

THE *BEBEARIA MARDANIA* COMPLEX (NYMPHALIDAE)

DAVID L. HANCOCK¹

Natural History Museum, Bulawayo, Zimbabwe

ABSTRACT. Six species are recognized in the African *Bebearia mardania* complex: *B. mardania* (Fabricius); *B. senegalensis* (Herrich-Schaeffer), **stat. rev.**; *B. theognis* (Hewitson), **stat. rev.**; *B. guineensis* (Felder & Felder), **stat. rev.**; *B. orientis* (Karsch); and *B. badiana* (Rebel), **stat. rev.** *Bebearia cocalia* (Fabricius) is placed as a synonym of *B. mardania* and the type-locality of both taxa, described from "Indiis," is interpreted as Sierra Leone, West Africa. *Bebearia cocalioides* Hecq is newly placed as a subspecies of *B. mardania*, whilst *katera* (van Someren) (= *insularis* Schultz, **syn. nov.**; = *continentalis* Hecq, **syn. nov.**) is newly placed as a subspecies of *B. senegalensis*. The taxon *paludicola* (Schultze) is placed as a **new synonym** of *B. guineensis*, and both *dealbata* (Carcasson) and *taveta* Clifton are newly placed as subspecies of *B. badiana*. The identities of the various species and subspecies are discussed, and lectotypes are designated for *B. guineensis* and *B. badiana*.

Additional key words: Africa, taxonomy, lectotype designations, Fabrician species, type-localities.

Taxonomically, the *Bebearia mardania* complex is perhaps one of the most confused groups of African Nymphalidae. The identity of *B. mardania* (Fabricius) itself has been misinterpreted consistently ever since its original description nearly 200 years ago (Fabricius 1793). As generally recognized prior to Hecq (1988), the taxon actually comprised three distinct species—*B. mardania*, *B. senegalensis* (Herrich-Schaeffer) and *B. guineensis* (Felder & Felder). The two former taxa usually were regarded as subspecies, whilst *B. guineensis* has been lost in synonymy since Aurivillius (1899), following Butler (1871), incorrectly regarded it as the male of *B. mardania*. *Bebearia cocalia* (Fabricius) had been regarded variously as a form of *B. mardania*, as a monotypic species, or as a bitypic species that also included *B. theognis* (Hewitson). Hecq (1988) regarded *B. mardania* as a senior synonym of *B. theognis* and accepted *B. cocalia* as a separate, polytypic species. Actually, *B. cocalia* is the male of *B. mardania* and neither taxon has anything to do with *B. theognis*. The taxon *B. orientis* (Karsch) generally was regarded as a subspecies of *B. mardania* until its specific identity was recognized by van Son (1979). *Bebearia badiana* (Rebel) also generally has been regarded as a subspecies of *B. mardania* but two subspecies here transferred to it, *dealbata* (Carcasson) and *taveta* Clifton, were placed in a separate species, *B. dealbata*, by D'Abbrera (1980). *Bebearia orientis* and *B. badiana* actually appear to be most closely related to *B. senegalensis*, the three forming an allopatric group. Possibly con-

¹ Present address: 5 Bogong Street, Riverhills, 4074, Brisbane, Queensland, Australia.

specific, they are regarded as separate species here for reasons discussed below.

It has not been practicable, nor indeed possible, to examine the relevant type material. The holotypes of *B. mardania* and *B. cocalia* were stated to be in the Drury Collection and are now believed lost. Syntypes of *B. senegalensis* are believed to have been in the Staudinger Collection but enquiries to Berlin failed to locate them; their present whereabouts, if still extant, are unknown to me. The types of forms *paludicola* Schultze and *insularis* Schultze also are believed lost. Fortunately, the types of *B. mardania* and *B. cocalia* were figured in William Jones' unpublished *Icones*, now preserved at the University of Oxford, while those of *B. senegalensis* were figured by Herrich-Schaeffer (1858). Syntypes of *B. orientis* and its synonym *pseudocalia* Staudinger are in the Zoologisches Museum der Humboldt Universität zu Berlin and color slides of these have been examined. Since this is the only species occurring in coastal East Africa, its identity is not in doubt. Holotypes of subspecies *dealbata* and *taveta* are in the National Museum of Kenya and both were adequately illustrated in the original publications (Carcasson 1958, D'Abbrera 1980). Syntypes of *B. badiana* are in the Naturhistorisches Museum, Vienna, and color photographs of these have been examined. Holotypes of *B. cocalia continentalis* Hecq and *B. cocalioides* Hecq are in the Musée Royal de l'Afrique Centrale, Tervuren, and both have been figured (Hecq 1988). Holotypes or syntypes of the remaining taxa, *B. theognis*, *B. guineensis*, *B. mardania katera* (van Someren), and *B. orientis insularis* Kielland, are in The Natural History Museum, London. Apart from *B. guineensis*, of which color slides of the syntypes have been examined, these taxa had their types illustrated in the original publications (Hewitson 1864, van Someren 1939, Kielland 1985).

Fortunately, the available published and unpublished illustrations are sufficient to enable identification of the various species and subspecies and no problems remain that require a closer examination of types or topotypical material for their resolution. These, and material in the Natural History Museum of Zimbabwe, have enabled the complexities of this group to be resolved.

