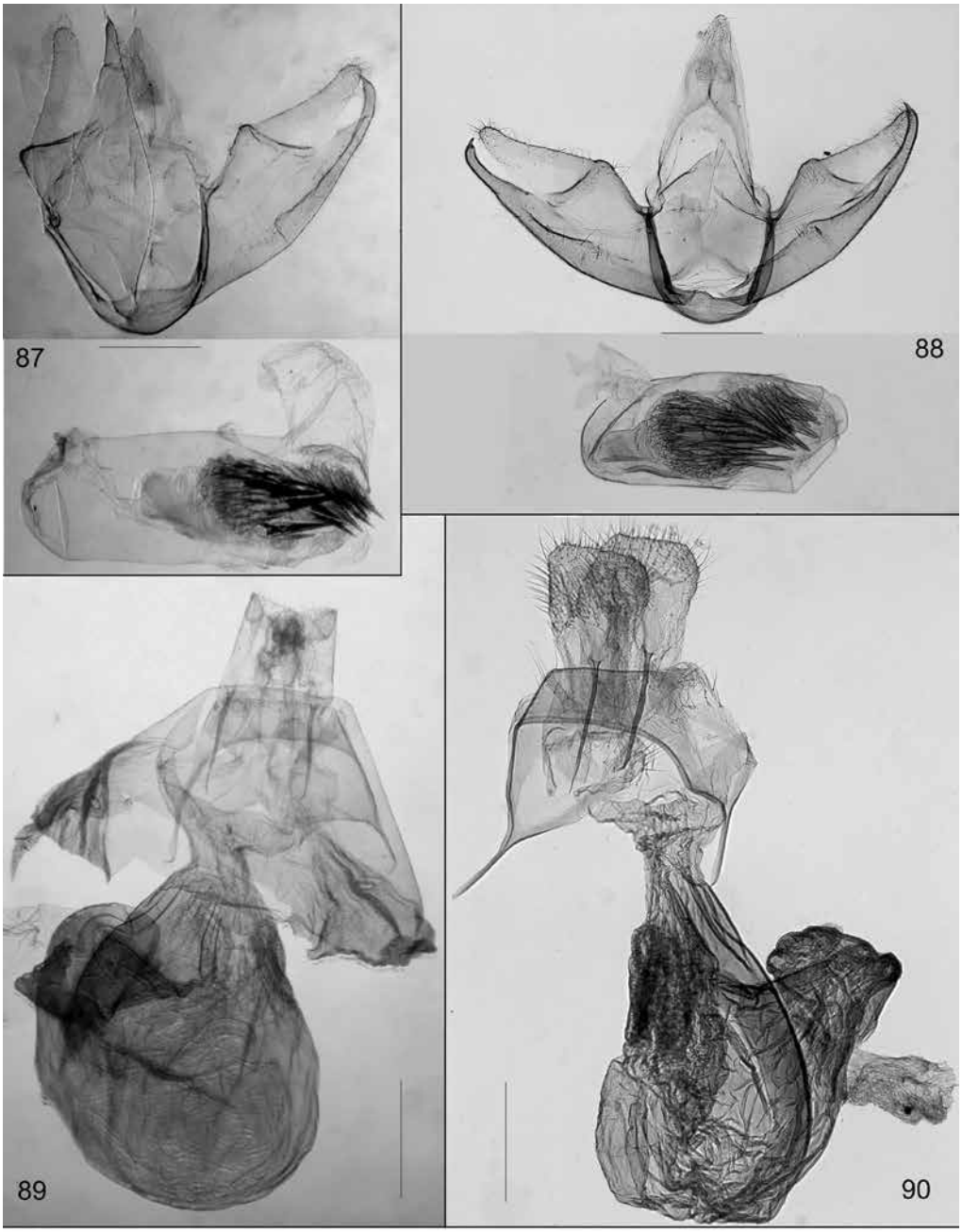
Fig. 83. Clearance in the primary rain forest near Kalamba in the Congo Basin (Dem. Rep. Congo), habitat of *Cyana quentini* (photo: T. Karisch, 1991).





Figs. 84–85. Venation of *Cyana* (*Cyabarda*) *torrida*. – 84. ♂. Dem. Rep. Congo (Zaire), Paulis (MRAC). – 85. ♀. Dem. Rep. Congo (Zaire), Katako-Kombe (MRAC).

Fig. 86. ♀-genitalia of *Cyana torrida* in situ (ventro-lateral view) showing the position of the corpus bursae and the appendix bursae in relation to the incavations of the VII. sternit.



Figs. 87–90. Genitalia. – 87. *Cyana* (*Isine*) *trigutta*, ♂ (slide no. 2214, KARISCH), Cameroon: Bakingili (CMNH). – 88. *Cyana* (*Isine*) *africana*, ♂ (slide no. 1862, KARISCH), syntype, Gabun: Ogové river (CMNH). – 89. *Cyana* (*Isine*) *trigutta*, ♀ (slide no. 2215, KARISCH), Cameroon: Bakingili (CMNH). – 90. *Cyana* (*Isine*) *africana*, ♀ (slide no. 1864, KARISCH), syntype; Gabun: Ogové river (CMNH).