METAMORPHOSIS

LEPIDOPTERISTS' SOCIETY OF AFRICA

Volume 33: 79–84

ISSN 1018–6490 (PRINT)
ISSN 2307–5031 (ONLINE)

Taxonomic notes on *Liptena fatima* (Kirby, 1890), with description of a new subspecies (Lepidoptera: Lycaenidae: Poritiinae)

Published online: 27 September 2022
urn:lsid:zoobank.org:pub:6CE90B72-7474-4A5D-A202-03505D7C52A3
DOI: https://dx.doi.org/10.4314/met.v33i1.10

Michel Libert
8, rue Henry Barbet, 7600 Rouen, France. Email: michelibert@free.fr

Abstract: A lectotype of *Liptena fatima* (Kirby, 1890) is designated and the subspecies *nigeriana* ssp. nov. from Nigeria is described. It is shown that *L. fatima* does not occur in Ghana, and the distribution of its subspecies is defined. It is also shown that the closely related *Liptena alluaudi* Mabille, 1890 is present in western Cameroon.

Key words: Rhopalocera, Liptenini, taxonomy, *Liptena alluaudi*, Afrotropical region, Africa, Kuilu

Citation: Libert, M. 2022. Taxonomic notes on *Liptena fatima* (Kirby, 1890), with description of a new subspecies (Papilionoidea: Lycaenidae: Poritiinae). *Metamorphosis* **33**: 79–84.

INTRODUCTION

Liptena fatima (Kirby, 1890) is not considered a problematic species, but the author undertook an investigation after finding that specimens collected by Robert Ducarme in north-eastern DRC were quite different from those he had captured in Cameroon between 1982 and 1989. The types of *L. fatima* from Cameroon were located in the Berlin museum, and this showed that the specimens collected in eastern Nigeria represent a distinct taxon (*L. fatima nigeriana* ssp. nov.) and that the distribution of *L. f. fatima* hardly extends westward beyond the Niger River. On the other hand, the great variability of *L. fatima* in Central Africa did not allow the Kivu population to be characterised sufficiently, and it is presented below as *L. fatima* ssp. undescribed. Finally, it was also found that *L. alluaudi* Mabille, 1890, a West African species not very different from *L. fatima nigeriana* ssp. nov., is distributed to the east as far as western Cameroon (Fig. 1).

METHODS AND MATERIALS

Genitalia

Methods for preparation and examination of genitalia were described in Libert, 2022a.

DNA barcode analysis

The analysis was performed as reported in Libert 2021. MP (Maximum Parsimony) and ML (Maximum Likelihood) trees were constructed with the same 130 sequences used by Libert, 2022b. The sequences obtained for *L. fatima* are included in the tree of Fig. 2 in Libert, 2023.

Abbreviations

Received: 15 August 2022
Accepted: 22 September 2022

ABRI: African Butterfly Research Institute, Nairobi, Kenya.
ANHRT: African Natural History Research Trust, Leominster, United Kingdom.
CML: Collection Michel Libert, Rouen, France.
DRC: Democratic Republic of the Congo.
MfN: Museum für Naturkunde, Berlin, Germany.
MNHN: Muséum national d'Histoire naturelle, Paris, France.
MRAC: Musée Royal pour l'Afrique Centrale, Tervuren, Belgique.
NHM: Natural History Museum, London, United Kingdom.

RESULTS

***Liptena fatima* (Kirby, 1890)** (Figs 18–27)

Tingra fatima Kirby, 1890. – Descriptions of new species of African Lycaenidae, chiefly from the collections of Dr. Staudinger and Mr. Henley Grose Smith. – *Annals and Magazine of Natural History*, 6(6): 268 [Cameroon; illustrated in Grose-Smith, 1891 (pl. XV, Figs 8, 9)].

The original description of *Liptena fatima* was based on specimens from the Staudinger collection from Cameroon; the localities of collection, the number of specimens and the name of the collector were not specified.

Stempffer *et al*. (1974: 133) wrote that the types were probably destroyed, without designating a neotype, or a lectotype; however despite this statement, a "Typus" label has been placed next to two specimens from the Staudinger collection (a male and a female) in the MfN.