ABBREVIATIONS

The following abbreviations of Museums and collections are used throughout: BMNH—The Natural History Museum, London; NHMZ—Natural History Museum of Zimbabwe, Bulawayo; NHMV—Naturhistorisches Museum, Vienna; ZMHU—Zoologisches Museum der Humboldt Universität, Berlin; HCO—Hope Entomological Collections,

University of Oxford; BWC—B. Wilson Collection, Bulawayo; AHC—A. Heath Collection, Cape Town.

SYSTEMATICS

Family Nymphalidae Genus *Bebearia* Hemming *mardania* complex

Species in this complex are distinguished by the presence of a dark postdiscal band running across both fore- and hindwings on the underside. The complex is considered here to comprise six species, best identified by comparison with the figures and diagnostic notes provided. The following key is intended merely as a guide to identification, particularly in the case of females. Subspecies are distinguished primarily by female pattern characteristics. Where known, the larvae feed on palms (Palmae).

Carcasson (1981) considered *Bebearia* to be a subgenus of *Euphaedra* Hübner but provided no evidence for this reassignment. In the absence of revisionary studies on the genera in question, I prefer to maintain the traditional separation of *Bebearia* as a distinct genus.

Key to Species in the *mardania* Complex

- | | |
|--|---------------------|
| 1. Males | 2 |
| 1'. Females | 7 |
| 2. Forewing with a faint brown subapical bar but no yellow markings; hindwing rounded (Fig. 7); valvae elongate, with one long apical tooth and several broad subapical dentations (Fig. 20) | <i>theognis</i> |
| 2'. Forewing with at least a trace of yellow subapical markings; hindwing at least slightly angled; valvae not as above | 3 |
| 3. Forewing with a broad, distinct, yellow subapical bar; black apical area without a purplish suffusion; valvae short and apically rounded (Fig. 21) | <i>guineensis</i> |
| 3'. Forewing rarely with the yellow subapical bar broad and distinct; black apical area with a purplish suffusion; valvae elongate and apically produced or toothed | 4 |
| 4. Hindwing slightly angled (Figs. 3, 5); valvae with apex broad (Fig. 18) | <i>mardania</i> |
| 4'. Hindwing distinctly angled (Figs. 6, 8–10); valvae with apex narrowed (Figs. 19, 22, 23) | 5 |
| 5. Reddish above; upperside of hindwing with submarginal pale spots pronounced; valvae elongate and strongly produced apically into a dentate process (Fig. 22) | <i>orientis</i> |
| 5'. Purple to reddish-purple above; upperside of hindwing with submarginal pale spots not evident; valvae not as above | 6 |
| 6. Valvae broad, with several small apical teeth (Fig. 23) | <i>badiana</i> |
| 6'. Valvae elongate and slightly produced to a blunt point apically (Fig. 19) | <i>senegalensis</i> |
| 7. Hindwing rounded, not distinctly angled (Figs. 14, 15); forewing with subapical pale bar broad, not narrowing noticeably posteriorly; ground color brown to greyish-brown | 8 |
| 7'. Hindwing angled (Figs. 11–13, 16, 17); forewing with subapical pale bar narrow | |

- or narrowing noticeably posteriorly; ground color generally orange-brown to red-brown 9
8. Forewing subapical pale bar white *guineensis*
- 8'. Forewing subapical pale bar mostly yellow *theognis*
9. Forewing reddish-brown basal to subapical pale bar; submarginal pale spots generally diffuse and indistinct 10
- 9'. Forewing with a black area basal to subapical pale bar; submarginal pale spots generally distinct 11
10. Postdiscal areas paler than basal areas, often whitish; hindwing weakly angled (Fig. 11); forewing subapical pale bar white *mardania*
- 10'. Postdiscal areas not noticeably paler than basal areas; hindwing distinctly angled (Fig. 17); forewing subapical pale bar white or orange *badiana*
11. Hindwing with pale areas distad of submarginal dark line distinct; forewing with submarginal pale spot in space CuA_2 entirely orange *orientis*
- 11'. Hindwing with pale areas distad of submarginal dark line indistinct; forewing with submarginal pale spot in space CuA_2 partly or entirely white .. *senegalensis*

Bebearia mardania (Fabricius)

(Figs. 1-5, 11, 18)

Papilio mardania Fabricius, 1793:249 (♀). Type-locality "Indiis," recte [Sierra Leone]; Jones' Icones 3:70, fig. 1.

Papilio cocalia Fabricius, 1793:250 (♂). Type-locality "Indiis," recte [Sierra Leone]; Jones' Icones 3:70, fig. 2.

Nymphalis cocalia, Donovan, 1800-04:[53] (♂), pl. [36], fig. 1.

Euryphe senegalensis, Aurivillius, 1912:177, partim (♀) (Sierra Leone). Misidentification.

Najas cocalia theognis, Fox, 1965:229 (Liberia); Owen & Owen, 1973:597 (Sierra Leone). Misidentifications.

