Onychium, 19(1): 23-54
ISSN: 2974-6949 (online)
1824-2669 (printed)

Published 31 March 2026
www.nuovogruppoentomologicotoscano.it

Neuropterida of Sierra Leone (Insecta: Neuroptera)

Emilio INSOM[1, a, *] & Fabio TERZANI[1, b]

[1] Sistema Museale di Ateneo, Università degli Studi di Firenze, Museo di Storia Naturale, Sede "La Specola", via Romana 17, I-50125 Florence, Italy
E-mail: [a]emilio.insom@gmail.com; [b]libellula.ter@gmail.com
*Corresponding author

Abstract. The study of material preserved at the Museum of Natural History "La Specola", University of Florence (MZUF), allows to improve the knowledge on Neuroptera from Sierra Leone. As results 42 species are recorded, most of them being new to Sierra Leone, although known to occur in neighbouring countries. A new species, *Ceratochrysa sierraleonensis* sp. nov. is described, in addition to *Ceratochrysa antica* (Walker, 1853), which has already been documented in Sierra Leone.

Riassunto. *Neuropterida della Sierra Leone (Insecta: Neuroptera)*. L'esame di materiale del Museo di Storia Naturale "La Specola", 'Università di Firenze (MZUF) permette di incrementare le conoscenze sui Neurotteri della Sierra Leone. I risultati permettono di censire 42 specie, la maggior parte delle quali non erano note per la Sierra Leone, sebbene presenti in Paesi confinanti. Viene descritta una nuova specie, *Ceratochrysa sierraleonensis* sp. nov., che si aggiunge alla *Ceratochysa antica* (Walker, 1853) nota per la Sierra Leone.

Key works. Afrotropical region, West Africa, Sierra Leone, Neuroptera, new specie, new records.

ZooBank registration. https://zoobank.org/NomenclaturalActs/708767ad-d2d2-4ec2-a833-3bf4a86a6a10

Citation: INSOM E. & TERZANI F., 2026. Neuropterida of Sierra Leone (Insecta: Neuroptera). *Onychium*, 19(1): 23-54.

Introduction

The knowledge of the neuropteran fauna in Sierra Leone is rather limited, mainly due to sporadic surveys. Therefore, it is necessary to refer to data from neighbouring countries. Fortunately, there has been an increase in descriptions and reviews of neuropterans in West Africa over the last 30 years, e.g., Mali. (MICHEL, 1999, 2000), Burkina Faso (PROST, 2013), Nigeria (PROST & POPOV, 2021), and Benin and Togo (PROST *et al*., 2022), as well as more general studies of the Afrotropical region. These are revisions with descriptions of new species (PROST, 1991, 1993, 2018; AKOUDJIN & MICHEL, 2011; MICHEL & AKOUDJIN, 2023) or genera (PROST, 1995, 1996, 1998; MICHEL & AKOUDJIN, 2012; MICHEL & MANSELL, 2010; MICHEL, 2014, 2019; ÁBRAHÁM, 2025), and mostly dealing with the review of distributions of the species treated including Sierra Leone in some cases.
In the present contribution, we provide a list of species identified to improve our knowledge on Neuroptera of Sierra Leone, with the description of a new species. These new data increased our knowledge about distribution of Neuroptera in West Africa.

Materials and methods

Study area. Sierra Leone is 71,740 km^2 in size and is completely in the Guinean-Congolese bioclimatic region, which is the rainiest in sub-Saharan Africa. The average rainfall is 1,800 mm/year (CILLS, 2016). Sierra Leone can be divided into different areas depending on its environment. Here is how CILLS (2016), proceeding from the coast to inland: 1) the coast is mainly covered by mangrove forest, except for the mountainous peninsula (West Area) where the capital, Freetown, is located; 2) a belt of low coastal plains; 3) the inland plains with regrowing forests, woods, savannahs and agricultural land, which make up about half of the country; 4) the Koinadugu and Kono plateaus in the north-east of the country are mostly covered by a mosaic of woodlands and savannahs, interspersed with cropland; the northern part of these plateaus receives less rainfall and consequently has less dense and lower canopy cover; 5) the high mountains of the montane forest zone are dominated by tropical rain forests, often protected as Forest Reserve or National Park.

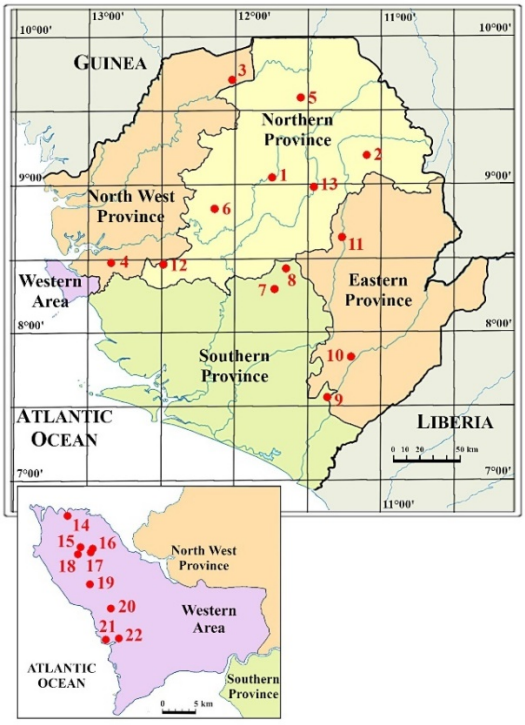

Fig. 1. Collecting stations: 1. Bumbuna; 2. Lama Mts area; 3. Outamba-Kilimi Ntl. Park; 4. Occra Hills; 5. Kabala; 6. Tabai River; 7. Kangari Hills near Mongeri; 8. Kangari Hills near Baomahun; 9. Tiwai Island Wildlife Sanctuary; 10. Kenema; 11. Sandia Village & Tama Forest Reserve; 12. Magbosi; 13. Sumania; 14. Freetown; 15. Regent; 16. Bathurst; 17. Bathurst Falls; 18. Sugar Loaf Mt.; 19. Guma Valley; 20. River Valley forest; 21. York; 22. Big Water.

Table 1. Approximate locations of collecting stations.

1. Bumbuna	(9°3'N – 11°45'W)	12. Magbosi	(8°27'N – 12°29'W)
2. Loma Mts.	(9°11'N – 11°6'W)	13. Sumania	(8°59'N – 11°29'W)
3. Outamba-Kilimi Ntl. Park	(9°45'N – 12°2'W)	14. Freetown	(8°29'N – 13°14'W)
4. Occra Hills	(8°27'N – 12°50'W)	15. Regent	(8°26'N – 13°13'W)
5. Kabala	(9°35'N – 11°33'W)	16 Bathurst	(8°26'N – 13°12'W)
6. Tabai River	(8°55'N – 12°12'W)	17. Bathurst Falls	(8°25'N – 13°12'W)
7. Kangari Hills near Mongeri	(8°19'N – 11°44'W)	18. Sugar Loaf Mt. near Regent	(8°25'N – 13°14'W)
8. Kangari Hills near Baomahun	(8°25'N – 11°40'W)	19. Guma Valley	(8°22'N – 13°12'W)
9. Tiwai Island Wildlife Sanctuary	(7°33'N – 11°21'W)	20. River Valley	(8°19'N – 13°10'W)
10. Kenema	(7°53'N – 11°11'W)	21. York	(8°17'N – 13°11'W)
11. Sandia Village & Tama Forest Reserve	(8°39'N – 11°16'W)	22. Big Water, base Picket Hill	(8°17'N – 13°9'W)

At present, the environmental situation is in wide degradation and in great distress, despite the fact that the Western Area and other areas have National Reserves and Parks. The accelerated increase in population is leading to a rapid reduction of forest areas turned into savannahs and farmland, as in the case of the Tama Forest Reserve, located in the northeast of Kangari Hills, which had completely disappeared in 2013, entirely replaced by cropland and savannah (CILLS, 2016).

Material examined. The neuropterological material examined, although not particularly abundant, was collected by Prof. Walter Rossi from 1977 to 1994 during biological research in Sierra Leone (Fig. 1), promoted by the Accademia Nazionale dei Lincei (see Carfì & D'Andrea, 1994). In addition, other Neuroptera were collected in Sierra Leone by Eng. Claudio Belcastro, during business trips. The material is stored in the Museum of Natural History, "La Specola", University of Florence (MZUF), Section Entomology. This material is partly dried and partly ethanol preserved. The collection numbers of the specimens are given in square brackets. The tip of abdomen was removed from the specimens, rehydrated by NH_4OH 10% and cleared by KOH 10% for a few minutes at 50°C. The terminalia were rinsed in acetic acid 10% and distilled water (three changes) and stored into microvials with glycerine.

Taxonomy and systematic account. Identification is based mainly on the following publications: Navàs (1912); Stitz (1913); Tieder (1957, 1961, 1966); Handschin (1959, 1960); Oswald (1993); Stange (2004); Snyman *et al.* (2015); Califre Martins & Price (2020). Synonymy refers only to original descriptions (Od), redescriptions (Rd), distribution (Dst), listed (Lst), and taxonomy (Tx) [for full synonymy, see: Lacewing Digital Library (Oswald, 2025)]. Specimens that lacked the abdomen or its apex, the sex was indicated with "spec. (sex unknown)". The general distribution (updated to the present paper) is taken from Oswald (January 2025). In many cases, as there are no identification keys for species, but only for genera, we consulted the Lacewing Digital Library website [Oswald, J. D. (chief editor)] and Global Biodiversity Information Facility

[GBIF] for species related to genera determined for the zoogeographical region of tropical Africa. To determine the species, it was clearly necessary to refer to the original descriptions and, where possible, to compare them with photos of the types and paratypes or species that are considered synonyms available online from museums (e.g., the Royal Museum for Central Africa in Tervuren Belgium [MRCA] [https://www.africamuseum.be/research/collections_libraries/biology/collections/neuroptera], and Natural History Museum [BMNH] [https://data.nhm.ac.uk/dataset/collection-specimens/resource/05ff2255-c38a-40c9-b657-4ccb55ab2feb]).

Photographic techniques. The images of wings and body were made with a Nikon D5100 digital camera coupled with a 40 mm Micro Nikkor lens. The details were photographed with Optikam B5 connected to a stereomicroscope MBS-10 or connected to a Koristka microscope with a Leitz Wetzlar Photar 1:4/50 photographic lens. Pictures were stacked with Combine ZP and elaborated with GIMP v.2.10.30 programs.

Results

OSMYLIDAE Leach, 1815

SPILOSMYLINAE Krüger, 1913

Spilosmylus Kolbe, 1897

Spilosmylus leucomatodes (Navás, 1911)

Lysmus leucomatodes Navás, 1911: 234 (Od): 1936: 351 (Rd)
Ripidosmylus leucomatodes: Krüger, 1913: 28 (Lst)
Kelidosmilus (?) *leucomatodes*: Krüger, 1914: 79 (Rd)
Spilosmylus leucomatodes: Winterton *et al.*, 2019: 64 (Lst)

Material examined. WESTERN AREA: 1 ♀ [083], base Picket Hill, 31.V.1993, W. Rossi leg.

Distribution. The species appears to be documented from Democratic Republic of Congo and Equatorial Guinea. This record from Sierra Leone expands its distribution.

BEROTHIDAE Handlirsch, 1908

BEROTHINAE Handlirsch, 1908

Nosybus Navás, 1910

Nosybus navasi Banks, 1918

Nosybus navasi Banks, 1918: 12 (Od); Tjeder, 1959: 290 (Rd, Tx); Aspöck & Aspöck, 1982: 96 (Rd)
Nosybus toganus Krüger, 1922: 79 (Od)

Material examined. NORTHERN PROVINCE: 2♀♀ [084-085], near Bumbuna, 4-5.VI.1994, W. Rossi leg.

Distribution. The species had been reported from both equatorial Africa (Cameroon, Central African Republic, Democratic Republic of the Congo) and western Africa (Gambia, Ghana, Nigeria, Togo, and now Sierra Leone).

MANTISPIDAE Leach, 1815

MANTISPINAE Leach, 1815

Afromantispa Snyman & Ohl, 2012

Afromantispa moucheti (Navás, 1925)

Mantispilla moucheti Navás, 1925a: 572 (Od)
Mantispilla schoutedeni Navás, 1929a: 106 (Od)
Mantispa moucheti: Handschin, 1959: 209 (Rd)
Afromantispa moucheti: Snyman *et al*., 2015: 95 (Tx)

Material examined. NORTHERN PROVINCE: 1♀ [101], Kabala, 12-13. XII.1992, at light, W. Rossi leg.

Distribution. Afrotropical: Democratic Republic of the Congo, South Africa, Tanzania, and now Sierra Leone.

Afromantispa nana (Erichson, 1839)

Mantispa nana Erichson, 1839: 169 (Od); Handschin, 1959: 198 (Rd)
Necyla arabica Navás, 1914a: 214 (Od)
Necyla bonhourei Navás, 1922a: 397 (Od)
Afromantispa nana: El Hamouly & Sawaby, 2020: 381 (Rd, Tx; Dst); Prost *et al.,* 2022: 56 (Dist)

Material examined. NORTHERN PROVINCE: 1♂ [100], Kabala, 12-13.XII.1992, at light, W. Rossi leg.

Distribution. This species is new to Sierra Leone. It was previously known from Burkina Faso, Djibouti, Egypt, Eritrea, Republic of the Congo, Sudan, Togo, and the Arabian Peninsula (Saudi Arabia, United Arab Emirates, Yemen).

Remarks. The specimen is characterised by a very small size compared to the range given for the species (forewing: 5.8 mm; hindwing: 4.8 mm).

Afromantispa tenella (Erichson, 1839)

Mantispa tenella Erichson, 1839: 169 (Od); Westwood, 1852: 255 (Rd, Tx, Dst); Walker, 1853: 218 (Rd, Tx, Dst); Hanschin, 1959: 203 (Rd, Tx, Dst); El Hamouly & Sawaby, 2020: 384 (Dist); Prost *et al.,* 2022: 56 (Dist)
Mantispilla tenera Navás, 1914b: 40 (Od)
Mantispa variolosa Navás, 1914c: 648 (Od)
Mantispa axillata Navás, 1936: 354 (Od)

Material examined. EASTERN PROVINCE: 1♀ [099], Kenema, 26-29.X.1989, at light, W. Rossi leg. (preserved in ethanol).

Distribution. Afrotropical: Benin, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Kenya, Nigeria, Somalia, South Africa, Tanzania, Togo, and now from Sierra Leone.