Both were collected by Preuss in western Cameroon ("Kamer. Int."); they bear a purple label characteristic of the typical material of the Staudinger collection, and therefore they can be considered as syntypes. The male is designated below as a lectotype and the female as a neallotype.

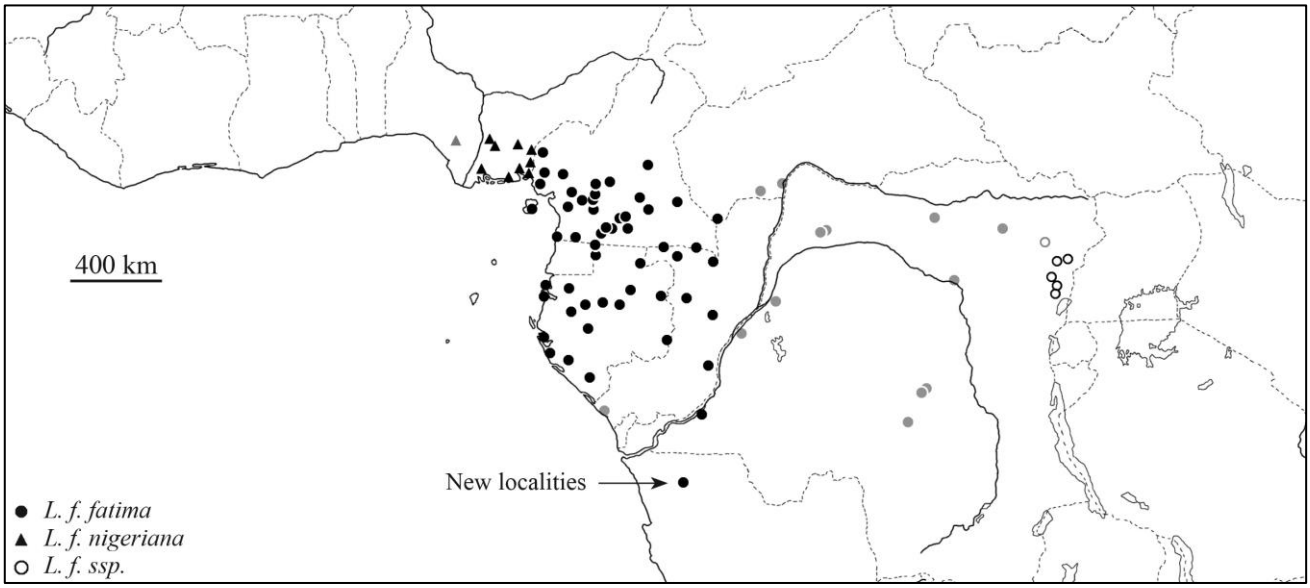
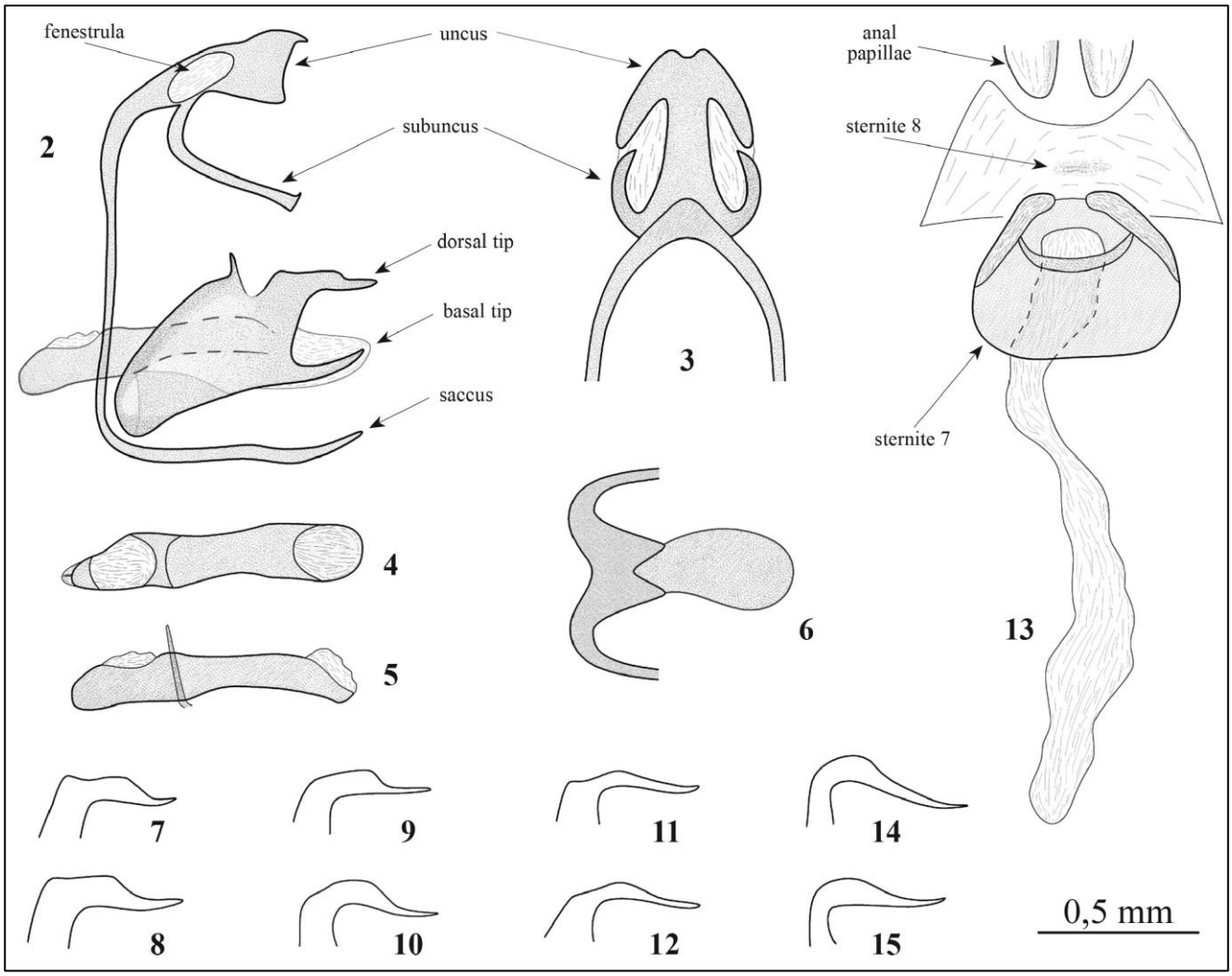
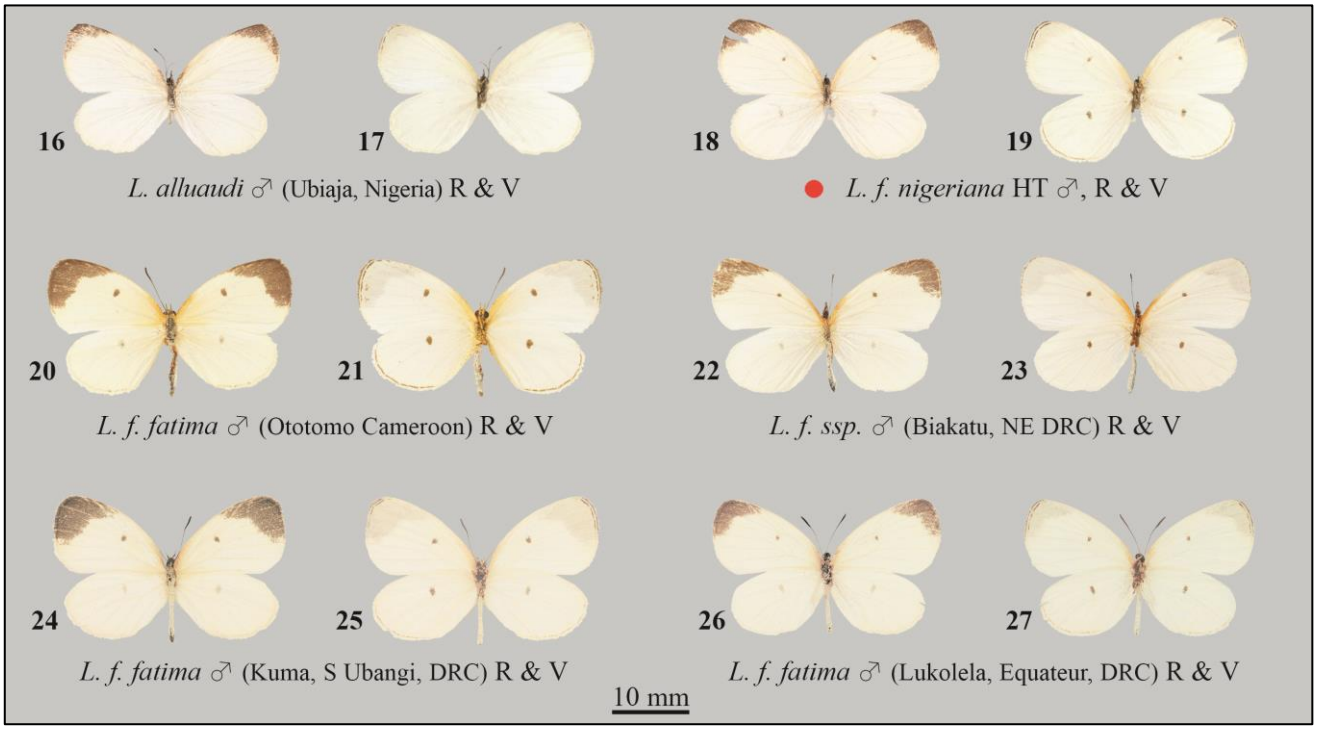