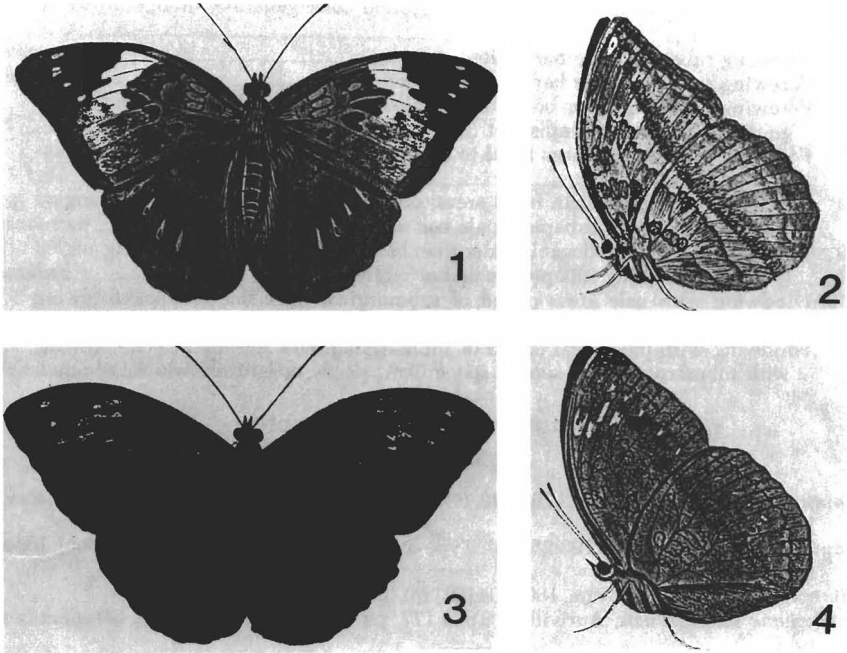
Bebearia cocalia, D'Abbrera, 1980:309, partim (♂, 3rd ♀ only) (Kumasi, Ghana); Hecq, 1988:120 (♂ partim).

Bebearia mardania, Hecq, 1988:120 (♀ partim).

Diagnosis. The weakly angled hindwings in both sexes, pale postdiscal areas in the female, and shape of the valvae in the male, serve to distinguish this species. The typical subspecies differs from the next in having the female smaller and with a better developed subapical pale band on the forewing.

Discussion. Although Butler (1871) misinterpreted this species, his actions in placing *B. cocalia* as a synonym of *B. mardania* may be construed as that of first reviser, giving priority to the name *mardania*. This synonymy has been largely overlooked in subsequent publications. The name *mardania* has not been applied correctly since its original description but the figures in Jones' Icones are accurate and enable this species to be interpreted correctly. Hecq (1988) referred to both these figures but associated the female (*mardania*) with male *B. theognis* and the male (*cocalia*) with female *B. senegalensis*.

It is probable that both taxa originated from the same source, since both were described from the Drury Collection at the same time from the same incorrect locality. Specimens agreeing well with both figures



FIGS. 1-4. Illustrations of Fabrician types in Jones' unpublished Icones, Vol. 3: Upper- and undersides of *Bebearia* species. 1 and 2, *B. mardania*, female. 3 and 4, *B. cocalia*, male (=synonym of *B. mardania*).

in Jones' Icones have been collected together near Abidjan in Ivory Coast and there can be no justification for continuing to regard *mardania* and *cocalia* as anything other than female and male respectively of the same nominal species.

Type-locality. Both *mardania* and *cocalia* were described originally from "Indiis" (India) but this is erroneous. The figures of both taxa in Jones' Icones closely resemble specimens from West Africa. Aurivillius (1899) mentioned only Cameroon for *cocalia* and this has been assumed to be its type-locality. However, specimens from there differ from typical specimens (as figured by Jones), and Sierra Leone is interpreted here as the type-locality for both taxa. It is known from historical records that ships en route to Europe from India stopped in this area to collect water and other provisions, and that Drury obtained material from this region.

Material examined. IVORY COAST: 3 ♂, 3 ♀, Azegny Nat. Park, W of Abidjan, x.1985 (NHMZ, BWC); 1♀, Abidjan, x-xi.1974 (NHMZ).

Distribution. Sierra Leone, Liberia, Ivory Coast, Ghana.

***Bebearia mardania cocalioides* Hecq, stat. rev.**

- Euryphene cocalia*, Aurivillius, 1899:198 (Cameroon); 1912:pl. 40 (♀). Misidentification.
Euryphene mardania ♀ f. *cocalia*, Peters, 1952:62. Misidentification.
Euphaedra cocalia, Fox, 1968:1266 (Congo); Carcasson, 1981:165. Misidentifications.
Bebearia cocalia, D'Abbrera, 1980:309, partim (2nd ♀ only) (Cameroon). Misidentification.
Bebearia mardania, Berger, 1981:149, partim (♂ f. *cocalia*, ♀ f. *senegalensis*), pl. 119, figs. 1 (♂), 10 (♀) (Zaire). Misidentification.
Bebearia cocalioides Hecq, 1988:124, figs. 19, 20 (♂ ♀). Type-locality Eala, Zaire.

Diagnosis. The female tends to be larger and has the subapical white band of the forewing narrower and more deeply indented, particularly on its basal side, than in typical *mardania*.

Discussion. These Central African populations appear to represent a subspecies of *B. mardania* rather than a separate species. Males have not been available for genitalia dissection but both taxa agree in wing shape and male pattern; females of both also have pale postdiscal areas on the wings. Berger (1981) stated that the types of *B. badiana* were identical to this taxon but this is not the case. Most references to *B. cocalia* in the literature actually belong here.