Cercomantispa Handschin, 1959

Cercomantispa decellei Poivre, 1981

Cercomantispa decellei Poivre, 1981: 183 (Od); Prost *et al*. 2022: 56 (Dst)

Material examined. NORTHEN PROVINCE: 1♂ [102], 1♀ [103], Kabala, 12-13. XII.1992, at light, W. Rossi leg.

Distribution. Côte d'Ivoire, Togo, and now from Sierra Leone.

Mantispilla Enderlein, 1910

Mantispilla delamarei (Poivre, 1981)

Sagittalata delamarei Poivre, 1981: 175 (Od)

Material examined. SOUTHERN PROVINCE: 1♀ [098], Tiwai Island Wildlife Sanctuary, 22-25.X.1989, W. Rossi leg. (preserved in ethanol).

Distribution. This species was known only from the Côte d'Ivoire and now from Sierra Leone.

Pseudoclimaciella Handschin, 1960

Pseudoclimaciella loanga (Navás, 1909)

Mantispa loanga Navás, 1909: 475 (Od)
Entanoneura loanga: Navás, 1924: 380 (Dst); 1926b: 90 (Dst); 1929c: 108 (Dst); 1930: Handschin & Markl, 1955: 70 (Tx, Dst)
Pseudoclimaciella loanga: Handschin, 1960: 223 (Rd, Tx, Dst); Ohl, 2004: 200 (Tx, Dst); Tauber *et al.*, 2017: 250 (Tx, Dst); Prost *et al.*, 2022: 56 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [096], Bumbuna, 14.XII.1992, at light, W. Rossi leg.

Distribution. This species is known from western Africa (Benin, Côte d'Ivoire, Togo, and now Sierra Leone), central Africa (Angola, Cameroon, Democratic Republic of Congo), eastern Africa (Kenya, Tanzania), and southern Africa (South Africa).

Pseudoclimaciella sarta (Stitz, 1913)

Climaciella grandis var. *sarta* Stitz, 1913: 35 (Od)
Pseudoclimaciella sarta: Handschin, 1960: 214 (Rd)

Material examined. EASTERN PROVINCE: 1♂ [097], Kenema, 26-29.X.1989, at light, W. Rossi leg. (preserved in ethanol).

Distribution. This species appears to be restricted to equatorial Africa (Guinea, Nigeria, Cameroon, Equatorial Guinea and now Sierra Leone) as well as Madagascar.

HEMEROBIIDAE Latreille, 1803

Micromus Rambur, 1842

Micromus timidus Hagen, 1853

Micromus timidus Hagen, 1853: 481 (Od); Auber, 1956: 438 (Dst); Hölzel *et al.*, 1999: 350 (Tx, Dst); Monserrat & Deretsky, 1999: 56 (Dst); Monserrat, 2004: 14 (Dst)
Micromus navigatorum Brauer, 1867: 508 (Od)
Micromus vinaceus Gerstäcker, 1885 [1884]: 111 (Od)
Micromus insularis Hagen, 1866a: 292 (Od)
Micromus pusillus Gerstäcker, 1894 [1893]: 171 (Od)

Micromus benardi Navás, 1912a: 750 (Od)
Micromus sauteri Esben-Petersen, 1912: 198 (Od)
Micromus alternans Navás, 1919: 194 (Od)
Micromus weryae Lestage, 1923: 196 (Od)
Micromus insulanus Navás, 1925b: 76 (Od)
Micromus philippinus Navás, 1926a: 117 (Od)
Archaeomicromus modestus Navás, 1936: 350 (Od)
Eumicromus multinervosus Fraser, 1955: 132 (Od)
Eumicromus delamarei Auber, 1956: 498 (Od)
Eumicromus diminutus Nakahara, 1956: 188 (Od)
Eumicromus parallelus Fraser, 1957: 23 (Od)

Material examined. WESTERN AREA: 1♀ [086], Freetown, 25.II.1992, at light, W. Rossi leg. (preserved in ethanol); 1♀ [087], idem, 11.XII.1992, W. Rossi leg. (preserved in ethanol).

Distribution. In West Africa it has been reported from Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Liberia, Senegal, Sierra Leone, and Togo. However, this species has a very wide distribution; it is present in sub-Saharan Africa, India and Indian Ocean islands, Southeast Asia, western Pacific Ocean islands, and eastern Australia.

Remarks. The synonymy includes only names applied in West Africa literature; for the extensive synonymy of species see OSWALD (2025).

CHRYSOPIDAE Schneider, 1851

CHRYSOPINAE Schneider, 1851

CHRYSOPINI Schneider, 1851

Borniochrysa Brooks & Barnard, 1990

Borniochrysa squamosa (Tjeder, 1966)

Chrysopa (*Suarius*) *squamosa* Tjeder, 1966: 377 (Od)
Borniochrysa squamosa: Brooks & Barnard, 1990: 268 (Lst); Hölzel & Ohm, 1991: 346 (Dist); 1992: 173 (Tax, Dst); Hölzel *et al.*, 1994: 383 (Dist); Hölzel *et al.*, 1999: 353 (Dist); Hölzel, 2001: 292 (Tax, Dst); Ohm & Hölzel, 2002: 235 (Tax, Dst); Penny, 2004: 665 (Dist); 2005: 287 (Dist); Thierry & Canard, 2021: 80 (Dist)

Material examined. WESTERN AREA: 1♂ [094] Sugar Loaf Mt. near Regent, 30.V.1994, W. Rossi leg. (terminalia in glycerine).

Distribution. The species is distributed in the Afrotropical region (Senegal, Nigeria, Republic of Congo, Democratic Republic of Congo, Ethiopia, Rwanda, Uganda, Kenya, Tanzania, Zimbabwe, South Africa) including Madagascar and the Indian Ocean islands (Comoros and Mauritius) as well as in the Atlantic Ocean (Sao Tome and Principe, St. Helena).

Ceratochrysa Tjeder, 1966

Ceratochrysa antica (Walker, 1853)

Chrysopa antica Walker, 1853: 270 (Od)
Chrysopa nesaea Navás, 1911b: 268 (Od)
Chrysopa inaequalis Navás, 1912b: 103 (Od)
Chrysopa regina Navás, 1914d: 85 (Od)

Chrysopa ducissa Navás, 1914e: 375 (Od)
Chrysopa vuilleti Navás, 1914f: 98 (Od)
Chrysopa pooana Navás, 1922b: 109 (Od)
Cintameva dimidiata Navás, 1928: 121 (Od)
Chrysopa iniqua Navás, 1929b: 19 (Od)
Musola impar Navás, 1929c: 368 (Od)
Chrysopa undulata Fraser, 1952: 58 (Od)
Chrysopa (*Ceratochrysa*) *atrostrata* Tjeder, 1966: 358 (Od)

Material examined. WESTERN AREA: 2♂♂ [088-089], Sugar Loaf Mt. near Regent, 03.III.1992, W. Rossi leg. (preserved in ethanol and terminalia in glycerine); 1♀ [090], Bathurst, 26.V.1991, W. Rossi leg. (terminalia in glycerine).

Distribution. This species is widespread throughout sub-Saharan Africa, including Madagascar and the islands of the western Indian Ocean. It has already been documented in Sierra Leone.

***Ceratochrysa sierraleonensis* sp. nov.** (Figs. 2, 3, 4)

Holotype ♂. [091] Sierra Leone: WESTERN AREA, Rural District, Regent, 21.V.1991, W. Rossi leg. Size: length of body about 13.1 mm of forewing 18.5 mm of hindwing 16.5 mm.; width of forewing 6.5 mm, of hindwing 5.5 mm.; antenna about 19.0 mm (tip missing).

Paratype ♀. [092] Sierra Leone: WESTERN AREA, Sugar Loaf Mt. near Regent, 30.V.1994, W. Rossi leg. Size: length of body about 14.0 mm of forewing 19.5 mm of hindwing 17.5 mm.; width of forewing 6.5 mm, of hindwing 5.5 mm.; antenna about 21.0 mm.

Description of male (Holotypes) (Fig. 2). Head. Yellow; vertex slightly raised with a pair of red stripes thinning anteriorly (Fig. 2B); another pair of thin red stripes along the dorsal margin of the antennal sockets in the male (Fig. 2C); below the antennae two broad red bands from the scape to the clypeus, separated by a yellow stripe; maxillary palp with segments 3-5 dark grey externally, 5 only at the base; yellowish scape with red spot posteriorly; antenna yellowish, with basal flagellar segments brown and brown ring on pedicel. Thorax. Pronotum with a broad yellow median band, bordered on the sides by a thin green stripe, on the outer sides a broad purple red stripe, which after the transverse groove form two medial wedges delimiting a triangular yellow spot (Fig. 2D). Meso- and metanotum yellow with a slight reddish colouration at the forewing joint, meso- and metascutellum apically reddish brown. Legs. Greenish yellow. Tarsal claws with basal squareish dilation. Wings (Fig. 2A). Membrane hyaline, without spots only a slight brownish shading along the outer side of the outer gradates series in both sexes. All the veins are light green, except the *Sc* at the pterostigma of both wings, which is brown. Forewing: *im* (intramedian cell) narrowly ovate, with its apex reaching beyond the 1st radio-media crossvein, *Psm* (pseudomedia) dark in outer gradates. Outer gradates (8 on the right and 9 on the left) brown, the last green, 4 inner gradates greenish yellow. Hindwing: 7 outer and 3 inner gradates. Abdomen. dorsally reddish (initially green); latero-dorsal spots reddish, ventrally light yellow. Genitalia. (Fig. 2E-F) Entoprocessus with large apical tooth. Mediuncus long, lobes diverging with apex pointing downwards. Pseudopenis apically with a small median tip.

Description of female (Paratypus). Head. As in the male, except for the bands on the frons that are purplish-red and broader (Fig. 3B, D) and the yellowish scape with a brownish spot posteriorly. Thorax. Pronotum greenish yellow, with two broad red lateral stripes (Fig. 3C), which after the groove form two medial wedges delimiting a yellow blotch. Mesonotum yellow with a slight reddish colouration at the joint of the forewings, mesoscutellum apically reddish brown. Metanotum yellow with apically reddish brown metascutellum. Abdomen. Tergites in middle greenish yellow, laterally yellowish, and posteriorly in latero-dorsal position a reddish-brown

spot, ventrally light yellow. (Fig. 3A).

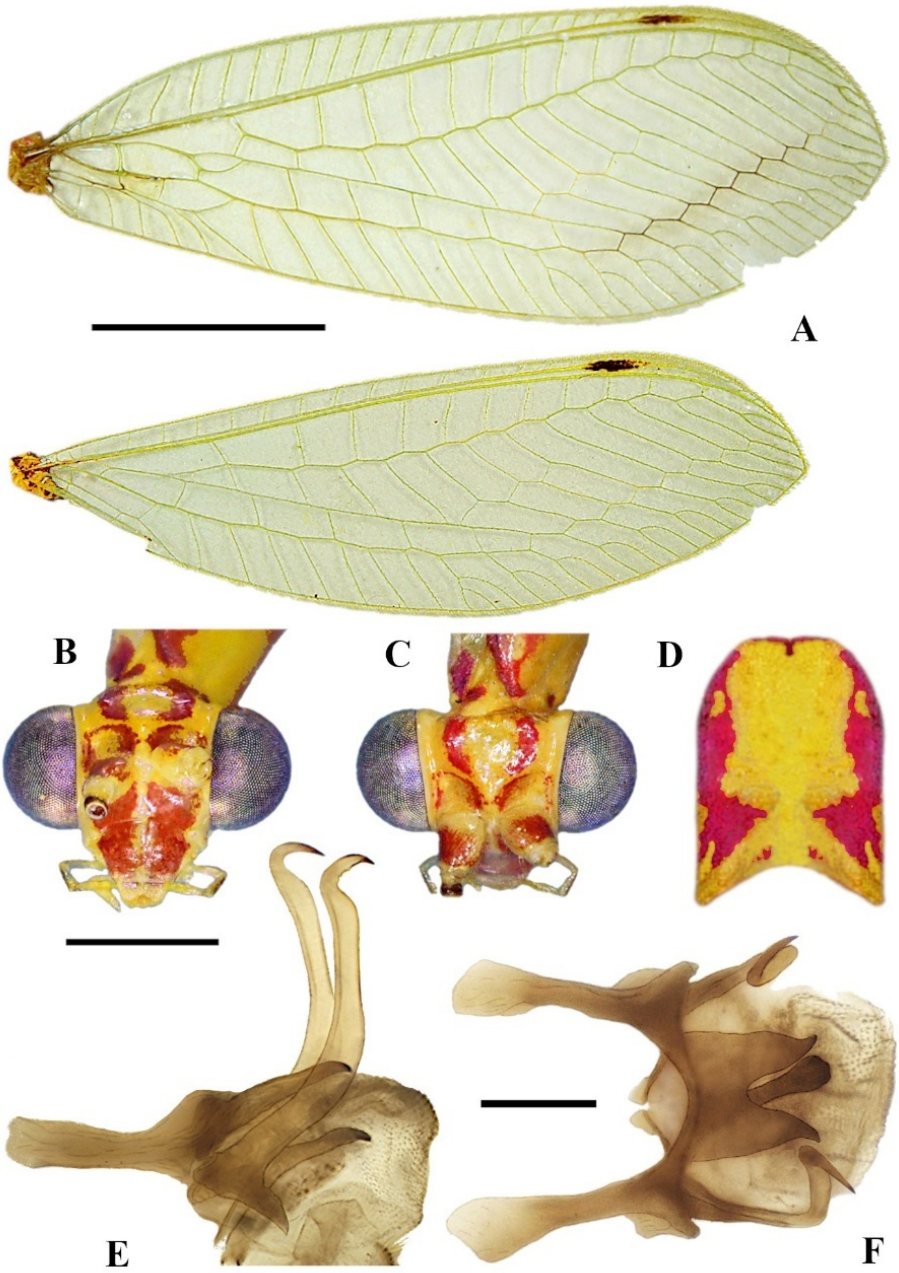

Fig. 2. *Ceratochrysa sierraleonensis* sp. nov. (Holotype ♂): A. forwing and hindwing; B. Head (frontal view); C. Vertex; D. Pronotum; E. Genitalia (lateral view); F: *Id.* (dorsal view). [Scale bars: 5 mm (Fig. A); 1 mm (Figs. B-D); 0.2 mm (Figs. E-F)].