Figure 1 – Distribution map for *L. fatima* subspecies. Grey dots indicate localities that are problematic for reasons given in the text, and the position of the new localities mentioned in the Addendum (p. 84) is indicated.



Figures 2 to 15 – Genitalia of *Liptena fatima* (Figs 2–13) and *L. alluaudi* (Figs 14–15). **2–7** ♂ *L. f. fatima.* Ebogo, Cameroon, prep. 120-034; **8** ♂ *L. f. fatima* Nkolkomou, nr. Yaoundé, Cameroon, prep. 120-142; **9** ♂ *L. f. nigeriana*, Awka, Nigeria, prep. 120-050; **10** idem, prep. 120-056; **11** ♂ *L. fatima* ssp. Biakatu, NE DRC, prep. 120-036; **12** idem but Mamove, NE DRC, prep. 120-043; **13** ♀ idem, prep. 120-037; **14** ♂ *L. alluaudi* Ubiaja, Nigeria, prep. 120-091; 15 idem, prep. 120-144.
Views: **2** Entire genitalia left lateral; **3** uncus & tegumen, dorsal; **4** aedeagus, dorsal; **5** aedeagus, left lateral; **6** saccus, ventral; **7–12 & 14–15** dorsal tip of left valva, left lateral.



Figures 16 to 27 – *Liptena alluaudi* (Figs 16, 17); *Liptena fatima nigeriana* ssp. nov. (Figs 18, 19); *Liptena fatima fatima* (Figs 20, 21 & 24–27); and *Liptena fatima* ssp. (Figs 22, 23).

There are also some fifteen other specimens from Cameroon in this museum, at least seven of which were collected in the same area, including Barombi and Johann Albrecht Höhe Station. At least two other specimens were collected in southern Cameroon (Schultze collection; MfN); they differ from the previous ones by the slightly more extensive black apical patch on the forewings upperside.

On the other hand, the apical patch is greatly reduced in the many specimens collected in eastern Nigeria (Stempffer collection, MNHN), and the difference of facies justifies the description of the subspecies *nigeriana* (genitalia are similar in males from Nigeria and Cameroon).

Liptena fatima fatima (Kirby, 1890) (Figs 20–21, 24–27)

Lectotype: male, Kamer. int. (*Preuss*); MfN.
Neallotype: female, Kamer. int. (*Preuss*); MfN.