Distribution. Cameroon, Congo, Zaire, Central African Republic.

***Bebearia senegalensis* (Herrich-Schaeffer), stat. rev.**

(Figs. 12, 19)

- Euryphene senegalensis* Herrich-Schaeffer, 1858:54, figs. 95–98 (♂ ♀). Type-locality Senegal.
Euryphene senegalensis, Aurivillius, 1899:198; 1912:177, partim (♂) (Senegal).
Euryphene mardania, Aurivillius, 1912:pl. 40 (♀ only). Misidentification.
Euryphene mardania senegalensis, Peters, 1952:62.
Najas mardania senegalensis, Fox, 1965:230 (Liberia & Guinea).
Najas mardania, Owen & Owen, 1973:598 (Sierra Leone). Misidentification.
Bebearia cocalia, D'Abbrera, 1980:309, partim (1st ♀ only) (Enuchi, Ghana); Hecq, 1988:120 (♂ partim, ♀) (Sierra Leone & Ivory Coast). Misidentifications.
Bebearia mardania senegalensis, D'Abbrera, 1980:310.
Euphaedra mardania senegalensis, Carcasson, 1981:165.
Bebearia cocalia senegalensis, Hecq, 1988:121.

Diagnosis. The male has hindwings more angular than *B. mardania* but can be distinguished with certainty from *B. badiana* only by the more elongate, apically produced valvae. The female resembles that of *B. orientis* but differs in characters noted in the key. In the typical subspecies the female is a little variable in the extent of the reddish-brown areas, particularly on the forewing, but may be identified readily by the submarginal ring-shaped spot in space CuA₂ of the forewing, which is white on both its inner and outer edges.

Discussion. Although generally regarded as the western subspecies of *B. mardania*, this species is distinct and occurs sympatrically with the former. *Bebearia cocalia* of Hecq (1988) is essentially this taxon.

Its identity has been obscured by a lack of understanding of the true nature of *B. mardania*.

Material examined. IVORY COAST: 2 ♂, 8 ♀, Azegny Nat. Park, W of Abidjan, x.1985 (NHMZ & BWC).

Distribution. Senegal, Guinea Bissau, Sierra Leone, Guinea, Liberia, Ivory Coast, Ghana.

***Bebearia senegalensis katera* (van Someren), stat. rev.**

(Figs. 6, 13)

Euryphene guineensis, Felder & Felder, 1867:430, partim (♀) (Calabar, Nigeria). Misidentification.

Euryphene mardania, Butler, 1871:74, partim (♀), pl. 28, fig. 6 (♀) (Fantee, Ghana); Aurivillius, 1891:210 (Cameroon & Gabon); 1899:198, partim; 1905:4 (pupa); 1912:177, partim, pl. 40 (♂ only); Neave, 1910:37 (Lualaba, Zaire); Holland, 1920:187 (Zaire). Misidentifications.

Euryphene cocalia, Staudinger, 1885-86:148, pl. 52 (♂ ♀) (Cameroon, Gabon & Congo). Misidentification.

Euryphene senegalensis, Aurivillius, 1912:pl. 40 (♂ ♀). Misidentification.

Euryphene mardania var. *insularis* Schultze, 1920:721 (♀). Type-localities Santa Isabel & San Carlos, Fernando Poo (described as ♀ form, i.e., infrasubspecific). **Syn. nov.**

Euryphene mardania katera van Someren, 1939:52, pl. 14, figs. 3, 4, pl. 15, figs. 3, 4 (♂ ♀). Type-locality Katera, SW Uganda.

Euryphene mardania katera, Peters, 1952:62.

Najas mardania, Carcasson, 1966:24, 58, fig. 21 (W Tanzania & N Zambia). Misidentification.

Euphaedra mardania, Fox, 1968:1266, partim (Congo); Carcasson, 1981:46, partim (♀ only) (Zaire), 165; Dowsett, 1983:61, partim (below Nyika, NE Zambia). Misidentifications.

Bebearia mardania, Cornes, Riley & St. Leger, 1973:13; Larsen, Riley & Cornes, 1980:16 (Nigeria); D'Abbrera, 1980:310, partim (♀ only); Berger, 1981:149, partim, pl. 119, figs. 5, 6 (♂), 9 (♀). Misidentifications.

Bebearia cocalia guineensis, Hecq, 1988:121, partim (♀). Misidentification.

Bebearia cocalia continentalis Hecq, 1988:122, figs. 3-6, partim (♂ only). Type-locality Beni, Zaire. **Syn. nov.**

Bebearia cocalia katera, Hecq, 1988:123; Kielland, 1990:118, pl. 36.

Bebearia orientis, Kielland, 1990:118, partim, pl. 36 (♀) (Tukuyu, SW Tanzania). Misidentification.

Diagnosis. The female of this subspecies differs from typical *senegalensis* in having the pale submarginal ring-shaped spot in space CuA₂ of the forewing mostly orange, with white scales only on its outer portion, in being generally orange-brown in ground color, and with the black apical area of the forewing well developed. The male valvae are identical to those of the typical subspecies. There is some variation in the width of the pale subapical forewing band in both sexes. Some males approach *B. guineensis* in the width of this band but the apical area has a purplish suffusion, the hindwing is more distinctly angled, and the valvae differ.