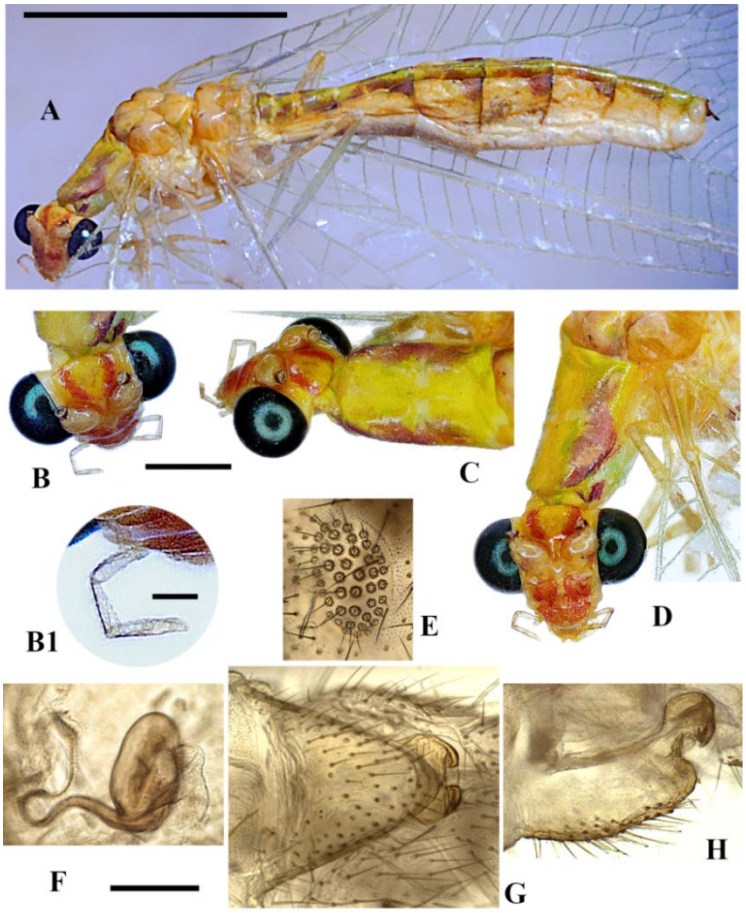

Fig. 3. *Ceratochrysa sierraleonensis* sp. nov. (Paratype ♀): A. Habitus (dorso-lateral view); B. Head (vertex) and detail of labial palp (B1); C. Pronotum (dorsal view); D. Head (frontal view) and pronotum (lateral view); E. Callus; F. Spermatheca; G. Subgenital (ventral view); H. *Id.* (lateral view). – [Scale bars: 5 mm (Fig. A); 1 mm (Figs. B-D); 0.2 mm (Figs. B1, E-H)].

Wings. Both wings are greenish, with light green veins and a dark area where the pterostigmal and *Sc* cross. The scaliform veins of the forewing are dark, and the surrounding membrane is extremely light brown. Forewing: 11 outer gradates brown, the last green; 5 inner gradates. Hindwing: 8 outer and 4 inner gradates. Legs. As in the male. Genitalia. The tip of the subgenital is bilobed and protrudes slightly beyond the apex of the main part, which is triangular, sternite-like, hairy, and rounded in lateral and ventral view (Fig. 3G-H). The bilobed apex is wider than the tip of the main part. Spermatheca flattened (Fig. 3F), ca. 2.5 times its diameter, ventrally a conical invagination as deep as the width of its base, vela developed. Callus cerci large, with about 47 trichobothria (Fig. 3E).

Etymology. The species name refers to the country where it was found.

Remarks. The specimens are similar in red colour pattern to known species: *Ceratochrysa antica* (Walker, 1853), *C. ceratina* (Navás, 1910), and *C. disparilis* (Navás, 1934), while the yellow

colouration seems more due to a change that occurs after death, as traces of the original green colouration are still visible in some parts, both in the male and the female (the same situation has been seen in both dry and ethanol-preserved specimens of *C. antica*). This new species differs mainly in the genital structures of males (mediuncus and entoprocessus apex) and females (subgenitalia and spermatheca) from the known species described and illustrated in the revision of the genus *Ceratochrysa* made by BARNARD & BROOKS (1984) and BROOKS & BARNARD (1990).

Therefore, we give below a key to *Ceratochrysa* species that considers the original descriptions and genital structures of males.

1. Antenna green 2
– Antenna brown, scape without spots, apical ring brown; ♂: mediuncus V-shaped (Fig. 4.A1); entoprocessus with robust apical tooth and hook (Fig. 4.A2) [♀ unknown] ..... *C. disparilis*

2. Scape and pedicel dorsally with faint red colouring 3
– Scape green with or without pale red dorsal spot; pedicel with brown apical ring; ♂: mediuncus short, wide V-shaped (Fig. 4.C1); entoprocessus with a small apical tooth and a short hook (Fig. 4.C2); ♀: subgenital tip bilobed, narrow, and overhanging the apex of main ventral part ..... *C. antica*

3. ♂: mediuncus long, U-shaped (Fig. 4.B1); entoprocessus with a large apical tooth and with a conspicuously hooked process (Fig. 4.B2); ♀: subgenital tip bilobed, broad, and not overhanging the apex of main ventral part ..... *C. ceratina*
– ♂: mediuncus V-shaped (Fig. 4.D1); entoprocessus with only the hooked process (Fig. 4.D2); ♀: subgenital tip bilobed, broad, and overhanging slightly the apex of main ventral part ..... ***C. sierraleonensis* sp. nov.**

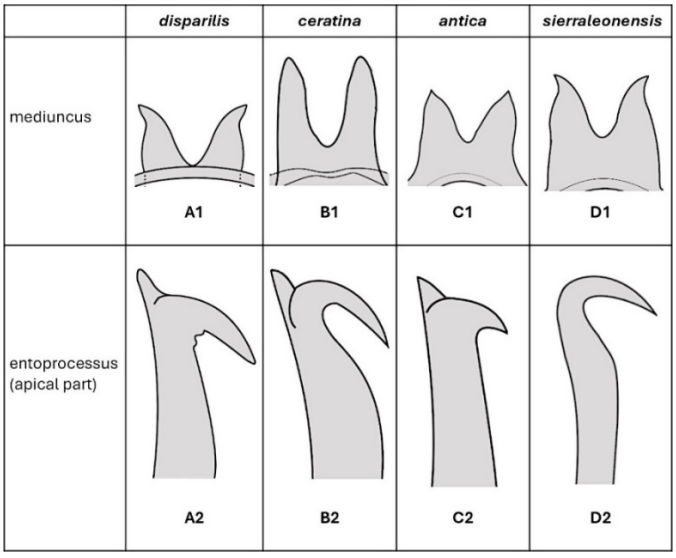

Fig. 4 – The male genitalia *Ceratochrysa sierraleonensis* sp. nov. compared with the other three known species. [The sketch of mediuncus and entoprocessus are not in scale. A-B modified after Barnard & Brooks (1984).]

Mallada Navás, 1925

Mallada desjardinsi (Navás, 1911)

Chrysopa desjardinsi Navás, 1911b: 267 (Od)
Chrysopa boninensis Okamoto, 1914: 62 (Od)
Chrysopa serrandi Navás, 1921a [1919]: 70 (Od)
Chrysopa flavostigma Esben-Petersen, 1927: 451 (Od)
Chrysopa rutila Esben-Petersen, 1927: 453 (Od)
Mallada scolius Navás, 1928 [1927]: 86 (Od)
Chrysopa obliqua Navás, 1929b: 362 (Od)
Chrysopa inclinata Navás, 1934 [1933]: 58 (Od)
Chrysopa (*Anisochrysa*) *boninensis*: Tjeder 1966: 476 (Rd, Tx, Dst)
Anisochrysa boninensis: Ohm & Hölzel, 1982: 160 (Dst)

Material examined. EASTERN PROVINCE: 1♀ [093], Kenema, 26-29.X.1989, at light, W. Rossi leg. (preserved in ethanol and terminalia in glycerine).

Distribution. It is a widespread species in sub-Saharan Africa, including Madagascar and the Cape Verde Islands. It is also found in China and islands in the Indian and Pacific Oceans.

BELENOPTERYGINI Navás, 1913

Dysochrysa Tjeder, 1966

Dysochrysa furcata Tjeder, 1966

Dysochrysa furcata Tjeder, 1966: 335 (Od)

Material examined. NORTHERN PROVINCE: 1♀ [095], near Bumbuna, 4-5.VI.1994, W. Rossi leg. (terminalia in glycerine).

Distribution. This does not appear to be a common species. It was first described from South Africa, then from Equatorial Guinea, and this is the second record from outside South Africa.

ASCALAPHIDAE Lefèbvre, 1842
HAPLOGLENIINAE Newman, 1853

Allocormodes McLachlan, 1891

Allocormodes intractabilis (Walker, 1859)

Ascalaphus intractabilis Walker, 1860: 196 (Od)
Bubo intractabilis: Hagen, 1866b: 388 (Tx)
Cormodes intractabilis: McLachlan, 1873 [1871]: 239 (Rd)
Allocormodes intractabilis: McLachlan, 1891: 512 (Tx); Gerstäcker, 1894 [1893]: 100 (Rd); van der Weele, 1909 [1908]: 72 (Rd); Navás, 1912c: 58 (Tx, Dst); 1919: 289 (Dst); Prost *et al.*, 2022: 37 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [001] Bumbuna, 12-13.V.1991, W. Rossi leg. (terminalia in glycerine).

Distribution. This species was only known from Sierra Leone, Côte d'Ivoire, Bénin and Gabon. However, JONES (2014: 111; PhD thesis), who examined specimens for his PhD thesis, extended

the distribution of this species to the Democratic Republic of Congo, Equatorial Guinea, Ghana, Liberia, Nigeria and Uganda. This suggests that it is characteristic of the central western sub-Saharan tropical belt.

Tmesibasis McLachlan, 1871

Tmesibasis waelbroecki van der Weele, 1909

Tmesibasis waelbroecki van der Weele, 1909 [1908]: 92 (Od)
Tmesibasis waelbroecki: Navás, 1912c: 69 (Tx, Dst); Banks, 1920: 24 (Dst); Henwood, 1977: 113 (Dst); Prost & Popov, 2021: 54 (Dst)

Material examined. NORTHERN PROVINCE: 1♂ [037], Bumbuna, 13.IX.1992, C. Belcastro leg.

Distribution. The species was hitherto unknown in Sierra Leone although it is widely distributed in tropical Africa: Democratic Republic of Congo, Nigeria, Côte d'Ivoire, and Uganda. Jones (2014: 381; PhD thesis) extend the distribution to Central African Republic, Gabon, Ghana, Kenya, and Togo.

Ascalaphinae Lefèbvre, 1842

Abascalaphus Tjeder & Hansson, 1992

Abascalaphus nigripes (van der Weele, 1909)

Encyoposis nigripes van der Weele, 1909 [1908]: 250 (Od)
Encyoposis nigrostigma Navás, 1915: 175 (Od), 1916: 223 (as "sp. nov [sic]") (Rd); Banks, 1920: 29 (Dst)
Encyoposis walkeri Navás, 1931: 260 (Od)
Helicomitus stigmalis Navás, 1932: 269 (Od); Kimmins, 1949: 12 (Rd)
Abascalaphus nigripes: Tjeder & Hansson, 1992: 176 (Rd); Prost *et al.*, 2022: 39 (Dst)

Material examined. EASTERN PROVINCE: 1♀ [007], Sandia Village and Tama Forest Reserve, 14.V.1991, C. Belcastro leg.; 1♂ [006], idem, 15-16.V.1991, W. Rossi leg.; NORTHERN PROVINCE: 1♀ [008], between Binkolo e Bumbuna, 5.VI.1993, W. Rossi leg.

Distribution. Until now, this species was not known for Sierra Leone, although it is widespread in West Africa (Senegal, Guinea, Liberia, Ivory Coast, Benin, Togo, Nigeria). It is also known for the Democratic Republic of Congo, Cameroon, Angola and Zambia.

Ascalaphus Fabricius, 1775

Ascalaphus festivus (Rambur, 1842)

Bubo festivus Rambur, 1842: 356 (*partim*) (Od)
Ascalaphus festivus: Walker, 1853: 419 (*partim*) (Rd); Tjeder, 1980: 404 (Rd, Syn, Dst); Hölzel, 1983: 238 (Dst)
Encyoposis amicus McLachlan, 1873 [1871]: 263 (Od)
Encyoposis (?) *festivus*: McLachlan, 1873 [1871]: 264 (Rd)
Suhpalacsa rutilus [as *Suphalasca rutila*] Gerstäcker, 1894 [1893]: 105 (Od)
Helicomitus festivus: van der Weele, 1909 [1908]: 175 (*partim*) (Rd, Syn.); Navás, 1912c: 90 (*partim*); Kimmins, 1949: 9 (*partim*); Tjeder, 1980: 404 (*partim*)

Material examined. NORTHERN PROVINCE: 1♀ [004], between Binkolo and Bumbuna, 5.VI.1993, W. Rossi leg.; 1♀ [005], near Bumbuna, 6.XI.1991, C. Belcastro leg.; 2♀♀ [002-003], Tabai River, 06.VI.1994, W. Rossi leg.

Distribution. Widely distributed species: Southern Europe (Italy), Africa (widespread, including Cabo Verde, Madagascar), Middle East (Israel, Saudi Arabia, Oman, United Arab Emirates, Yemen).

Remarks. With regard to synonymy, cf. TJEDER's comments (1980: 404).

Ascalaphus rougoni Prost, 2013

Ascalaphus rougoni Prost, 2013: 64 (Od); Prost *et al.*, 2022: 39 (Dst)

Material examined. NORTHERN PROVINCE: 1♂ [009], Bumbuna, 06.IV.1996, W. Rossi leg.; 1♂ [011], Kabala, 12.XII.1992, at light W. Rossi leg.

Distribution. Sub-Saharan species known from western Africa (Benin, Burkina Faso, Mali, Nigeria, and now Sierra Leone) and equatorial Africa (Central African Republic).

Ascalaphus worthingtoni (Kimmins, 1949)

Helicomitus worthingtoni Kimmins, 1949: 11 (Od)
Ascalaphus worthingtoni: Tjeder, 1980: 405 (Tx, Dst); Prost *et al.*, 2022: 39 (Dst)

Material examined. EASTERN PROVINCE: 1♂ [010], Kenema, 27.X.1989, at light, W. Rossi leg.

Distribution. Sub-Saharan species known mainly from West Africa (Senegal, Guinea-Bissau, Côte d'Ivoire, Ghana, Sierra Leone, Benin, Togo, Nigeria), Central and Est Africa (Democratic Republic of Congo, Kenya, Uganda, Rwanda, Zambia).