Description of types

Facies
Forewing length: ♂ 14–16 mm, ♀: 15–17 mm.
Upperside entirely dull white, variably tinged with cream, with exception of suffusion of orange-yellow scales of variable extent at base of forewings and characteristic black apical patch on forewings. This patch extends for 5–6 mm along costal edge, where it is not very wide (≤ 2 mm); it then forms marked angle at vein 6 and widens to 3–4 mm along external edge, up to vein 3, and often further; sometimes extending into a thin edging that can reach vein 2. Second characteristic element on forewings are tiny black spots at end of cells (discoidal spots). On hindwings only very thin brown marginal line, often barely distinct.
Underside Four discoidal spots present, usually a little larger on hindwings; on forewings, apical patch of upperside visible by translucency and only thin black marginal line visible; on hindwings marginal line is black and more apparent.

Genitalia
Male genitalia of different populations are very similar: the only difference observed is in the dorsal tip of the valves, which is somewhat thinner in Nigerian males (subspecies *nigeriana*) than in Cameroon males (nominate subspecies), and even thinner in males from north-eastern DRC (*L. fatima* ssp.). The tip is more or less turned inwards from the valves, and its appearance varies considerably with the angle of observation; Figs 7–12 show it from angles as close to each other as possible (the tip being seen in profile). The shape of the tip is also the only difference between the males of *L. fatima* and those of *L. alluaudi* (Figs 14, 15). Another equally tenuous difference is the tiny spur that adorns the elbows of the subunci of the two males from South Ubangi that were dissected (abdomens kindly sent by H. Takano, ANHRT). The genitalia of the three dissected females (Nigeria, Cameroon, and NE DRC) are similar; Fig. 13 illustrates the genitalia of the one from NE DRC.

Distribution (Fig. 1)

The above description applies to all specimens collected in western Cameroon, including in localities very close to the border with Nigeria [Barombi and Johann Albrecht Höhe Station (MfN), Munyenge (CML) and probably Kitta (Aurivillius, 1895: 202)]; although not precisely localised, the type locality of *L. fatima* is in this region, where no specimens with reduced apical patch (subspecies *nigeriana* ssp. nov.) were caught. On the other hand, the patch is reduced in all specimens collected west of the border with Nigeria and, as surprising as it may seem, this border does appear to separate the two subspecies. The nominate subspecies is found throughout the forested part of western Central Africa [Cameroon (CML); continental Equatorial

Guinea ('Ntemgebiet', MfN); and Bioko Island[1]; Congo; Gabon (Vande weghe, 2010: 346); and western DRC (Kimuenza, near Kinshasa; Schultze, 1923: 1177)].

Many similar specimens were collected further east, where fairly homogeneous and more or less different series were also collected, especially some 20 specimens with reduced apical patch (i.e. similar to those from Kivu) in Lukolela (Figs 26, 27) (Cuypers collection, ANHRT) and 5 with a more developed apical patch (Figs 24–25), from three localities in South Ubangi (Kuma, Budjala and Kwokoro).

These particularities probably reflect the variability of the nominate subspecies, to which they are attributed on the map; the localities mentioned by Stempffer *et al*. (1974: 133) are also shown on Fig. 1, with the exception of 'Upper Kasaï District', which is not precise enough, and "Kuilu, Gabon, 1892 (Mocquerys)", which results from a confusion, which is explained below.

On a photo of the *L. fatima* at the MfN, we see a specimen bearing a label whose visible part says 'Kuilu' and, below, a handwritten 'O.', followed by 'Gabun'. Théo Léger at MfN examined the labels and discovered that the specimen bears two superimposed labels; one indicates, on three lines, 'Kuilu/ Congo/Mocqu.', but the last two lines are hidden by the other label which indicates 'O. Gabun/ Mocq.' It results that the locality called Kuilu (or Kouilou, or Kwilu) is really in the south of Congo. One could even specify the former French Congo and not the former Belgian Congo (ex Zaire, now DRC), since several authors place Kuilu in Zaïre: Stempffer *et al.* [1974: 164 for *L. undina* (Grose-Smith & Kirby, 1894)], Larsen [2005: 149 for ssp *tripunctata* of *Obania o-rubrum* Grose-Smith & Kirby (1894)], d'Abrera [2009: 650 (for *L. turbata* (Kirby, 1890)].