Discussion. The majority of references to *B. mardania* in the literature actually refer to this taxon. Hecq's (1988) subspecies *continentalis*

is a mixture of this taxon and *B. guineensis* (the female); the range of material available does not support its separation from *katera*. The female form *insularis* was stated by Schultze (1920) to have the wings darker basally than in mainland examples of *katera* but Hecq (1988), while not actually assigning the name to any particular taxon, noted that it was without value.

Although described (in a footnote) by Schultze (1920) as a variety of *B. mardania*, the name *insularis* was considered by him to apply only to females, in the sense of a form-name, and not to males also recorded from Fernando Poo (=Bioko). Thus the name is considered here to be infrasubspecific, under the provisions of Article 45 (g) (ii) (1) of the International Code of Zoological Nomenclature (1985). Nomenclatural problems would arise if this name, unmentioned in the literature between its original proposal and Hecq (1988), were to be regarded as valid at the subspecies level. It would become a senior synonym of *katera* and would result in *B. orientis insularis* Kielland becoming a homonym.

Material examined. NIGERIA: 1 ♀ (paralectotype of *E. guineensis* C. & R. Felder), labelled Calabar Type/ Felder Colln./ syntype (BMNH: color slides); 1 ♀, Ajessor-Ikom, ii.1958 (NHMZ); 2 ♂, 1 ♀, Ikom, iii.1956 & ix.1959 (NHMZ); CAMEROON: 1 ♀, Lomie, 6.viii.1962 (NHMZ); 1 ♀, Kumba Gorge, 19.ix.1962 (NHMZ); CENTRAL AFRICAN REPUBLIC: 1 ♀, Bangui, ii.1967 (NHMZ); ZAIRE: 1 ♂, 1 ♀, Sandoa, ii.1930 (NHMZ); 1 ♀, no locality, 1947 (NHMZ); 1 ♂, Kafakumba, x.1931 (NHMZ); 1 ♂, Kanzonze, Katanga, 20.ii.1968 (NHMZ); UGANDA: 4 ♂, Katera, Sango Bay, vi.1938 & xi.1953 (NHMZ); 1 ♂, Budongo Forest, 10.ii.1939 (NHMZ); ZAMBIA: 6 ♂, 1 ♀, Ikelenge, viii-ix.1961, 28.iv.1963, v.1964, 28.iv.1972, 7 & 20.v.1983 (NHMZ); 4 ♂, 4 ♀, Kashiba, Mpongwe, 5.v.1974 (NHMZ & AHC); 1 ♀, Chambezi R., x.1898-i.1899 (HCO: color slides).

Distribution. Ghana, Nigeria, Cameroon, Equatorial Guinea (Fernando Poo), Congo, Gabon, Central African Republic, Zaire, W Uganda, W Tanzania, N Zambia.

***Bebearia theognis* (Hewitson), stat. rev.**

(Figs. 7, 14, 20)

Euryphene theognis Hewitson, 1864:[41], pl. [21], figs. 3, 4 (♂). Type-locality Ashanti, Ghana.

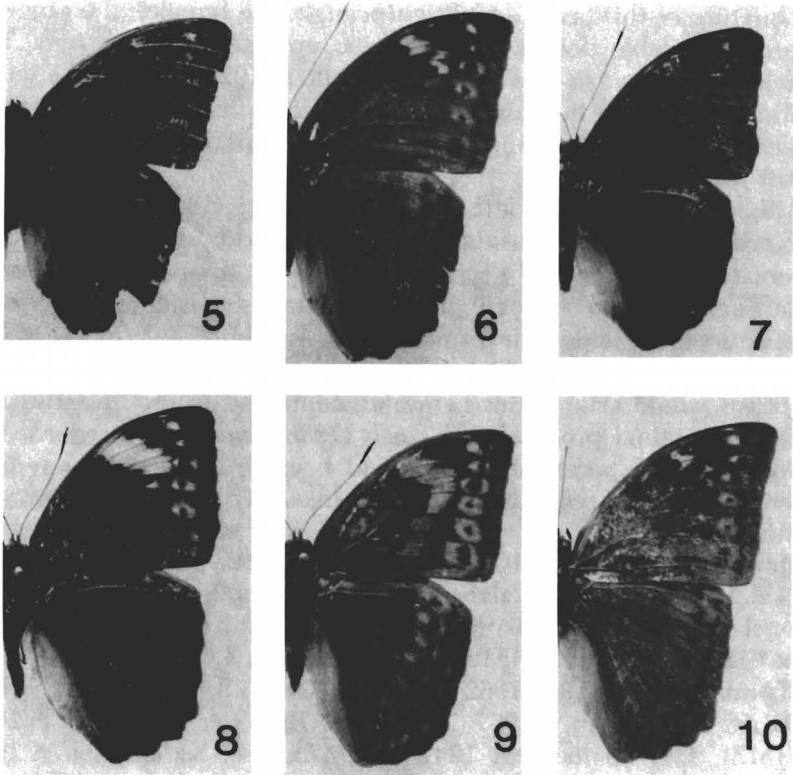
Euryphene theognis, Aurivillius, 1899:198; 1912:177, pl. 40 (♂ ♀); Peters, 1952:62.

Bebearia theognis, Cornes, Riley & St. Leger, 1973:13; Larsen, Riley & Cornes, 1980:16 (Nigeria); D'Abbrera, 1980:310, partim (♂ only).