Brevibarbis Tjeder & Hansson, 1992

Brevibarbis argyropterus (Taschenberg, 1879)

Bubo argyropterus Taschenberg, 1879: 225 (Od)
Suphalomitus argyropterus: van der Weele, 1909 [1908]: 189 (Rd); Navás, 1912c: 92
Brevibarbis argyropterus: Tjeder & Hansson, 1992: 179 (Rd); Prost & Popov, 2021: 54 (Dst); Prost *et al.*, 2022: 39 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [036], Bumbuna, 12.V.1991, C. Belcastro leg.; SOUTHERN PROVINCE: 1♀ [035], Tiwai Island Wildlife Sanctuary, 25.X.1989, C. Belcastro leg.

Distribution. Sub-Saharan species known from western Africa (Liberia, Côte d'Ivoire, Benin, Togo Nigeria and now Sierra Leone) and equatorial Africa (Democratic Republic of Congo, Gabon, Uganda).

Dicolpus Gerstäcker, 1885

Dicolpus eurypterus (Gerstäcker, 1885)

Suhpalacsa eurypterus [as *Suphalasca euryptera*] Gerstäcker, 1885 [1884]: 6 (Od)
Dicolpus eurypterus: Weele v. d., 1909 [1908]: 262 (Rd); Navás, 1921b [1919]: 289 (Dst); Prost *et al.*, 2022: 40 (Dst); Ábrahám, 2025: 80 (Syn, Tax, Dst)

Material examined. NORTHERN PROVINCE: 1♀ [013], Bumbuna, 12-13.V.1991, W. Rossi leg.; EASTERN PROVINCE: 1♂ [012], Sandia Village and Tama Forest Reserve, 15-16.V.1991, W. Rossi leg.; WESTERN AREA: 1♂ [014] near Bathurst Falls, 25.X.1991, W. Rossi leg.

Distribution. There is little information relating to the distribution of this species. However, it appears to be restricted to West Africa (Cameroon, Gabon, Benin as well as Sierra Leone).

Dicolpus volucris Gerstäcker, 1885

Dicolpus volucris Gerstäcker, 1885 [1884]: 7 (Od).
Dicolpus volucris: van der Weele, 1909 [1908]: 264 (Rd); Prost *et al.,* 2022: 40 (Dst); Ábrahám, 2025: 72 (Syn, Tax, Dst)

Material examined. WESTERN AREA: 1♀ [015], Guma Valley, 30.V.1992, C. Belcastro leg.; 1♂ [016] River Valley (forest), 01.VI.1991, C. Belcastro leg.; 1♂ [017], idem, 18.V.1991, C. Belcastro leg.

Distribution. The species was known from Equatorial Africa (Cameroon, Gabon, Democratic Republic of Congo) and West Africa (Liberia, Togo, Nigeria, and Sierra Leone).

Disparomitus van der Weele, 1908

Disparomitus bacillus (Gerstäcker, 1885)

Suhpalacsa [as *Suphalasca*] *bacillus* Gerstäcker, 1885 [1884]: 5 (Od)
Suhpalacsa [as *Suphalacsa*] *subcostalis* Navás, 1912d: 405 (Od); 1912c: 86 (Dst)
Suhpalacsa subcostalis: Banks, 1920: 25 (Dst)
Disparomitus bacillus: van der Weele, 1909 [1908]: 192 (Rd, Tx, Dst); Michel, 2019: 192 (Rd, Tx, Sn); Prost & Popov 2021: 55 (Dst); Prost *et al.*, 2022: 41 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [018], Bumbuna, 11.III.1993, W. Rossi leg.

Distribution. The species is distributed from Equatorial Africa (Cameroon, Gabon [the locality Ogooué, Lambaréné is in Gabon, not in the former French Congo (now Republic of Congo) originally reported by Navás, 1921b [1919]: 292], Democratic Republic of Congo, Republic of Congo) to West Africa (Sierra Leone, Côte d'Ivoire, Togo, Nigeria).

Encyoposis McLachlan, 1871

Encyoposis hemistigma van der Weele, 1909

Encyoposis hemistigma van der Weele, 1909 [1908] (Od)
Encyoposis hemistigma: Navás, 1912c: 113 (Dst), 1914e: 368 (Dst); Banks, 1920: 29 (Cit.); Whittington, 2002: 337 (Dst); Prost *et al.*, 2022: 41 (Dst)
Helicomitus gromieri Navás, 1921b [1919]: 291 (Od); Prost, 2020: 270 (Syn)

Material examined. NORTHERN PROVINCE: 1♂ [020], Bumbuna, 12-13.V.1991, W. Rossi leg.; 1♂ [019], between Binkolo and Bumbuna, 5.VI.1993, W. Rossi leg.

Distribution. Benin, Togo, Democratic Republic of Congo, and now Sierra Leone.

Nephoneura McLachlan, 1871

Nephoneura costalis van der Weele, 1909

Nephoneura costalis van der Weele, 1909 [1908]: 222 (Od)
Nephoneura costalis: Esben-Petersen, 1936: 199 (Dst); Ábrahám, 2020: 50 (Dst); Prost *et al.*, 2022: 44 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [021], Bumbuna, 12-13.V.1991, W. Rossi leg.

Distribution. This species is known from the Democratic Republic of Congo, Ethiopia, Tanzania, Benin, Togo and now Sierra Leone.

Phalascusa Kolbe, 1897

Phalascusa pardalis (Gerstäcker, 1888)

Puer pardalis Gerstäcker, 1888 [1887]: 91 (Od)
Phalascusa pardalis: van der Weele, 1909 [1908]: 257 (Rd); Navás, 1933: 204 (Dst); Tjeder, 1980: 407 (Dst); Michel, 2000: 54 (Dst); Prost & Popov, 2021: 55 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [024] Bumbuna, 5.XII.1985, W. Rossi leg.; 1♂ [022], near Bumbuna, 6.XI.1991, C. Belcastro leg.; WESTERN AREA: 1♀ [023], Guma Valley, 12.XII.1992, W. Rossi leg.

Distribution. Sub-Saharan species known from both West Africa (Gambia, Senegal, Sierra Leone, Guinea, Mali, Nigeria) and equatorial Africa (Central African Republic, Democratic Republic of Congo, Uganda).

Suhpalacsa Lefèbvre, 1842

Suhpalacsa abdominalis **(**McLachlan, 1871)

Suhpalacsa [as *Suphalasca*] *abdominalis* McLachlan, 1871: 258 (Od)
Suhpalacsa abdominalis: van der Weele, 1909 [1908]: 168 (Rd)
Suhpalacsa [as *Suphalacsa*] *abdominalis*: Navás, 1912c: 86 (Tx)
Imparomitus abdominalis: Prost *et al.*, 2022: 42 (Tx)

Material examined. NORTHERN PROVINCE: 1♀ [031], Bumbuna, 7.V.1988, W. Rossi leg.; 4♂ [027-030], idem, 12-13.V.1991, W. Rossi leg.; 1♂ [033], idem, 13.V.1991, C. Belcastro leg.; 1♀ [034], idem, 13.V.1991, C. Belcastro leg.; WESTERN AREA, 1♂ [032], Bathurst Falls, 28.IV.1990, C. Belcastro leg.

Distribution. Gabon, Cameroon, Bénin.

Remarks. The genus names *Suphalasca* and *Suphalacsa* used by some past authors in their work on Neuropterida were emendations of the genus name *Suhpalacsa* Lefèbvre, 1842. Term restored by VAN DER WEELE, 1909 [1908]. [See also NEW (1984: 18): "The name is a reversal of *Ascalaphus* and, although therefore without any classical meaning, the emendation from *–acsa* to *–asca* used by several authors and the reversal *–ph–* for phonetic convenience is not justified."]. Unlike PROST *et al.* (2022: 42), who use the generic name *Imparomitus*, we retain that of *Suhpalacsa*, since a formal description of this genus is lacking from Tjeder, who died before he could make one. PROST *et al.* (loc. cit.) also does not provide a formal description of the genus, but in his discussion of this genus he refers only to one of his Ivory Coast series (5♂♂ and 5♀♀) labelled "*Imparomitus abdominalis* det. Bo Tjeder" and the publication TJEDER (1992), completed by Hansson after Tjeder's death [TJEDER & HANSSON (1992)]. In TJEDER (1992: 165) reported: "Gen. no. 4, type species: *Suhpalacsa abdominalis* MacLachlan, 1871," while in the TJEDER & HANSSON on page 198 (1992b) *Suphalomitus divisus* is given as a synonym of *Imparomitus abdominalis* (McLachlan, 1871), but there is no reference to a formal description of the genus *Imparomitus*. Furthermore, *S. divisus* does not appear as a synonym in OSWALD (2025). We therefore agree with the observations of ÁBRAHÁM (2017), who considers *Imparomitus* to be a *nomen nudum*.

Stephanolasca van der Weele, 1909

Stephanolasca rufopicta (Walker, 1853)

Ascalaphus rufopictus Walker, 1853: 423 (Od)
Encyoposis(?) *rufopictus*: McLachlan, 1871: 263 (Dst)
Stephanolasca rufopicta: van der Weele, 1909 [1908]: 196 (Rd); Navás, 1912c: 94 (Tx); Tjeder, 1980: 407 (Tx, Dst); Prost & Popov, 2021: 55 (Dst); Prost *et al.*, 2022: 44 (Dst)
Bubo rufopictus: Hagen, 1866b: 386 (Syn)

Material examined. WESTERN AREA: 1♂ [025], Freetown, 24.XI.1987, C. Belcastro leg.; 1♂ [026], Guma Valley, 30.X.1991, W. Rossi leg.

Distribution. Bénin, Togo, Gambia, Nigeria, Sierra Leone.

Remarks. TJEDER (1980: 407) writes that he is not sure whether the picture of the gonarcus-parameres complex of ♂ Zaire published in 1977 is really *S. rufopicta*. The same author also writes: "Apparently a scarce and little-known species. WALKER's (1853) description was based on a single female specimen from Sierra Leone. Additional specimens were not documented by MCLACHLAN (1871), VAN DER WEELE (1909 [1908]) and NAVÁS (1913). The type specimen is preserved in the British Museum (Natural History), London, together with an additional female from Sierra Leone (Njala, 7.XII. 1930, E. Hargreaves leg.). I have examined this specimen which according to Kimmins (*in litt*.) agrees with the type."

MYRMELEONTIDAE Latreille, 1802

PALPARINAE Banks, 1912

PALPARINI Banks,1911

Nosa Navás, 1911

Nosa tigris (Dalman, 1823)

Myrmeleon tigris Dalman, 1823: 88 (Od)
Myrmeleon tigris: Walker, 1853: 307 (Rd, Tx, Dst)
Palpares tigris: Rambur, 1842: 307 (Rd, Tx, Dst); Banks, 1913a: 183 (Rd, Tx)
Palpares manicatus Rambur, 1842: 372 (Od)
Myrmeleon manicatus: Walker, 1853: 312 (Rd, Tx)
Palpares manicatus connexus Banks [in Strong], 1930: 1045 (Rd)
Palpares sylphs Kolbe, 1898: 234 (Od)
Palpares sylphs signatus Stitz, 1912: 106 (Od)
Nosa calceata Navás, 1912e: 208 (Od)
Nosa lupina Navás, 1912e: 206 (Od)
Nosa pardina Navás, 1912f: 23 (Od)
Nosa tigris: Navás, 1912g: 56 (Rd, Tx, Dst)
Palpares tigris race *guineensis* Fraser, 1954: 13 (Od)
Nosa tigris: Prost, 1995. 98 (Tax); 2019: 138 (Tax)

Material examined. WESTERN AREA: 1♂ [067], Guma Valley, 21.X.1991, C. Belcastro leg.; 2♀♀ [070-071], near York, 27.X.1991, W. Rossi leg.; NORTHERN PROVINCE: 1♂1♀[068-069], Loma Mts, 18-XI.1984, W. Rossi leg.; 1♂ [072], near Bumbuna, 6.XI.1991, C. Belcastro leg.; NORTHERN PROVINCE: 1♂ [073], Magbosi, 29.X.1991, G.G.M. Schulzer leg.

Distribution. This species seems to be widespread in the Afrotropical region.

Fig. 5. Variations in the size and spots of the forewing (fw) and hindwing (hw) in male *Nosa tigris* (Dalman, 1823) [♂] from Sierra Leone and Nigeria: **A1** (fw), **A2** (hw) from Bumbuna (Sierra Leone); **B1** (fw), **B2** (hw) from Loma Mts. (Sierra Leone) and **C1** (fw), **C2** (hw) from Iashi Kera, Kaingi (Nigeria). – [Scale bar: 10 mm (Figs. A-C)].

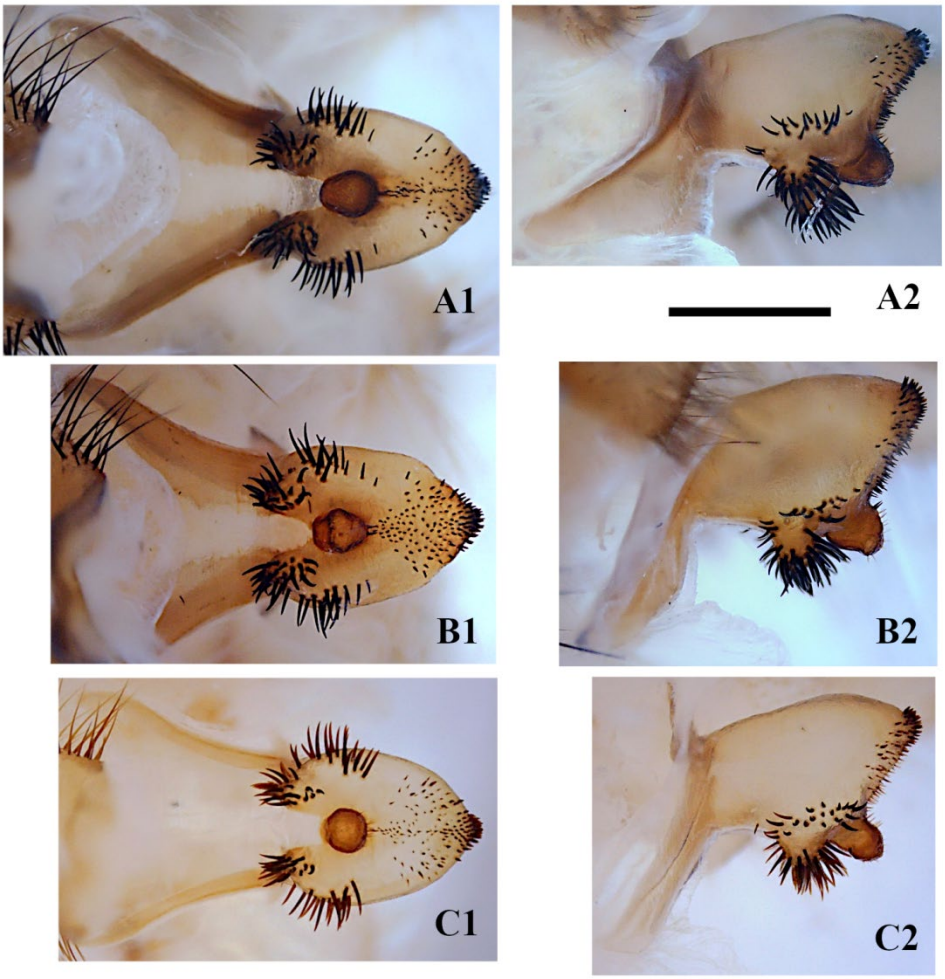

Fig. 6. Gonarcus-parameres complex of *Nosa tigris* (Dalman, 1823) [♂]: **A1** (v-c.v.), **A2** (l.v.) from Bumbuna (Sierra Leone); **B1** (v-c.v.), **B2** (l.v.) from Loma Mts. area (Sierra Leone); **C1** (v-c.v.), **C2** (l.v) from Iashi Kera, Kaingi (Nigeria). – [v-c.v.: ventro-caudal view, l.v.: lateral view. – Scale bar: 1 mm)].