As Kuilu is the type locality of several taxa, these details are important, as exemplified by *Liptena undina*. The type-locality of *L. undina* is also 'Kuilu' (four syntypes were also seen in the MfN, all labelled 'Kuilu / Congo / Mocq.' (and even 'Franz. Congo 1893' for one). There could be two subspecies of *L. undina*, and it would be necessary to know as precisely as possible the position of the type-locality to determine which is the nominate one. However, the position of Kuilu is not known precisely, and it is shown in Fig. 1 by a grey dot in southern Congo.

In the DRC, *L. fatima* has not been observed in Shaba, and Lusambo (in Sankuru, only slightly further south than Kimuenza) marks the southern limit of its distribution; it has also not been observed in Angola [the specimens mentioned under this name in Mendes *et al*. (2019: 183) are *L. undularis* Hewitson, 1866[2]] – but see Addendum on p. 84.

***Liptena fatima nigeriana* ssp. nov**. (Figs 9, 10, 18, 19)

Holotype: male, Nigeria, Awka, Mamu Forest, iv.1960; genitalia Libert, 120–050 (Fig. 9); MNHN.
Allotype: female, Nigeria, Awka, Mamu Forest, iv.1960; genitalia Libert, 120–160 (Fig. 10); MNHN.

Description and diagnosis

Most differences with the nominate subspecies were given by Stempffer *et al*. (1974: 133). Males and females are noticeably smaller (1–2 mm), their upperside is purer white and the black markings are reduced: black apical patch much narrower, with a faintly marked angle between the two parts, and smaller and less apparent discoidal spots, sometimes barely visible. No intermediate specimens between the two subspecies were found.

On the other hand, the obsolete appearance of the discoidal spots could lead to the risk of confusion with *L. alluaudi* Mabille, 1890, since the presence of these spots in *L. fatima nigeriana* ssp. nov. is the only difference between the two taxa (male genitalia of the two are also very similar). The risk is however very low, as the spots are (almost) always visible in *L. fatima nigeriana* ssp. nov., even if sometimes weakly.

Distribution (Fig. 1)

All specimens of *L. fatima nigeriana* ssp. nov. were collected in eastern Nigeria, sometimes very close to the border with Cameroon [Rhoko (*leg*. Brophy, Warren Collection), Calabar (MRAC), Mkpot (ABRI)]; some specimens collected in the same region [Akpabuyo, Oban, or even Uwet; Stempffer *et al*. (1974: 133)] were not examined, and some may not be very different from the nominate subspecies (the authors mention 'intermediate specimens'), without questioning the existence of a distinct taxon in Nigeria.

Most Nigerian specimens were collected by T.H.E. Jackson east of the Niger River, in the type locality and in Obubra, a few others in Elele, north of Port Harcourt, but Larsen (2005: 145) mentions two localities west of the river, Sapoba in Nigeria and Abetifi, near Nkawkaw in Ghana.

L. fatima has not been observed in western Nigeria or Benin (Coache *et al*., 2017), and the only record of this species in Ghana is due to Kühne (1999), who also examined male genitalia. Larsen (2005: 145) considers this observation to be 'surprising, but authentic... and credible', and it is taken up by Williams (2019). However, these specimens were identified as *L. alluaudi* by Sz. Sáfián on a photo kindly sent by Lars Kühne.

The only other record west of Niger River is Sapoba, less than 100 km from the river; it is not really surprising (Larsen even places Sapoba in the Niger Delta), but it could not be confirmed and, as it represents the western limit of the distribution of this subspecies, the corresponding dot is in grey on the map.

Liptena fatima ssp. (Figs 22–23)

As early as 1924, two males of *L. fatima* were collected by Barns in the Semuliki Valley (Stempffer *et al*., 1974: 134); these authors mention only four other records in this region (Beni, Irumu), but more specimens were recently collected

[1] A male in the Hewitson collection (NHM; Stempffer *et al*., 1974: 133), probably taken by d'Abrera (1980: 442), who is cited by Viejo (1984: 367), himself quoted Spearman *et al*. (2000: 468).

[2] Two specimens from Inga and Sierra Cananga in NW Angola in the Lisbon museum (Portugal; Bivar de Souza, pers. com).

by Robert Ducarme in several localities in NE DRC. The differences between specimens given by R. Ducarme, and those from Cameroon in CML are at the origin of this study; the differences are specified in the description, but an isolated specimen can be difficult to identify.