Euphaedra cocalia theognis, Carcasson, 1981:165.

Bebearia mardania, Hecq, 1988:120 (♀ partim, ♂) (Ghana & Nigeria). Misidentification.

Diagnosis. The male is easily identified by its rounded hindwings,



FIGS. 5-10. *Bebearia* species, males. 5, *B. m. mardania*. 6, *B. senegalensis katera*. 7, *B. theognis*. 8, *B. guineensis*. 9, *B. o. orientis*. 10, *B. b. badiana*.

lack of yellow subapical markings on the forewing, and by the distinctive valvae. The female resembles that of *B. guineensis* in having rounded hindwings and a broad pale subapical band on the forewing, but may be readily differentiated by the yellow coloration in this band.

Discussion. This is the most distinctive species in the complex and Carcasson (1981) was incorrect in placing it as a subspecies of *B. cocalia* (= *mardania*), as the distinctive male valvae readily show. Hecq (1988) regarded *B. theognis* as a synonym of *B. mardania* but this is based on an incorrect interpretation of both the latter species and *B. cocalia*. It appears to replace *B. mardania* from Ghana to Nigeria and may be responsible for the disjunct distribution seen in that species.

Material examined. GHANA: 2 ♂, Takoradi, 24.xii.1939 (NHMZ); TOGO: 1 ♂, Amezdofe-Vane, 2300', xi-xii.1932 (NHMZ); NIGERIA: 4 ♂, 1 ♀, Lagos, iv.1955 (NHMZ); 2 ♂, 1 ♀, Ubiaja, Benin Province, vi & vii.1955 (NHMZ).

Distribution. Ghana, Togo, Nigeria.

***Bebearia guineensis* (Felder & Felder), stat. rev.**

(Figs. 8, 15, 21)

Euryphene guineensis Felder & Felder, 1867:430, partim (♂ only). Type-locality Calabar, Nigeria.

Euryphene mardania, Butler, 1871:74, partim, pl. 28 (♂ only) (Fantee, Ghana); Aurivillius, 1899:198, partim; 1912:177, partim; Peters, 1952:62. Misidentifications.

Euryphene guineensis, Aurivillius, 1891:210 (♂) (Cameroon).

Euryphene mardania ab. *paludicola* Schultze, 1920:721 (♀). Type-locality N'ginda, S. Cameroon. **Syn. nov.**

Euryphene mardania ♀ f. *paludicola*, Peters, 1952:62.

Euphaedra mardania, Fox, 1968:1266, partim (Congo); Carcasson, 1981:46, partim (♂ only) (Cameroon). Misidentifications.

Bebearia theognis, D'Abrera, 1980:310, partim (♀ only) (Kumasi, Ghana). Misidentification.

Bebearia mardania, D'Abrera, 1980:310, partim (♂ only); Berger, 1981:149, partim (♂ f. *mardania*), pl. 119, figs. 3, 4 (♂) (Zaire). Misidentifications.

Bebearia cocalia guineensis, Hecq, 1988:121, partim (♂).

Bebearia cocalia continentalis, Hecq, 1988:122, partim (♀ only) (Beni, Zaire). Misidentification.

Diagnosis. The male is easily recognized by the well marked, broad yellow subapical band on the forewing and by the lack of a purplish suffusion to the black apical area. The valvae are shorter than in the other species and the hindwing is a little less angled than in *B. senegalensis*, *B. badiana*, and *B. orientis*. The female resembles that of *B. theognis* in having the hindwing not distinctly angled, but has the subapical band of the forewing white without any yellow coloration.

Discussion. This species had been lost in the synonymy of *B. mardania* since Aurivillius (1899) until resurrected as a subspecies of *B. cocalia* by Hecq (1988). The shorter male valvae show it to be distinct. It is sympatric with *B. mardania*, *B. senegalensis*, and *B. theognis*. Felder and Felder's (1867) original material included a male of this species and a female of *B. senegalensis katera*; this incorrect association of the sexes was maintained by Hecq (1988). The description of form *paludicola* by Schultze (1920) is very brief, but sufficient to identify it as a female of this species, particularly as he noted its similarity to the female of *B. theognis* in a footnote. The female of *B. cocalia continentalis* (Hecq 1988) also belongs here.

Material examined. NIGERIA: Lectotype ♂, labelled Calabar vetus, Type/ guineensis n./ Felder Colln./ Syntype, here designated (BMNH: color slides); 2 ♂, 1 ♀, Ajessor-Ikom, ii.1958 (NHMZ); 1 ♀, Ikom, iii.1956 (NHMZ); 1 ♂, Mamu Forest, Awka, Onitha Province, iv.1960 (NHMZ); 2 ♂, Ayangba, Benin State (AHC); CONGO: 1 ♂, Mbe, 1-10.i.1974 (NHMZ); 1 ♂, Etoumbi Forest, ix-x.1960 (NHMZ); ANGOLA: 1 ♂, Lucala R., 228 km E of Luanda, 6.x.1964 (NHMZ).

Distribution. Ghana, Nigeria, Cameroon, Gabon, Congo, W Zaire, Angola.