Remarks. According to PROST (2019: 141), the species occurs in West Africa to Sudan. On the validity of the species of the genus *Nosa* see PROST (2019: 138). However, the specimens from Sierra Leone that we examined fall into two distinct size groups: small (1♂ from Guma Valley and 1♂ and 1♀ from Loma Mts.) and large (1♂ from Bumbuna, 1♂ from Magbosi and 2♀♀ from York). They have the same body pattern as the specimen of *Nosa tigris* (Dalman, 1823) from Nigeria [Iashi (= Yashi) Kera, Kaingi, XI.1968, A. Aurili leg.; ex collection S. Carfì], but the markings are brown instead of black and stand out clearly against the bright yellow background. Compared to the Nigerian specimen, the wing spots on both the males and females are much larger and more distinct (brown) (Fig. 5), but we believe this fall within the normal variability of such spots as observed in other palparini. Instead, a comparison of the genital structures of the males in the two groups revealed variations in the gonarcus-paramere complex, particularly with regard to

the parameres (Fig. 6). These structures were prepared and compared with those of *Nosa tigris*, which were used for the drawings reported in INSOM & CARFÌ (1988, Figs. 29–30), as well as with the drawings and photo in PROST (2019).

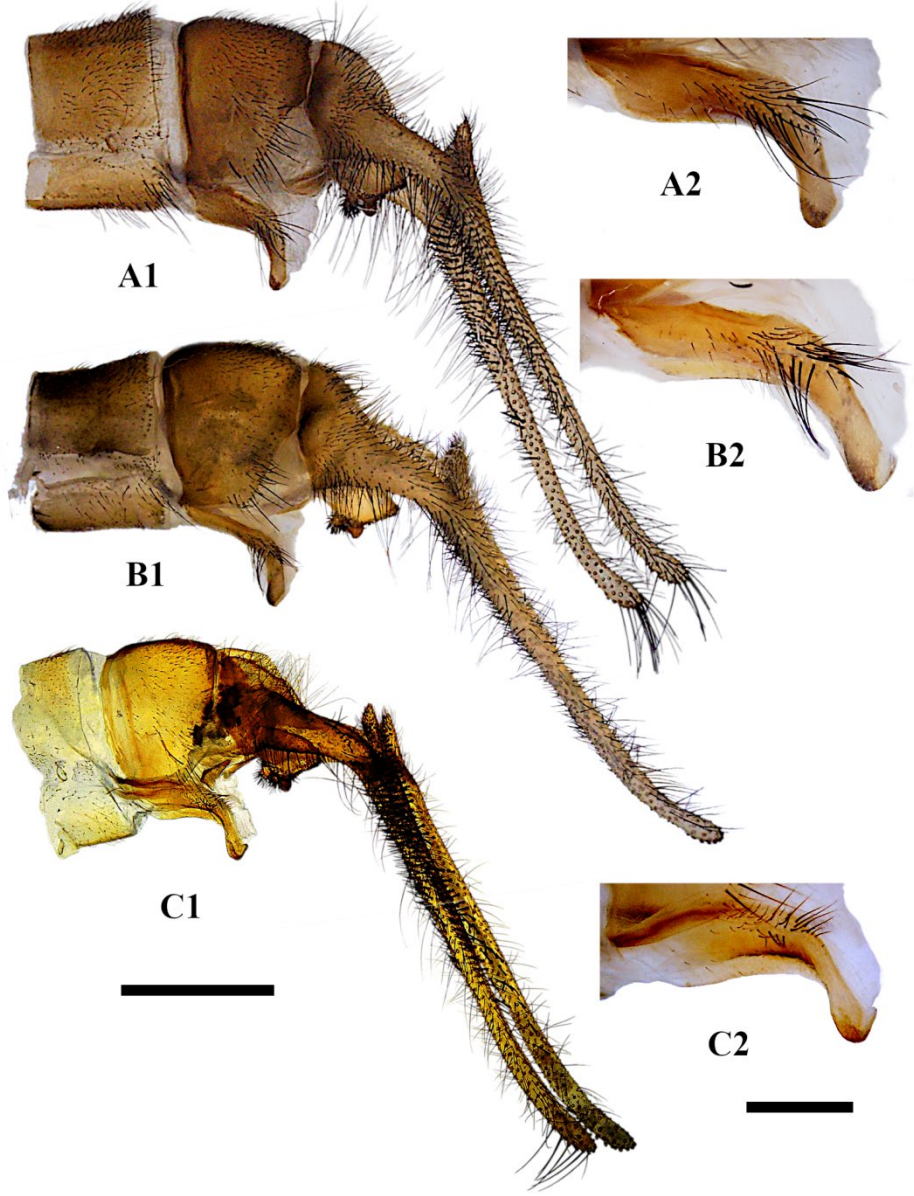

Fig. 7. *Nosa tigris* (Dalman, 1823) [♂]: **A1.** Terminalia; **A2.** Subgenital plate (l.v.) from Bumbuna (Sierra Leone); **B1.** Terminalia, **B2.** Subgenital plate (l.v.) from Loma Mts. area (Sierra Leone); **C1.** Terminalia, **C2.** Subgenital plate (l.v.) from Iashi Kera, Kaingi (Nigeria). – [l.v.: lateral view. – Scale bar: 1 mm (Figs. A1-C1 and Figs. A2-C2)].

In *Nosa tigris*, the parameres are reduced to a small protuberance (Fig. 6), as can be seen in both INSOM & CARFÌ (*l.c.*) and PROST (2019, Fig. 2). In samples from Sierra Leone, although the parameres are still small, they retain traces of their structure and are larger and differently shaped than those from Nigeria (Figs. 6.A1-6.C2).
Furthermore, compared to those from Loma Mts., the specimens from Bumbuna have a much larger and more robust gonarcus base. Regarding the subgenital plate (IX sternite) and ectoprocts (X tergite), the former is similar and more or less arched (Figs. 7.A2-C2), while the latter do not appear to differ significantly, and their length are similar (Figs. 7.A1-C1).

ACANTHACLISINI Navás, 1912

Centroclisis Navás, 1909

Centroclisis rufescens (Gerstäcker, 1885)

Acanthaclisis rufescens Gerstäcker, 1885 [1884]: 10 (Od)
Sogra rufescens: Navás, 1912h: 148 (Rd)
Sogra infernalis Navás, 1912i: 73 (Od); Navás, 1935: 40 (Rd)
Centroclisis rufescens: Esben-Petersen, 1936: 73 (Dst); Prost, 1998: 157 (Tx); Prost & Popov, 2021: 58 (Dst)
Centroclisis infernalis: Prost, 1998: 167 (Tx)

Material examined. NORTHEN PROVINCE: 1♀ [038], Bumbuna, 4.XI.1989; W. Rossi leg.; 1♀ [041], Bumbuna, 4-5.VI.1994; W. Rossi leg.; 1♀ [042], Kabala, 12.XII.1992, W. Rossi leg.; SOUTHERN PROVINCE: 1♀ [039], Kangari Hills near Baomahun, 3.XI.1991, W. Rossi leg.; WESTERN AREA: 1♀ [040], Regent, 7.VI.1994, W. Rossi leg.

Distribution. This species is widespread throughout sub-Saharan Africa from Senegal to Somalia, although most records are from West Africa (from Senegal to Nigeria). For equatorial Africa it is known from Cameroon, Central African Republic, Democratic Republic of Congo, Kenya, and Somalia.

Jaya Navás, 1912

Jaya atrata (Fabricius, 1781)

Semblis atrata Fabricius, 1781: 386 (Od.); Fabricius, 1793: 72 (Rd)
Hemerobius atratus: Gmelin, 1788: 2638 (Rd)
Myrmeleon gulo Dalman, 1823: 89 (Od)
Myrmecoleon gulo: Burmeister, 1893: 997 (Rd)
Hermes atratus: Walker, 1853: 207 (Rd)
Myrmeleon ferus Walker, 1853: 323 (Od)
Avia nigrata Navás, 1912: 75 (Od)
Sogra gulo: Navás, 1912: 42 (Rd)
Sogra nigrata Navás, 1912: 43 (Od)
Jaya gulo: Prost, 1993: 367 (Syn); 1996: 52 (Rd)

Material examined. NORTHEN PROVINCE: 1♀ [043], Bumbuna falls, 26.IV.1990; C. Belcastro leg.; 1♀ [044], between Binkolo and Bumbuna, 5.VI.1993, W. Rossi leg.

Distribution. The species is widespread in sub-Saharan Africa, mainly in western Africa (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Nigeria, Sénégal, Sierra Leone) and Equatorial Africa (Angola, Democratic Republic of the Congo, Republic of the Congo).

MYRMELEONTINAE Latreille, 1802

MYRMELEONTINI Banks, 1911

Hagenomyia Banks, 1911

Hagenomyia tristis (Walker, 1853)

Myrmeleon tristis Walker, 1853: 373 (Od); Kolbe, 1897: 18 (Dst)
Myrmecaelurus tristis: Hagen, 1866b: 449 (Tx, Dst); Van der Weele, 1907: 271 (Dst); 1909: 63 (Dst); Navás, 1912: 79 (Dst)
Neles tristis: Navás, 1911a: 244 (Dst)
Hagenomyia tristis: Banks, 1911: 9 (Dst); Handschin & Markl, 1955: 78 (Tx); Stange, 2004: 305 (Tx)

Material examined. NORTH WEST PROVINCE: 5♂♂ [046-049, 051, 060] e 2♀♀ [050, 052], Outamba-Kilimi, National Park Kaba River headquarters (150-250 m), 21.XI.1983, W. Rossi leg.; 1♂ [053], Occra Hills, 30.X.1989, W. Rossi leg.; 1♂ [054], Bumbuna, 4.XI.1989, W. Rossi leg.; 1♂ [058], idem, 4.VI.1994, W. Rossi leg.; 1♂ [065] 1♀ [066], Occra Hills, 21.IX.1991, C. Belcastro leg.; EASTERN PROVINCE: 1♂ [061] 1♀ [062], Sandia Village & Tama Forest Reserve, 15-16.V.1991, W. Rossi leg.; WESTERN AREA: 1♀ [059], Big Water, about 3 km E from York (base of Picket Hill), 30.V.1993, W. Rossi leg.; 1♂ [057], Sugar Loaf Mt. near Regent, 30.V.1994, W. Rossi leg.; 1♀ [055] 1♂ [056], Regent, 7.VI.1994, W. Rossi leg.; 1♂, 1♀ [063-064], Freetown (Fourah Bay College), 16.XII.19??, W. Rossi leg.

Distribution. Widespread sub-Saharan African species (Senegal east to Ethiopia and south to South Africa) including Madagascar.

Myrmeleon Linnaeus, 1767

Myrmeleon quinquemaculatus Hagen, 1853

Myrmeleon quinquemaculatus Hagen, 1853: 482 (Od); Hagen, 1862: 103 (Rd)
Myrmeleon polyzonus Gerstäcker 1885: 21 (Od); Stange, 2004: 335 (Syn)
Myrmeleon rapax Kolbe 1897: 20 (Od); Stange, 2004: 335 (Syn)
Formicaleo quinquemaculatus: Hagen, 1866b: 405 (Tax, Dst)
Distoleon quinquemaculatus: Whittington, 2002: 382 (Dst)
Macroleon quinquemaculatus: Navás, 1911c: 242 (Dst); 1914: 16 (Dst); 1919: p. 296 (Dst); 1923: 144 (Dst); 1926: 86 (Dst); 1928: 31 (Dst); 1929: 95 (Dst); 1931: 261 (Dst); 1931: 124 (Dst); 1933: 310 (Dst); 1934: 47 (Dst); 1936: 335 (Dst)
Macroleon polyzonus: Navás, 1912d: 407 (Dst); Banks, 1920: 27 (Dst); Whittington, 2002: 383 (Dst)

Material examined. NORTHERN PROVINCE: 1♂ [074], Bumbuna, 28.IX.1982, W. Rossi leg.

Distribution. Afrotropical species (widespread: Togo east to Kenya and south to Namibia and Mozambique) and Madagascar.

Myrmeleon lynceus Fabricius, 1787

Myrmeleon lynceus Fabricius, 1787: 249 (Od); Gmelin, 1788: 2643 (Rd); Fabricius, 1793: 93 (Rd); Turton, 1802: 404 (Tax, Dst); Olivier, 1811: 122 (Rd, Tax, Dst); Walker ,1853: 405 (Rd, Tax, Dst); Hagen, 1866b: 443 (Tax, Dst); Banks, 1911: 12 (Dst) Prost *et al.*, 2022: 52 (Dst)
*Myrmeleon linx** Hagen, 1866b: 443 (Tax)
Hagenomyia lyncea: Navás, 1912d: 406 (Dst); Banks, 1920: 26 (Dst)

Macroleon lynceus: Navás, 1919: 296 (Dst); Navás, 1927: 13 (Dst); Navás, 1929: 444 (Dst); Navás, 1931: 124 (Dst); Fraser, 1954: 14 (Dst); Auber, 1956: 496 (Dst); Whittington, 2002: 383 (Dst)
Nelees lynceus: Navás, 1911a: 244 (Dst)

Material examined. NORTHERN PROVINCE: 1♀ [075], Bumbuna, 28.IX.1982, W. Rossi leg.