The difference is less between the male genitalia of the two populations, but the strongest argument for the existence of two taxa is the relatively large difference between the barcodes of a male from Cameroon and a female from Kivu [1.4% on a ML tree built with 130 sequences obtained for many species of *Liptena* (Libert, 2022b: 157; 2023: 46)]. It is likely that the eastern taxon is confined to Kivu, but the great variability in the facies of specimens collected in Central Africa (see above) does not allow determining the western limit of its distribution.

It is therefore preferable to wait until the barcodes of further specimens are sequenced to name this taxon; on the map, grey circles represent localities considered 'uncertain' (approximately east of longitude 16° East).

Description & diagnosis

The most apparent difference with the nominate subspecies is the colour of the upperside, which is whiter (but not as much as in *nigeriana* ssp. nov.). At the base of wings, yellow is restricted to the base of the costal edge (6–7 mm), and it is often mixed with black scales that are sometimes very dense; the apical patch is slightly narrower and rarely goes beyond vein 3 and the discoidal spots are also slightly smaller. The same differences are found on the underside. Females are not different from the males.

Distribution

About forty specimens were examined; all were collected in several localities in NE DRC (Beni, Biakatu, Epulu, Makusa, Mamove, Mapimbi and Nduye), but *L. fatima* has not been observed in any of the high-altitude localities of the Mitumba Mountains where the mountain forest reigns. It also does not seem to be present in the forests of western Uganda east of the Albertine Rift, many of which have been extensively prospected, and the Semuliki marks the eastern limit of the species' distribution.

Liptena alluaudi Mabille, 1890 (Figs 16–17)

L. alluaudi closely resembles *L. fatima nigeriana* ssp. nov., from which it differs in the total absence of discoidal spots, on both the upper and under sides. No intermediate specimens were observed, but two females of *L. fatima* from Nigeria labelled as *L. alluaudi* by Stempffer were seen at the MRAC; the discoidal spots are visible only on the underside of the hindwings in one (from Awka), all four spots are visible in the other (Awgu, 45 km SE Awka).

L. alluaudi, which is certainly present in almost the entire range of *L. fatima nigeriana* ssp. nov., also coexists with the nominate subspecies in western Cameroon. Indeed, a specimen of *L. alluaudi* captured by Sjöstedt (locality not indicated, but most likely in western Cameroon) was photographed at the Stockholm Museum; this observation corresponds with Aurivillius (1895: 202), who mentions the capture of a pair in Itoki, north of Mount Cameroon (near Munyenge, where the author caught *L. f. fatima*). The distribution of *L. alluaudi* given by Aurivillius (1918: 334) already included Cameroon, but this country is not indicated by Stempffer *et al*. [1974: 136 (western limit = Awka)], nor by Larsen [2005: 145 (limit = Gambari, near Lagos)].

ACKNOWLEDGEMENTS

This work could not have been undertaken without the specimens offered by Robert Ducarme. I am also very grateful to Michel Arnoux, who gave specimens recently captured in Cameroon for barcoding, to Sz. Sáfián, who improved the text of the manuscript, and to all the people who helped me by sending photos, Antonio Bivar de Souza (Lisbon), Steve Collins (ABRI), Lars Kühne, Théo Léger (MfN), Hitoshi Takano (ANHRT) and Robert Warren.

LITERATURE CITED

AURIVILLIUS, C. 1895. Beitrage zur Kenntnis der Insektenfauna von Kamerun. 2. Tagfalter. *Entomologisk Tidskrift*, **16**: 195–224.

AURIVILLIUS, C. 1918. Genre *Liptena*, *In* Seitz (traduction française) : *Les Macrolépidoptères du Globe*, IVème partie : *Les Macrolépidoptères de la Faune Ethiopienne*, **13** : *Diurnes Ethiopiens*.

COACHE, A., RAINON, B. & SINGOZAN, A. 2017. *Atlas illustré des Rhopalocères du Bénin*. CEREB (Centre d'Etudes et de Recherches Entomologiques Béninois), Université d'Abomey–Calavi, 732 p.

D'ABRERA, B., 1980. *Butterflies of the Afrotropical Region.* Lansdowne, Melbourne, 593 pp.