Bebearia orientis (Karsch)

(Figs. 9, 16, 22)

- Euryphene senegalensis*, Oberthür, 1878:28; Holland, 1896:752. Misidentifications.
Euryphene orientis Karsch, 1895:277 (♂ ♀). Type-locality Dar-es-Salaam, Tanzania.
Euryphene senegalensis pseudocalia Staudinger, 1896:369 (♂ ♀). Type-localities Usagara & Lindi, Tanzania.
Euryphene senegalensis orientis, Neave, 1910:37 (lower Luangwa Valley, Zambia); van Someren, 1939:48, pl. 12, 13 (E. Kenya).
Euryphene mardania orientis, Peters, 1952:62.
Bebearia senegalensis orientis, Pinhey, 1965:92, pl. 19.
Bebearia mardania orientis, Pennington, 1978:70, pl. 88, 89; D'Abbrera, 1980:310.
Bebearia orientis, van Son, 1979:117, pl. 13, Kielland, 1985:271; 1990:118.
Euphaedra mardania orientis, Carcasson, 1981:165.
Euphaedra mardania, Dowsett, 1983:61, partim (Malawi). Misidentification.
Bebearia cocalia orientis, Hecq, 1988:123.

Diagnosis. The pattern characters noted in the key, particularly the submarginal coloration on the hindwings in both sexes, enable identification of this species. The male valvae also are distinctive.

Discussion. Often regarded as a subspecies of *B. mardania* or *B. senegalensis*, the different shape of the male valvae and pattern details support the recognition of this taxon at the species level, as suggested by van Son (1979). The female from Tukuuyu, SW Tanzania recorded by Kielland (1990) appears to belong to *B. senegalensis katera*.

Material examined. TANZANIA: 1 ♀ (syntype of *E. orientis*), labelled Dar-es-Salaam, Deutsch O.-Africa, 1895-7, v. Brgsn./ Deutsch Ost-Africa, 89-90, Richelm./ Origin. (ZMHU: color slides); 1 ♂ (syntype of *E. pseudocalia*), labelled Lindi, Deutsch Ost-Africa, 92-93, Knchhr./ Origin. (ZMHU: color slides); ZAMBIA: 1 ♂, Luangwa R., 13.x.1904 (HCO: color slides). Also 38 ♂ ♂, 22 ♀ ♀, from: KENYA: Mombasa; TANZANIA: Mukenge (Rufiji, Ulanga dist.); MALAWI: Mulanje, Zomba, Cholo, Mkuwadzi Forest; MOZAMBIQUE: Dondo Forest, Beira, Inhaminga; ZIMBABWE: Dichwe Forest (near Manghura), Honde Valley, Mutare, Vumba, Umvumvumu R. (near Chimanimani), Mt. Selinda (all NHMZ).

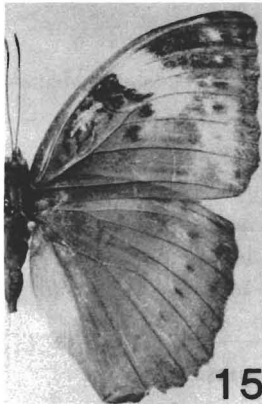
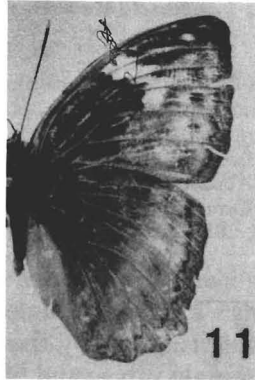
Distribution. S Somalia, E Kenya, E Tanzania, Mozambique, S Malawi, E Zambia, N & E Zimbabwe.

Bebearia orientis insularis Kielland

- Bebearia orientis insularis* Kielland, 1985:271, 272, figs. 1-4 (♂ ♀); 1990:118, pl. 36. Type-locality Ngezi Forest, Pemba Is., Tanzania.
Bebearia cocalia insularis, Hecq, 1988:123.

Diagnosis. The male has the subapical band of the forewing generally wider than in the typical subspecies. The female has the ground color brownish rather than reddish-brown in the basal half, whilst the distal half is pale ochraceous, paler than in typical *orientis*.

Distribution. Pemba Island, Tanzania.



FIGS. 11-17. *Bebearia* species, females. 11, *B. m. mardania*. 12, *B. s. senegalensis*. 13, *B. s. katera*. 14, *B. theognis*. 15, *B. guineensis*. 16, *B. o. orientis*. 17, *B. b. badiana*.

***Bebearia badiana* (Rebel), stat. rev.**

(Figs. 10, 17, 23)

- Euryphene badiana* Rebel, 1914:245 (♂ ♀). Type-locality Rutshuru, NE Zaire.
Euryphene mardania badiata, van Someren, 1939:52, pl. 14, 15 (♂ ♀); Carcasson, 1958:9.
 Incorrect subsequent spelling.
Euryphene mardania badiana, Peters, 1952:62.
Bebearia mardania badiana, D'Abbrera, 1980:310.
Euphaedra mardania badiana, Carcasson, 1981:165.
Bebearia cocalia badiana, Hecq, 1988:122.

Diagnosis. Similar in general appearance to *B. mardania* but both sexes have a more angular hindwing. Males can be separated with confidence from *B. senegalensis* only by the shape of the valvae.

Discussion. The broader male valvae and more extensive brown areas on the female suggest that this species is distinct from the closely related *B. senegalensis* and *B. orientis*, two species with more elongate and apically produced valvae and females that appear to mimic the common form of *Danaus chrysippus* (Linnaeus). Since *B. orientis* currently is accepted as a distinct species, it follows that *B. badiana* also must be regarded as a separate species.