Distribution. The species is occurring in West Africa (Sierra Leone, Côte d'Ivoire, Togo) and Equatorial Africa (Cameroon, Gabon, Kenya, Tanzania).

NEMOLEONTINAE Banks, 1911

NEMOLEONTINI Banks, 1911

Creoleon Tillyard, 1919

Creoleon nubifer (Kolbe, 1897)

Creagris nubifera Kolbe, 1897: 25 (Od); Banks, 1911: 15 (Dst)
Creagris proximus Péringuey, 1910: 446 (Od)
Creagris junodi Esben-Petersen, 1916: 16 (Dst)
Gama nubifera: Banks, 1938: 7 (Tax)
Creoleon nubifer: Esben-Petersen, 1928: 444 (Tax, Dst); Handschin & Markl, 1955: 81 (Tax, Dst)

Material examined. NORTHERN PROVINCE: 2♀♀ [077-078], Kabala, 12.XII.1992, W. Rossi leg.; EASTERN PROVINCE: 1♀ [076], Sandia Village and Tama Forest Reserve, 15-16.V.1991, W. Rossi leg.

Distribution. This is widespread sub-Saharan African species including Madagascar.

Remarks. PROST *et al*. (2022) question the presence of this species for West Africa, but the specimens under examination compared with the various descriptions of *Creoleon nubifer* (Kolbe, 1897) and *Creoleon africanus* (Rambur, 1842) seem to correspond to *C. nubifer*. Furthermore, KOLBE (1897) himself mentions "... Außerdem im Ober-Guinea, bei Accra (Ungar)" [Accra is the capital of modern Ghana].

Distoleon Banks, 1910

Distoleon collartinus (Navás, 1933)

Formileo collartinus Navás, 1933: 312 (Od)

Material examined. NORTHERN PROVINCE: 1♀ [079], Bumbuna, 6.IV.1996, W. Rossi leg.

Distribution. Democratic Republic of the Congo and now also for Sierra Leone.

Remarks. Regarding *Distoleon collartinus* (Navás, 1933), it should be noted that, until now, only the female type specimen from the Democratic Republic of the Congo was known. The specimen from Sierra Leone, which is also female, constitutes the second record of this species. In order to confirm the identification, the specimen was compared with both NAVÁS's description (1933, p. 312, fig. 91) and with the picture of the holotype [BE_MRCA_INS.Neu.000588, *Formicaleo collartinus* Navás, 1933], which was published by the Royal Museum for Central Africa in Tervuren Belgium [https://www.africamuseum.be/research/collections_libraries/biology/collections/neuroptera]. This new data expands the known range of this apparently rare species.
Furthermore, Fig. 8 shows some details that may be useful for identification this rare species in addition to NAVÁS's description (*l.c.*) and the photo of the holotype at the MRCA.

Distoleon persephone (Banks, 1911)

Formicaleon persephone Banks, 1911: 19 (Od)

Material examined. Northern Province: 1♀ [081], Sumania, 21.XII.19??, W. Rossi leg.

Distribution. Benin, Senegal and now Sierra Leone.

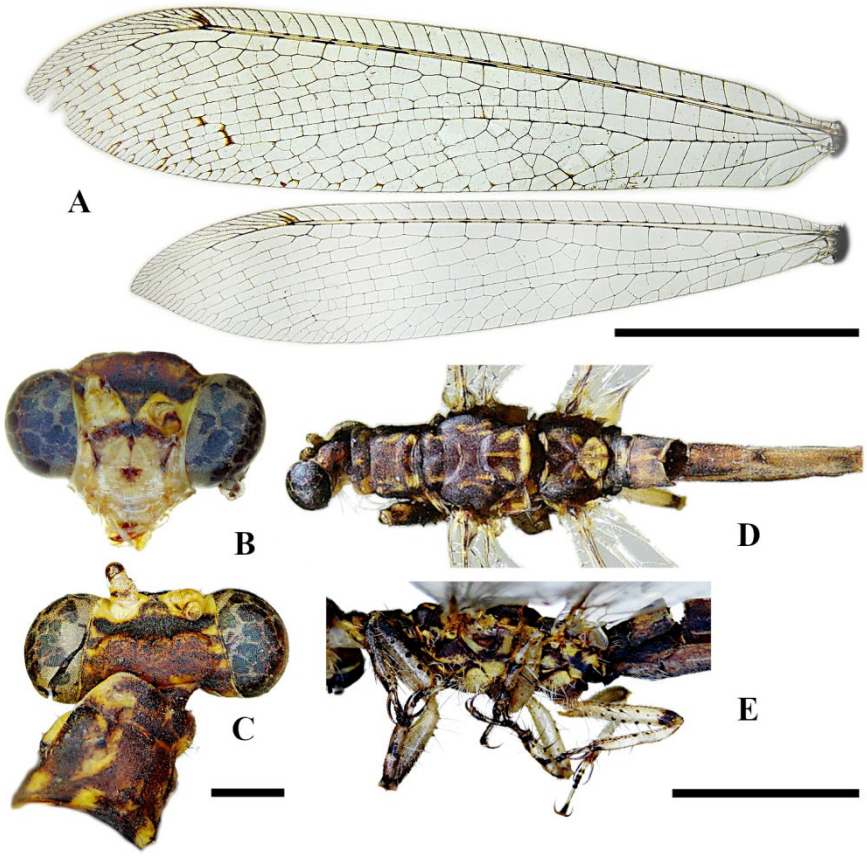

Fig. 8. *Distoleon collartinus* (Navás, 1933) [♀]: **A.** Left fore- and hindwing; **B.** Front; **C.** Vertex; **D.** Thorax (dorsal view); **E.** Thorax (lateral view). – [Scale bar: 10 mm (Fig. A); 1 mm (Figs. B-D); 5 mm (Figs. D-E)].

Distoleon pullus (Navás, 1940)

Formicaleo pullus Navás, 1940: 99 (Od)

Material examined. NORTHERN PROVINCE: 1 spec. (sex unknown) [080], Bumbuna, 6.IV.1996, W. Rossi leg.

Distribution. Benin, Burkina Faso, Mali, Nigeria and now Sierra Leone.

Distoleon tholloni (Navás, 1914)

Formicaleo tholloni Navás, 1914g: 105 (Od)
Feyna languida Navás, 1931: 264 (Od)
Dolicholeon ghesquierinus Navás, 1932: 276 (Od)
Distoleon tholloni: Stange, 2004: 163 (Dst)
Distoleon languida: Stange, 2004:155 (Dst)

Material examined. SOUTHERN PROVINCE: 1♀ [045], Kangari Hills Forest Reserve near Mongeri, 4.XI.1991, W. Rossi leg.

Distribution. Côte d'Ivoire, Mali, Nigeria, Democratic Republic of the Congo, and now Sierra Leone.

Nemoleon Navás, 1909

Nemoleon filiformis (Gerstäcker, 1885 [1884])

Myrmeleon filiformis Gerstäcker, 1885 [1884]: 31 (Od); van der Weele, 1906 [1905]: 5 (Dst)
Gandulus leptogaster Navás, 1912g: 73 (Od)
Gandulus filiformis: Esben-Petersen, 1916: 19 (Dst); Esben-Petersen, 1931: 93 (Tax, Dst)
Nemoleon filiformis: Banks, 1911: 22 (Dst); Handschin & Markl, 1955: 81 (Tax, Dst); Mansell, 2000: 175 (Dst); Whittington, 2002: 384 (Dst); Stange, 2004: 117 (Tax, Dst); Michel & Letourmy, 2007: 201 (Dst); Bakoidi *et al*., 2020: 61 (Tax); Prost & Popov, 2021: 69 (Dst); Prost *et al*., 2022: 53 (Dst)
Neuroleon filiformis: Banks, 1913b: 155 (Tax); Banks, 1920: 23 (Dst)
Naldanus filiformis: Navás, 1925: 132 (Dst)

Material examined. NORTHERN PROVINCE: 1♂ [082], Kabala, 12.XII.1992, C. Belcastro leg.

Distribution. Sub-Saharan species with scattered distribution from Mali to Zimbabwe.

Discussion and conclusion

The new material of neuropterans from Sierra Leone has enabled us to expand our knowledge of many species for this country, especially for the families Mantispidae, Chrysopidae, Ascalaphidae and Myrmeleontidae. In fact, more than 50% of the 42 species determined were new records to Sierra Leone, although these were already known for West Africa, especially for the neighbouring states, which share the same bioclimatic and environmental belt with Sierra Leone.
The material belongs to 7 families, 32 genera and 42 species, with a total of 103 specimens divided as follows: Osmylidae (1 genus, 1 species), Berothidae (1 genus, 1 species), Mantispidae (4 genera, 7 species), Hemerobiidae (1 genus, 1 species), Chrysopidae (4 genera, 5 species), Ascalaphidae (12 genera, 15 species) and Myrmeleontidae (9 genera, 12 species). Only 16 of the 46 species examined had previously been reported for Sierra Leone, while 25 species are new records for this country: *Spilosmylus leucomatodes* (Navás, 1911), *Nosybus navasi* Banks, 1918, *Afromantispa moucheti* (Navás, 1925), *Afromantispa nana* (Erichson, 1839), *Afromantispa tenella* (Erichson, 1839), *Cercomantispa decellei* Poivre, 1981, *Mantispilla delamarei* (Poivre, 1981), *Pseudoclimaciella loanga* (Navás, 1909), *Pseudoclimaciella sarta* (Stitz, 1913), *Borniochrysa squamosa* (Tjeder, 1966), *Ceratochrysa antica* (Walker, 1853), *Mallada desjardinsi* (Navás, 1911), *Dysochrysa furcata* Tjeder, 1966, *Allocormodes intractabilis* (Walker, 1859), *Tmesibasis waelbroecki* van der Weele, 1909, *Abascalaphus nigripes* (van der Weele, 1909), *Ascalaphus rougoni* Prost, 2013, *Brevibarbis argyropterus* (Taschenberg, 1879), *Encyoposis*

hemistigma van der Weele, 1909, *Nephoneura costalis* van der Weele, 1909, *Suhpalacsa abdominalis* (McLachlan, 1871), *Banyutus hesione* (Banks, 1911), *Distoleon collartinus* (Navás, 1933), *Distoleon persephone* (Banks, 1911), *Distoleon pullus* (Navás, 1940). In addition, a new species of Chrysopidae, *Ceratochrysa sierraleonensis* sp. nov., is described along with a new identification key for species of the genus *Ceratochrysa*.

References

ÁBRAHÁM L., 2017. Ascalaphid studies XI. A new owlfly (Neuroptera: Ascalaphidae) from Kenya: *Afroasca doboszi* gen. and sp. nov. *Rocznik Muzeum Górnoslaskiego w Bytomiu, Entomologia* [= *Annals of the Upper Silesian Museum in Bytom, Entomology*], 26(online 001): 1-3.

ÁBRAHÁM L., 2020. The Börzsöny lacewing collection I. (Neuroptera: Osmylidae, Mantispidae, Hemerobiidae, Chrysopidae, Nemopteridae, Myrmeleontidae: Ascalaphinae). *A Kaposvári Rippl-Rónai Múzeum Közleményei*, 7: 35-54.

ÁBRAHÁM L., 2025. Revision of the genus *Dicolpus* Gerstaecker, 1885 with description of a new species from Africa (Neuroptera: Ascalaphidae*). Natura Somogyiensis*, 45: 69-98.

AKOUDJIN M. & MICHEL B., 2011. A new species of *Palpares* Rambur (Neuroptera: Myrmeleontidae) with an identification key to the species of West Africa. *Zootaxa*, 2792: 33-40.

AUBER J., 1956. Névroptères Planipennes récoltés en Côte-d'Ivoire par la mission Paulian-Delamare. *Bulletin de l'Institut Française d'Afrique Noire (Series A, Sciences Naturelles)*, 18: 495-499.

BAKOIDI A., DOBO F., DJIBO I., MAOGE J., BOZDOGAN H. & TINKEU NGAMO L. S., 2020. Diversity and distribution of antlions (Neuroptera: Myrmeleontidae) in the northern region of Cameroon (Afrotropical region). *Journal of Biodiversity and Environmental Sciences*, 16: 61-71.

BANKS N., 1911. Notes on African Myrmeleonidae. *Annals of the Entomological Society of America*, 4: 1-29.

BANKS N., 1913a. The neuropterous genus *Palpares*. *Annals of the Entomological Society of America*, 6: 171-195.

BANKS N., 1913b. Notes on African Myrmeleonidae. *Journal of the New York Entomological Society*, 21: 149-157.

BANKS N., 1918. New neuropteroid insects. *Bulletin of the Museum of Comparative Zoology*, 62: 1-22.

BANKS N., 1920. Neuroptera, Panorpata, and Trichoptera collected by the American Museum Congo Expedition, with lists of the species known from the Belgian Congo. *Bulletin of the American Museum of Natural History*, 43: 21-33.

BANKS N., 1930. Neuropterous insects. Pp. 1045–1047. In: STRONG, R. C. (editor). The African Republic of Liberia and the Belgian Congo, based on the observations made and material collected during the Harvard African Expedition, 1926-1927. Vol. 2. ix + 569-1064 pp.

BANKS N., 1938. Zoological results of the George Vanderbilt African Expedition, 1934. Part IX. The neuropteroid insects. *Proceedings of the Academy of Natural Sciences of Philadelphia*, 90: 5-9.

BARNARD P.C. & BROOKS S.J., 1984. The African lacewing genus *Ceratochrysa* (Neuroptera: Chrysopidae): a predator on the cassava mealybug, *Phenacoccus manihoti* (Hemiptera: Pseudococcidae). *Systematic Entomology*, 9: 359-371.

BRAUER F., 1867. Beschreibung neuer Neuroptera aus dem Museum Godeffroy und Sohn in Hamburg. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 17: 505–512.

BROOKS S.J. & BARNARD P.C., 1990. The green lacewings of the world: a generic review (Neuroptera: Chrysopidae). Bulletin of the British Museum (Natural History), *Entomology Series*, 59: 117-286.

BURMEISTER H., 1893. Handbuch der Entomologie. 2 Abth. Kaukerfe. Gymnognatha. (2. Hälfte; *vulgo* Neuroptera). 757-1050 pp. Berlin, G. Reimer, 1832-55.

CALIFRE MARTINS C. & PRICE B., 2020. An annotated and illustrated catalogue of the Osmylidae collection (Neuroptera) at the Natural History Museum, London. *Zootaxa*, 4883: 1-61.