D'ABRERA, B., 2009. *Butterflies of the Afrotropical Region.* New and revised edition. *Part III, Lycaenidae, Riodinidae*. Hill House, Melbourne, London 260 pp.

DUCARME, R. 2018. The butterflies (Lepidoptera: Papilionoidea) of the north-eastern Democratic Republic of Congo. *Metamorphosis*, **29**: 22–36.

GROSE-SMITH, H. 1891. *In* GROSE-SMITH, H.1897–1902. *Rhopalocera exotica, being illustrations of new, rare and unfigured species of butterflies* **3**, London; 214 pp., 60 pls.

KÜNHE, L. 1999. Contribution to the Lepidoptera-Fauna of Ghana – Part I: results of the expeditions 1992-1997 (Lepidoptera, Papilionoidea, Hesperioidea), *Esperiana Buchreihe zur Entomologie*, Bd **7**: 399–424.

LARSEN, T.B. 2005. *Butterflies of West Africa*. 2 vol., 596 pp., 125 colour plates. Apollo Books, Stenstrup, Denmark.

LIBERT, M., 2022a. Notes révisionnelles sur le complexe de *Liptena praestans* (Grose-Smith, 1901) (Lepidoptera, Lycaenidae, Poritiinae). *Lambillionea*, **122(1)**: 54–65.

LIBERT, M. 2022b. Notes sur les taxons proches de *Liptena decipiens* (Kirby, 1890) et description de quatre nouvelles espèces (Lepidoptera, Lycaenidae, Poritiinae). *Lambillionea*, **122(3)**: 156–178.

LIBERT, M. 2023. Les espèces proches de *Liptena turbata* (Kirby, 1890) et de *Liptena similis* (Kirby, 1890) (Lepidoptera, Lycaenidae, Poritiinae). *Lambillionea*, **123(1)**: 45–59.

MENDES, L.F., BIVAR-DE-SOUZA, A. & WILLIAMS, M.C. 2019. The Butterflies and Skippers (Lepidoptera: Papilionoidea) of Angola: an updated checklist. *In*: Huntley, B.J., Russo, V., Lages, F. & Ferrand, N.

[Eds.]. Biodiversity of Angola. Science & Conservation: A Modern Synthesis. Springer Open.
SCHULTZE, A. 1923. *In* Schultze, A. & Aurivillius, C. 1923. Lepidoptera. III. Teil. *Ergebnisse der Zweiten Deutschen Zentral-Afrika Expedition*, **1(17)**: 1113–1242.
SPEARMAN, L.A., ORFE, N.A. & WEINTRAUB, J.D. 2000. An annotated list of the butterfly fauna of Bioko Island, Equatorial Guinea (Lepidoptera: Papilionoidea, Hesperioidea). *Transactions of the American Entomological Society*, **126(3&4)**: 447–475.
STEMPFFER, H., BENNETT, N.H. & MAY, S.J. 1974. A Revision of some groups of *Liptena* Westwood (Lepidoptera: Lycaenidae). *Bulletin of the British Museum (Natural History)* (Entomology), **30(2)**: 109–181.
VANDE WEGHE, G.R., 2010. *Les papillons du Gabon*. Wildlife Conservation Society, Libreville, Gabon. 424 pp. + 132 colour plates.
VIEJO, J.L. 1984. Contribución al conocimiento de las mariposas del Golfo de Guinea (Lep., Papilionoidea). *Eos, Madrid*, **60**: 335–369.
WILLIAMS, M.C. 2022. Afrotropical Butterflies. Genus Liptena. https://metamorphosis.org.za/articlesPDF/1171/215%20Genus%20Liptena%20Westwood.pdf.

ADDENDUM

Shortly after the article was accepted for publication the author was informed that three specimens of the nominative subspecies were indeed collected in two neighboring localities in the northwest province of Uige (Inga and Sierra Cananga). These specimens are in the collection of A. Bivar de Souza, who communicated this information for which he is thanked.

The southern limit of the distribution of *L. fatima*, previously constituted by two localities in the Democratic Republic of Congo [Kinshasa and Lusambo (Sankuru)], is therefore approximately 300 km further south, and Fig. 1 has been modified accordingly.