Material examined. ZAIRE: Lectotype ♂, labelled *Euryphene badiana* Rbl. Type ♂ / Kutshuru Ebene [sic], 1400–1600 m, vi.1910, Grauer, here designated; Paralectotype ♀, same data but labelled Type ♀ (both NHMV: color photographs); UGANDA: 4 ♂, 1 ♀, Mbale, xii.1949 (NHMZ); 1 ♂, 1 ♀, Entebbe, v.1952 & x.1961 (NHMZ); 2 ♂, Tororo Forest, 29.vii.1965 & 1.viii.1966 (NHMZ); KENYA: 2 ♀, Kakamega Forest, 29–30.vii.1965 (NHMZ).

Distribution. NE Zaire, Uganda, W Kenya.

***Bebearia badiana dealbata* (Carcasson), stat. rev.**

- Euryphene mardania dealbata* Carcasson, 1958:8, figs. e, f (♂ ♀). Type-locality Mikinduri, Meru, E Kenya.
Bebearia dealbata dealbata, D'Abbrera, 1980:310.
Euphaedra mardania dealbata, Carcasson, 1981:165.
Bebearia cocalia dealbata, Hecq, 1988:123.

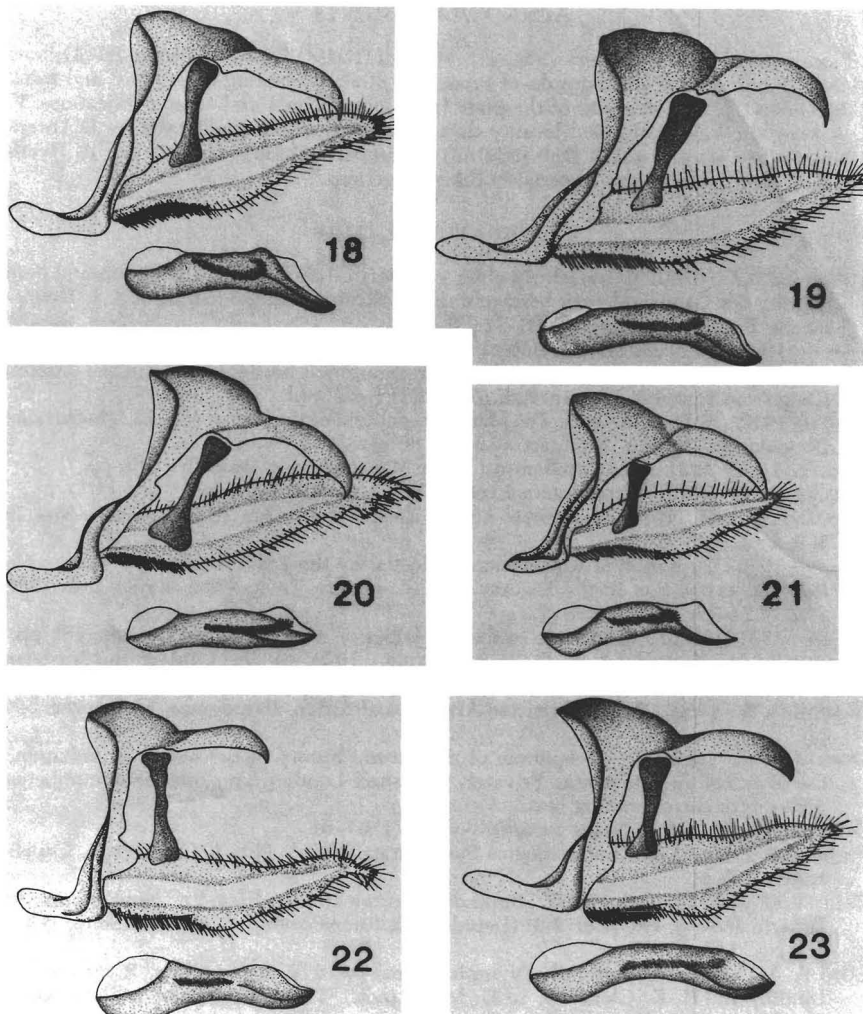
Diagnosis. The female differs from that of typical *badiana* in having the pale subapical band of the forewing yellowish orange rather than white. This band is also more or less horizontal towards the costa.

Distribution. East-central Kenya.

***Bebearia badiana taveta* Clifton, stat. rev.**

- Bebearia dealbata taveta* Clifton, in D'Abbrera, 1980:310 (♂ ♀). Type-locality Taveta, S Kenya.
Euphaedra mardania taveta, Carcasson, 1981:188.

Diagnosis. The female differs from that of typical *badiana* in the



FIGS. 18–23. *Bebearia* species, lateral view of aedeagus and male genitalia with left valvae removed. 18, *B. m. mardania*. 19, *B. s. senegalensis*. 20, *B. theognis*. 21, *B. guineensis*. 22, *B. o. orientis*. 23, *B. b. badiana*.

more orange ground color and in the white subapical band of the forewing being more or less horizontal towards the costa. This band is narrower than in subspecies *dealbata*.

Material examined. KENYA: 1 ♀, Tauta, v.1891 (NHMZ).

Distribution. South-central Kenya.

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