CARFÌ S. & D'ANDREA M., 1994. Contribution to the knowledge of the odonatological fauna in Sierra Leone, West Africa. In: Ricerche biologiche in Sierra Leone, (parte IV) pp. 111-192. *Accademia Nazionale dei Lincei*. Problemi Attuali di Scienza e Cultura Sezione: Missioni ed esplorazioni – XIII.

CILLS [Comité Permanent Inter-états de Lutte contre la Sécheresse dans le Sahel], 2016. Les Paysages de l'Afrique de l'Ouest: Une fenêtre sur un monde en plein évolution. *U.S. Geological Survey*, x + 219 p. [https//eros.usgs.gov/westafrica/atlas-document-downloads].

DALMAN J.W., 1823. Analecta Entomologica. Typis Lindhianis, Holmiae. vii + 104 pp.

EL HAMOULY H., & SAWABY R.F., 2020. Mantidflies from Egypt with a redescription of *Afromantispa nana* (Erichson, 1839) (Neuroptera: Mantispidae). *Entomofauna*, 40: 379-390.

ESBEN-PETERSEN P., 1912. H. Sauter's Formosa-Ausbeute. Neuroptera Planipennia [I]. *Entomologische Mitteilungen*, 1: 197-198.

ESBEN-PETERSEN P., 1916. Notes concerning African Myrmeleonidae I. *Arkiv för Zoologi*, 10(15): 1-22.

ESBEN-PETERSEN P., 1927. Neuroptera: Chrysopidae of the Seychelles and adjacent islands. *Annals and Magazine of Natural History*, (9)19: 445-455.

ESBEN-PETERSEN P., 1928. Neuroptera and Embiidina from Abyssinia and Somaliland. *Annals and Magazine of Natural History*, (10)1: 442-450.

ESBEN-PETERSEN P., 1931. Neue und wenig bekannte Neuropteren aus SüdAngola. *Revue Suisse de Zoologie*, 38: 89-95.

ESBEN-PETERSEN P., 1936. Missioni scientifiche del Prof. Edoardo Zavattari nel Sahara Italiano (1933-1934). *Bollettino della Società Entomologica Italiana*, 68: 71-74.

FABRICIUS J.C. 1787. Mantissa Insectorvm sistens eorvm species nvper detectas adjectis characteribvs genericis, differentiis specificis, emendationibvs, observationibvs. Tome 1. Chr. G. Proft, Hafniae, 519 pp

FABRICIUS J.C., 1781. Species insectorvm exhibentes eorvm differentias specificas, synonyma avctorvm, loca natalia, metamorphosin adiectis observationibvs, descriptionibvs. Tome 1. C. E. Bohnii, Hamburgi et Kilonii, 552 pp.

FABRICIUS J.C., 1793. Entomologia systematica emendata et aucta secundum classes, ordines, genera, species adjectis synonimis, locis observationibus, descriptionibus. Tome 2. C. G. Proft, Hafniae, 519 pp.

FRASER F.C., 1952. New species of Neuroptera in the Museum National d'Histoire Naturelle, Paris. *Revue Française d'Entomologie*, 19: 55-64.

FRASER F.C., 1954. La réserve naturelle intégrale du Mont Nimba. Fascicule II. I. Neuroptera (sens Linn.). *Mémoires de l'Institut Français d'Afrique Noire*, 40: 9-15.

FRASER F.C., 1955. Nouvelles notes sur les Nevropteres de Madagascar. *Naturaliste Malgache*, 7: 127-137.

FRASER F.C., 1957. Odonata and Neuroptera of Reunion. *Memoires de l'Institut Scientifique de Madagascar*, 8: 15-28.

GERSTÄCKER [C.E.]A., 1885 [1884]. Vier decaden von Neuropteren aus der Familie Megaloptera Burm. *Mitt[h]eilungen aus dem Naturwissenschaftlichen Verein für NeuVorpommern und Rugen*, 16: 1-49.

GERSTÄCKER [C.E.]A., 1888 [1887]. Weitere Beiträge zur artenkenntniss der Neuroptera Megaloptera. *Mitt[h]eilungen aus dem Naturwissenschaftlichen Verein für Neu-Vorpommern und Rugen*. 19: 89-130.

GERSTÄCKER [C.E.]A., 1894 [1893]. Ueber neue und weniger gekannte Neuropteren aus der familie Megaloptera Burm. *Mitt[h]eilungen aus dem Naturwissenschaftlichen Verein für Neu-Vorpommern und Rugen*, 25: 93-173.

GMELIN J.F., 1788. Caroli a Linne, equatis aurati de stella polari, à systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis ... Editio decima tertia, aucta, reformata [=13th edition, revised]. Tome 1, Pars IV and Pars V. [=Volume 1, parts IV and V]. Georg. Emanuel Beer, Lipsiae.

HAGEN H.A., 1853. Hr. Peters berichtete über die von ihm gesammelten und von Hrn. Dr. Hermann Hagen bearbeiteten Neuropteren aus Mossambique. *Bericht über die zur Bekanntmachung Geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin*, 1853: 479-482.

HAGEN H.A., 1862. Neuroptera. Netzflügler. Pp. 57–105. In: PETERS, W. C. H. (editor). Naturwissenschaftliche Reise nach Mossambique. Vol. 5 (Insecten und Myriopoden). Reimer, Berlin.

HAGEN H.A., 1866a. Monograph of the Hemerobiidae. Part II [Micromus]. *Proceedings of the Boston Society of Natural History*, 23: 276-292.

HAGEN H.A., 1866b. Hemerobidarum Synopsis synonymica. *Stettiner Entomologische Zeitung*, 27: 369-462.

HANDSCHIN E. & MARKL W., 1955. Neuropteren aus Angola. *Companhia de Diamantes de Angola, Publicaçoes Culturais, Lisboa*, 27: 65-82.

HANDSCHIN E., 1959. Beiträge zu einer Revision der Mantispiden (Neuroptera). I Teil. Mantispiden des Musee Royal du Congo Belge, Tervuren. *Revue de Zoologie et de Botanique Africaines*, 59: 185-227.

HANDSCHIN E., 1960. Beiträge zu einer Revision der Mantispiden (Neuroptera). II Teil. Mantispiden des "Musée Royal du Congo Belge", Tervuren. *Revue de Zoologie et de Botanique Africaines*, 62: 181-245.

HENWOOD G.A., 1977. Ant lions of north east Nigeria. *Nigerian Field*, 42: 111-117.

HÖLZEL H. & OHM P., 1991. Chrysopidae der Mascarene-Inseln (Neuropteroidea: Planipennia). *Entomologische Zeitschrift mit Insektenbörse*, 101: 343-347.

HÖLZEL H. 2001. Neuroptera in den tropischen Montanwäldern Ostafrikas (Neuroptera: Chrysopidae). *Entomologische Zeitschrift mit Insektenbörse*, 111: 290-295.

HÖLZEL H., 1983. Insects of Saudi Arabia. Neuroptera: Fam. Ascalaphidae. *Fauna of Saudi Arabia*, 5: 235-239.

HÖLZEL H., OHM P. & DUELLI P., 1999. Contribution to the knowledge of the Neuroptera of Ethiopia. *Entomofauna*, 20: 345-369.

HÖLZEL H., OHM P. & STELZL M., 1994. Chrysopidae aus Senegal und Gambia II. Belonopterygini und Chrysopini (Neuroptera). *Entomofauna*, 15: 377-396.

INSOM E. & CARFÌ S., 1988. Taxonomic studies on Palparini (*sensu* Markl, 1954). I: The genus *Palpares* Rambur, 1842 *partim* (Neuroptera: Myrmeleontidae) with the proposal of its division and description of new genera. *Neuroptera International,* 5: 57- 78.

JONES J.R., 2014. Taxonomic revisions of six genera of entire-eyed owlflies (Ascalaphidae: Haplogleniinae), and first large-scale phylogeny of the owlflies. Ph.D. dissertation. Texas A&M University. College Station, Texas, USA. xiv + 1088 pp.

KIMMINS D.E., 1949. Notes on Ascalaphidae in the British Museum collections, with descriptions of new species. *Annals and Magazine of Natural History*, 2(12): 1-29.

KOLBE H.J., 1897. Neuropteren. Die Netzflügler. *Möbius, K. A.* (editor). Die Thierwelt [Deutsch-]Ost-Afrikas und der Nachbargebiete. Band IV (Wirbellose Thiere). *Dietrich Reimer*, Berlin. [i] + 42 pp.

KOLBE H.J., 1898. Neue Neuropteren aus der Myrmeleontidengattung *Palpares*. *Stettiner Entomologische Zeitung*, 59: 229-235.

KRÜGER L., 1913. Osmylidae. Beiträge zu einer Monographie der Neuropteren-Familie der Osmyliden. II. Charakteristik der Familie, Unterfamilien und Gattungen auf *Grund des Geäders*. *Stettiner Entomologische Zeitung*, 74: 3-123.

KRÜGER L., 1914. Osmylidae. Beiträge zu einer Monographie der Neuropteren-Familie der Osmyliden. Va. Weitere Nachträge zu II., III. (pp. 9-57). Vb. Beschreibung der Arten (pp. 57-125). *Stettiner Entomologische Zeitung*, 75: 9-125.

KRÜGER L., 1922. Berothidae. Beitrage zu einer Monographie der Weuropteren-Familie der Berothiden. *Stettiner Entomologische Zeitung*, 83: 49-88.

LESTAGE J.A., 1923. Un Planipenne nouveau du Congo Belge (*Micromus weryae*). *Revue de Zoologie Africaines, Bruxelles*, 11: 196-197.

MANSELL M.W., KIRK-SPRIGGS A.H., MARAIS M., 2000. Neuroptera (Insecta). Dâures–biodiversity of the Brandberg Massif, Namibia. *Cimbebasia Memoir*, 9: 163-176.

MCLACHLAN R., 1871. An attempt towards a systematic classification of the family Ascalaphidae. *Journal of the Linnean Society of London*, *Zoology*, 11: 219-276.

MICHEL B. & AKOUDJIN M., 2012. Review of *Neuroleon* Navás of west Africa with descriptions of four new species (Neuroptera, Myrmeleontidae). *Zootaxa*, 3519: 32-52.

MICHEL B. & AKOUDJIN M., 2023. Description of three new species of *Myrmeleon* Linnaeus, 1767 from West Africa (Neuroptera: Myrmeleontidae). *Zootaxa*, 5231: 414-426.

MICHEL B. & LETOURMY P, 2007. Characterisation of a West African Myrmeleontinae assemblage (Neuroptera Myrmeleontidae): first evidence of a relationship between adult occurrences and climatic conditions. *Tropical Zoology*, 20: 197-209.

MICHEL B. & MANSELL M.W., 2010. Revision of the genus *Ganguilus* Navás (Neuroptera, Myrmeleontidae) with descriptions of three new species. *Zootaxa*, 2386: 1-24.

MICHEL B., 1999. Biodiversité et écologie des Palparinae du sud du Mali (Neuroptera, Myrmeleontidae). *Bulletin de la Société Entomologique de France*, 104: 45-52.

MICHEL B., 2000. Contribution à la connaissance des Ascalaphes du Mali et description de la femelle de *Tytomyia flinti* Tjeder, 1992 (Neuroptera, Ascalaphidae). *Bulletin de la Société Entomologique de France*, 105: 53-59.

MICHEL B., 2014. A revision of the genus *Solter* Navás, 1912 for Maghreb and West Africa with descriptions of five new species (Neuroptera, Myrmeleontidae). *Zootaxa*, 3887: 529-554.

MICHEL B., 2019. Revision of the genus *Disparomitus* van der Weele, 1909 with descriptions of four new species (Neuroptera, Ascalaphidae). *Zootaxa*, 4551: 1-39.

NAKAHARA W., 1956. New or little known Hemerobiidae from Japan and adjacent territories (Neuroptera). *Kontyû*, 24: 182-191.

NAVÁS L. 1912a. Insectos Neurópteros nuevos. Pp. 746–751. In: Verhandlungen des VIII Internationalen Zoologen-kongresses. Meeting: 15-20 August 1910, Graz, Austria. Gustav Fischer, Jena.

NAVAS L. 1912d. Notes sur quelques Névroptères d'Afrique. II. *Revue de Zoologie Africaines, Bruxelles*, 1: 401-410.

NAVAS L. 1912e. Myrméléonides (Ins. Nevr.) nouveaux ou peu connus. *Annales de la Société scientifique de Bruxelles*, 36: 203-248.
NAVAS L. 1912g. Notas sobre Mirmeleónidos (Ins. Neur.). *Brotéria* (Zoológica), 10: 29-75, 85-97
NAVAS L. 1926a. Insecta orientalia. IV series. *Memorie dell'Accademia Pontificia dei Nuovi Lincei, Rome,* 9: 111-120.
NAVAS L. 1926b. Insectes du Congo Belge. Série II. Revue de Zoologie Africaines, Bruxelles 14:85-90.
NAVAS L. 1933. Insectes du Congo Belge. Série VIII. *Revue de Zoologie et de Botanique Africaines*, 23: 308-318.
NAVAS L., 1909 [1908]. Mantíspidos nuevos [I]. *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 7: 473-485.
NAVAS L., 1911a. Notes sur quelques Névroptères d'Afrique. I. *Revue de Zoologie Africaines*, 1: 230-244.
NAVAS L., 1911b. Chrysopides nouveaux (Ins. Neur.). *Annales de la Société Scientifique de Bruxelles*, 35(pt. 2): 266-282.
NAVAS L., 1911c. Notes sur quelques Névroptères. I. *Insecta*, Rennes, 1: 239-246.
NAVAS L., 1912b. Crisópidos y hemeróbidos (Ins. Neur.) nuevos ó criticos. *Broteria, Serie Zoologica*, 10: 98-113.
NAVÁS L., 1912c. Sinopsis de los Ascaláfidos (Ins. Neur.). *Arxius de l'Institut de Ciències, Institut d'Estudis Catalans*, Secció de Ciències, 1: 45-143.
NAVÁS L., 1912h. Insectos neurópteros nuevos o poco conocidos. *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 10: 135-202.
NAVAS L., 1912i. Notes sur quelques Névroptères. III. Névroptères d'Afrique nouveaux ou critiques. *Insecta, Rennes*, 2: 68-80.
NAVÁS L., 1914a. Neurópteros nuevos o poco conocidos (Tercera [III] serie). *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 11(3): 193-215.
NAVAS L., 1914b. Voyage de Ch. Alluaud et R. Jeannel en Afrique Orientale (1911-1912). Résultats scientifiques. Insectes Névroptères. I. Planipennia et Mecoptera. Paris. 52 pp.
NAVAS L., 1914c. Neurópteros de Oceanía. Segunda [II] serie. *Revista de la Real Academia de Ciencias Exactas Fisicas y Naturales de Madrid*, 12: 645-653.
Navás L., 1914e. Notes sur quelques Névroptères du Congo Belge [I]. *Revue de Zoologie Africaines*, Bruxelles, 3: 365-377.
NAVAS L., 1914f. Neuroptera nova africana. II series. *Memorie dell'Accademia Pontificia dei Nuovi Lincei, Rome*, 32(1): 90-99.
NAVÁS L., 1914g. Neuroptera nova africana. III series. *Memorie dell'Accademia Pontificia dei Nuovi Lincei*, Rome, 32(1): 99-108.
NAVAS L., 1915. Notes sur quelques Névroptères du Congo Belge. III. *Revue de Zoologie Africaines*, 4: 172-182.
NAVÁS L., 1916. Neurópteros nuevos o poco conocidos (Séptima serie). *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 12(3): 219-243.
NAVAS L., 1919. Estudis sobre Neuròpters (Insectes). *Arxius de l'Institut de Ciències, Institut d'Estudis Catalans, Secció de Ciències*, 7: 179-203.
NAVÁS L., 1921a [1919]. Comunicaciones entomológicas. 4. Insectos exóticos nuevos, críticos o poco conocidos. Re*vista de la [Real] Academia de Ciencias Exactas Fisico-Quimicas y Naturales de Zaragoza*, 6: 61-81.
NAVÁS L., 1922a. Insectos nuevos o poco conocidos [I]. *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 17: 383-400.
NAVAS L., 1922b. Insectos de Fernando Poo. *Musei Barcinonensis Scientiarum Naturalium Opera*, 4: 109-116.
NAVÁS L., 1923. Quelques Myrméléonides (Ins. Névr.) d'Afrique. *Annales de la Société Scientifique de Bruxelles*, 43: 143-147.
NAVAS L., 1924. Névroptères d'Afrique. *Annales de la Société Scientifique de Bruxelles*, 43(pt. 1): 375-380.
NAVAS L., 1925a. Névroptères nouveaux. *Annales de la Société Scientifique de Bruxelles*, 44(pt. 1): 566-573.
NAVAS L., 1925b. Algunos insectos del Museo de París. 2.a série]. *Brotéria (Zoológica)*, 22: 75-83.
NAVÁS L., 1928 [1927]. Insectos de la Somalia Italiana. *Memorie della Società Entomologica Italiana*, 6: 85-89.
NAVÁS L., 1928. Insectos del Museo de Hamburgo. Primera [I] serie. *Boletín de la Sociedad Entomologica de España*, 11: 59-67, 90-100, 121-138.
NAVAS L., 1929a. Insectes du Congo Belge (Série III). *Revue de Zoologie et de Botanique Africaines*, 18: 92-112.

NAVÁS L., 1929b. Insecta nova. Series XIII. *Memorie dell'Accademia Pontificia dei Nuovi Lincei, Rome,* 12: 15-23.

NAVAS L., 1931. Insectes du Congo Belge (Série V). *Revue de Zoologie et de Botanique Africaines,* 20: 257-279.

NAVAS L., 1932. Insectes du Congo Belge. Série VII. *Revue de Zoologie et de Botanique Africaines*, 22: 269-290.

NAVAS L., 1934 [1933]. Comunicaciones entomológicas. 17. Insectos de Madagascar. Primera [I] serie. *Revista de la [Real] Academia de Ciencias Exactas Fisico-Quimicas y Naturales de Zaragoza*, 17: 49-76.

NAVAS L., 1935. Neurópteros exóticos. 2.a serie. *Memorias de la Real Academia de Ciencias y Artes de Barcelona*, 25: 37-59.

NAVAS L., 1936. Insectes du Congo Belge. Série IX. *Revue de Zoologie et de Botanique Africaines*, 28: 333-368.

NAVAS L., 1940. Neurópteros nuevos o críticos. In *VI Congreso Internacional de Entomología, Madrid, 6–12 de septiembre de 1935*. Vol. 1 [of 2] (pp. 97-102).

NAVÁS, L. 1912f. Bemerkungen über die Neuropteren der Zoologischen Staatssammlung in München. II. *Mitteilungen der Münchener Entomologischen Gesellschaft*, 3: 20-26.

NAVÁS, L. 1914d [1913]. Les Chrysopides (Ins. Névr.) du Musée de Londres [Ib]. *Annales de la Société Scientifique de Bruxelles*, 38(pt. 2): 73-114.

NAVAS, L. 1921b [1919]. Comunicaciones entomológicas. 3. Insectos exóticos. *Revista de la [Real] Academia de Ciencias Exactas Fisico-Quimicas y Naturales de Zaragoza*, 4(1): 287-306.

NAVAS, L. 1929c. Insectos exóticos Neurópteros y afines del Museo Civico de Génova. *Annali del Museo Civico di Storia Naturale Giacomo Doria*, 53: 354-389.

NEW T.R., 1984. Revision of the Australian Ascalaphidae. *Australian Journal of Zoology*, Supplementary Series 100: 1-86.

OHM P. & HÖLZEL H., 1982. Tiergeographische und ökologische Aspekte der Neuropterenfauna der Kapverden. *Courier Forschungsinstitut Senckenberg*, 52: 159-165.

OHM P. & HÖLZEL H., 2002. Zoogeographical patterns in Chrysopidae of the Madagascan subregion (Insecta: Neuroptera). Sziráki, G. (editor). Neuropterology 2000. Proceedings of the Seventh International Symposium on Neuropterology. Meeting: 6-9 August 2000, Budapest, Hungary. *Acta Zoologica Academiae Scientiarum Hungaricae*, 48(Suppl. 2): 229-252.

OKAMOTO H., 1914. Über die Chrysopiden-Fauna Japans. *Journal of the College of Agriculture, Tohoku Imperial University*, Sapporo, 6: 51-74.

OLIVIER G.A., 1811. Encyclopedie Méthodique. Histoire Naturelle, Insectes. Vol. 8. Paris.

OSWALD J.D., (chief editor) 2025. Lacewing Digital Library: Neuropterida Species of the World. URL: http://lacewing.tamu.edu/SpeciesCatalog/Main. Last accessed January 2025.

OSWALD J.D., 1993. Revision and cladistic analysis of the world genera of the family Hemerobiidae (Insecta: Neuroptera). *Journal of the New York Entomological Society*, 101: 143-299.

PENNY N.D., 2004. Neuroptera, lacewings. Pp. 663–669. In: GOODMAN, S. M. & BENSTEAD, J. P. (editors). Natural History of Madagascar. University of Chicago Press, Chicago, 1728 pp.

PÉRINGUEY L., 1910. Description of a new or little known species of the Hemerobiidae (Order Neuroptera) from South Africa. *Annals of the South African Museum*, 5: 433-454.

PROST A. & POPOV A., 2021. A first comprensive inventory of Ascalaphidae, Palparidae, and Myrmeleontidae (Insecta: Neuroptera) of northeastern Nigeria with description of two new species and an overview of genus *Bankisius* Navás. *Historia naturalis bulgarica*, 43(5): 51-77.

PROST A. 1991. Révision de *Tomatares clavicornis* (Latreille, 1830) [Neuroptera, Myrmeleontidae, Palparinae]. *Revue Française d'Entomologie* (N.S.),13: 145-149.

PROST A. 1993. *Myrmeleon gulo* Dalman 1823, statut spécifique et générique (Neuroptera, Myrmeleontidae). *Bulletin de la Société Entomologique de France*, 98:367-370.

PROST A., 1995. Révision des Palparinae d'Afrique de l'Ouest (Neuroptera, Myrmeleontidae). *Bulletin de la Société Entomologique de France*, 100: 79-107.

PROST A., 1996. Le Genre *Jaya* Navás 1912 [Neuroptera, Myrmeleontidae]. *Revue Française d'Entomologie* (N.S.), 18: 49-54.

PROST A., 1998. Les Acanthaclisinae d'Afrique occidentale et centrale [Neuroptera, Myrmeleontidae]. *Revue Française d'Entomologie* (N.S.), 20: 157-173.

PROST A., 2013. The genus *Ascalaphus* (Fabricius, 1775) (Neuroptera, Ascalaphidae) in Africa. DE FRIAS MARTINS, A. M. & MATEUS VENTURA, M. D. A. (editors). XI International Symposium on Neuropterology (13-15 June 2011, Ponta Delgada, Portugal). *Açoreana, Revista de Estudos Açoreanos*, Suplemento, 9: 57-72.

PROST A., 2019. The genus *Nosa* Navás, 1911 (Neuroptera, Myrmeleontidae, Palparinae). Pp. 129–143. In: WEIHRAUCH F., FRANK O., GRUPPE A., JEPSON J. E., KIRSCHEY L. & OHL, M. (editors). *Proceedings of the XIII International Symposium of Neuropterology*. Meeting: 17-22 June 2018, Laufen, Germany. *Osmylus Scientific Publishers,* Wolnzach, Germany. 297 pp.

PROST A., 2020. Mise en synonymie de *Helicomitus gromieri* Navás, 1921, avec *Encyoposis hemistigma* van der Weele, 1909 (Neuroptera, Ascalaphidae). *Bulletin de la Société Entomologique de France*, 125: 269-270.

PROST A., PERU L. & COACHE A., 2022. Névroptères du Bénin et du Togo (Insecta Neuroptera). *Entomologiste* 78: 33-64.

RAMBUR [J.]P., 1842. Histoire Naturelle des Insectes, Névroptères. Librairie encyclopédique de Roret. Fain et Thunot, Paris. [xviii]+534 pp.

SNYMAN L.P., SOLE C.L. & OHL M., 2015. On *Afromantispa* and *Mantispa* (Insecta, Neuroptera, Mantispidae): elucidating generic boundaries. *ZooKeys*, 523: 89-97.

STANGE L.A., 2004. A systematic catalog, bibliography and classification of the world antlions (Insecta: Neuroptera: Myrmeleontidae). *Memoirs of the American Entomological Institute*, 74: [iv]+565.

STITZ H., 1912. *Palpares* aus der Sammlung des Berliner Museums. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 6: 103-116.

STITZ H., 1913. Mantispiden der Sammlung des Berliner Museums. *Mitteilungen aus dem Zoologischen Museum in Berlin*, 7: 1-49.

THIERRY D. & CANARD M., 2021. Les Névroptères de l'île de la Réunion (Neuropterida: Neuroptera) et signalement d'une espèce nouvelle pour cette île. *Revue Française d'Entomologie Générale*, 3: 78-87.

TJEDER B. & HANSSON C., 1992. The Ascalaphidae of the Afrotropical Region (Neuroptera). 2. Revision of the tribe Ascalaphini (subfamily Ascalaphinae) excluding the genus *Ascalaphus* Fabricius. *Entomologica Scandinavica*, Supplement, 41: 171-237.

TJEDER B., 1957. Neuroptera-Planipennia. The Lace-wings of Southern Africa. 1. Introduction and families Coniopterygidae, Sisyridae, and Osmylidae. *South African Animal Life*, 4: 95-188.

TJEDER B., 1959. Neuroptera-Planipennia. The Lace-wings of Southern Africa. 2. Family Berothidae. Pp. 256-314 in South African Animal Life, B. Hanström, P. Brinck and G. Rudebec, eds. Vol. 6. Swedish Natural Science Research Council, Stockholm.

TJEDER B., 1961. Neuroptera-Planipennia. The lace-wings of southern Africa. 4. Family Hemerobiidae. *South African Animal Life*, 8: 296-408.

TJEDER B., 1966. Neuroptera-Planipennia. The lace-wings of southern Africa. 5. Family Chrysopidae. *South African Animal Life*, 12: 228-534.

TJEDER B., 1980, Ascalaphidae (Neuroptera) from Senegal and the Gambia. *Entomologica Scandinavica*, 11: 401-412.

TJEDER B., 1992. The Ascalaphidae of the Afrotropical Region (Neuroptera). 1. External morphology and bionomics of the family Ascalaphidae, and taxonomy of the subfamily Haplogleniinae including the tribes Proctolyrini n. tribe, Melambrotini n. tribe, Campylophlebini n. tribe, Tmesibasini n. tribe, Allocormodini n. tribe, and Ululomyiini n. tribe of Ascaphidae. *Entomologica Scandinavica*, Supplement, 41: 3-169.

TURTON W. 1802. A general system of nature, through the three grand kingdoms of animals, vegetables, and minerals: systematically divided into their several classes, orders, genera, species, and varieties, with their habitations, manners, economy, structure ... [1st edition]. Vol. 3. D. Williams, Swansea.

VAN DER WEELE H.W., 1906 [1905]. Über die von Prof. Dr. Y. Sjöstedt auf seiner Reise in Kamerun gesammelten Planipennia. *Arkiv för Zoologi*, 3(2): 1-14.

VAN DER WEELE H.W., 1907. Les Myrméléonides de Madagascar. *Bulletin Scientifique [or Biologique] de la France et de la Belgique*, 41: 249-278.

VAN DER WEELE H.W., 1909 [1908]. Ascalaphiden monographisch bearbeitet. *Collections zoologique du Baron Edm. de Sélys Longchamps*, 8[1908]: 326 pp., 254 figs., 2 tavv.

WALKER F., 1853. List of the specimens of neuropterous insects in the collection of the British Museum. Part II. (Sialides Nemopterides). British Museum [Natural History], London. [iii] + 193-476 pp.

WESTWOOD J.O., 1852. On the genus *Mantispa*, with descriptions of various new species. *Transactions of the Entomological Society of London (N.S.)*,1: 252-270.

WHITTINGTON A.E., 2002. Resources in Scottish Neuropterology. In: SZIRÁKI G. (editor). Neuropterology 2000. Proceedings of the Seventh International Symposium on Neuropterology. Meeting: 6-9 August 2000, Budapest, Hungary. *Acta Zoologica Academiae Scientiarum Hungaricae*, 48(Suppl. 2): 371-387.

WINTERTON S.L., CALIFRE MARTINS C., MAKARKIN V.N., ARDILA CAMACHO J.A. & WANG Y.-j., 2019. Lance lacewings of the world (Neuroptera: Archeosmylidae, Osmylidae, Saucrosmylidae): review of living and fossil genera. *Zootaxa*, 4581: 1-99.

Received: 26 February 2025
Accepted: 20 October 2025

2025 Insom & Terzani. This is an open access work distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY), which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited. To view a copy of the license, visit http://creativecommons.org/licenses/by/4.0/