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Short report on the fauna of ant-lion and owl-fly (Neuroptera) from Socotra Archipelago

Levente Ábrahám

Somogy County Museum, Natural History Department,
H-7400 Kaposvár, P.O. Box 70, Hungary, e-mail: labraham@smmi.hu

Ábrahám, L. *Short report on the fauna of ant-lion and owl-fly (Neuroptera) from Socotra Archipelago.*
Abstract: In 2009, seven ant-lion and one owl-fly species and subspecies were collected in Socotra Islands (Yemen). Half of the collected species are endemic. *Myrmeleon saldaitisi* sp. n. is described and compared to *Myrmeleon fasciatus* (Navás, 1912) and *Myrmeleon sanaanus* (Navás, 1929). Description of *Myrmeleon hyalinus isolatus* ssp. n. is given and its local population is separated from the other subspecies. Differential diagnosis is given for *Centroclisis lineata* (Kirby 1903) and *Centroclisis speciosa* Hölzel, 1983. Endemic ant-lions *Echthromyrmex insularis* Kimmins, 1961, *Centroclisis lineata* (Kirby, 1903) and *Neuroleon socotranus* (Taschenberg, 1883) are illustrated by figures and photos.

Keywords: new species, Neuroptera, Yemen, Socotra

Introduction

Socotra Archipelago situates 330 km from Somali Peninsula (the Horn of Africa) and 450 km from the Arabian Peninsula in the Arabian Sea. Archipelago consist two larger and two smaller islands and two rocky islets. The main island of Socotra is 135 km long and in average of 33 km wide, the highest area of Jabal Haggeher, its highest point is Mount Haghier with 1.526 m above the sea level.

The basal plate of Socotra is a huge granite block which originates from the ancient Gondwana. The islands, which is practically a large granite mountain is surrounded by a limestone plateau. Furthermore sandstones and coral limestone are also important component of the smaller islands. More than 23 million year ago, the archipelago separated from the African continent. Later, during the last Ice Age, the four islands of Socotra were connected (Beydoun & Bichan 1970).

Taschenberg (1883) studied firstly the Neuroptera fauna of Socotra and described one ant-lion and one endemic tail-wing species. Later, Kirby (1903) reported the occurrence of one other new ant-lion species. Some 60 years later, Kimmins (1960) completed the checklist of Neuroptera of Socotra listing 10 species. In 1974, two new tail-wings species were described by Tjeder (1974). Whittington (2002) recorded one new species for the fauna of Socotra and identified other four taxa in generic level. At the turn of the Millennium, one of the latest summaries on the endemic species-rich fauna of Socotra was carried out by Wranik (1999, 2000).

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Material and methods

In the second half of March in 2009, Dr. Aidas Saldaitis, Lithuanian entomologist, collected insects in Socotra. During his one-week-long fieldwork, he collected a significant Neuroptera material and presented it to the entomological collection of Somogy County Museum (Kaposvár). In nights, he used UV lamp to sample the entomofauna of different habitats of the main island.

Results

Seven ant-lion and one owl-fly species were collected. One new species and one new subspecies are described. Fifty percentages of the collected species are endemic.

Myrmeleontidae

Echthromyrmex insularis Kimmins, 1961 (Figs. 1 and 3).

KIMMINS 1960, WRANIK 1999, WHITTINGTON 2002

Material examined: 3♂ 1♀ Island C. Sokotra, top of Diksam cayon 2009.03.23. Leg. Saldaitis; 5♂ 1♀ Island N. Sokotra, Hills near Hadibu 2009.03.21. Leg. Saldaitis; 15♂ 3♀ Island N. Sokotra, S from Di Hamri Rocap loc. 2009.03.26. Leg. Saldaitis

It is an endemic species (KIMMINS 1960) in Socotra Archipelago. Its wings is shorter than that of *Echthromyrmex platypterus* McLachlan, 1867 (Figs. 2 and 4), furthermore its wing-pattern and colour of pronotum are also different.

Centroclisis lineata (Kirby, 1903) (Fig. 5).

KIRBY 1903 as *Acanthaclisis lineata*; WEELE (1907) as *A. lineata* synonym of *Centroclisis distincta* (Rambur, 1842); KIMMINS 1960 as *Acanthaclisis lineata* Kirby, 1903, STANGE 2004 p. 344 as *Myrmeleon lineata* Kirby, 1903 (new comb.) and p. 346 as *Centroclisis lineata* (Kirby, 1903),

Material examined: 2♂ 2♀ Island C. Sokotra, top of Diksam cayon 2009.03.23. Leg. Saldaitis; 2♂ Island N. Sokotra, Hills near Hadibu 2009.03.21. Leg. Saldaitis; 2♀ Island C. Sokotra, top of Diksam valley 2009.03.22. Leg. Saldaitis; 1♀ Island W. Sokotra, Shuab loc., coast line mangroves 2009.03.24. Leg. Saldaitis; 1♂ 2♀ Island C. Sokotra, Haghier Mt Ayhft valley 2009.03.20. Leg. Saldaitis; 2♂ Island N. Sokotra, Haghier Mt. Quadab loc. 2009.03.25. Leg. Saldaitis; 1♀ Island N. Sokotra, S from Di Hamri Rocap loc. 2009.03.26. Leg. Saldaitis

It seems to be a valid and an endemic species for Socotra. Although, a complete nomenclatural and taxonomical confusion on this species can be found in different papers. At first, this species was wrongly synonymised by WEELE (1907) as *Acanthaclisis distincta* Rambur, 1842 which the valid name recently is *Centroclisis distincta* (Rambur, 1842) combined by ESBEN-PETERSEN (1916). Later, NAVÁS (1914) described a new species as *Neoclisis lineata* Navás, 1914 from Libya preserved the type material in Genova listed by POGGI (1993). According to ASPÖCK et al. (2001) the taxonomical status of this species uncertain, it may be a junior synonym of *Centroclisis cervina* (Gerstaecker, 1893). BANKS (1930) placed this Libyan species, *Acanthaclisis lineata* Navás, 1914 to the genus of *Centroclisis* Navás, 1909 which was a preoccupied name of *Acanthaclisis lineata* Kirby, 1903 revealed by STANGE (2004) and in the same work it mentioned by STANGE (2004) as "*Myrmeleon lineata* Kirby, 1903" which is a wrong combination.

Fig. 1: Habitus of *Echthromyrmex insularis* Kimmins, 1961

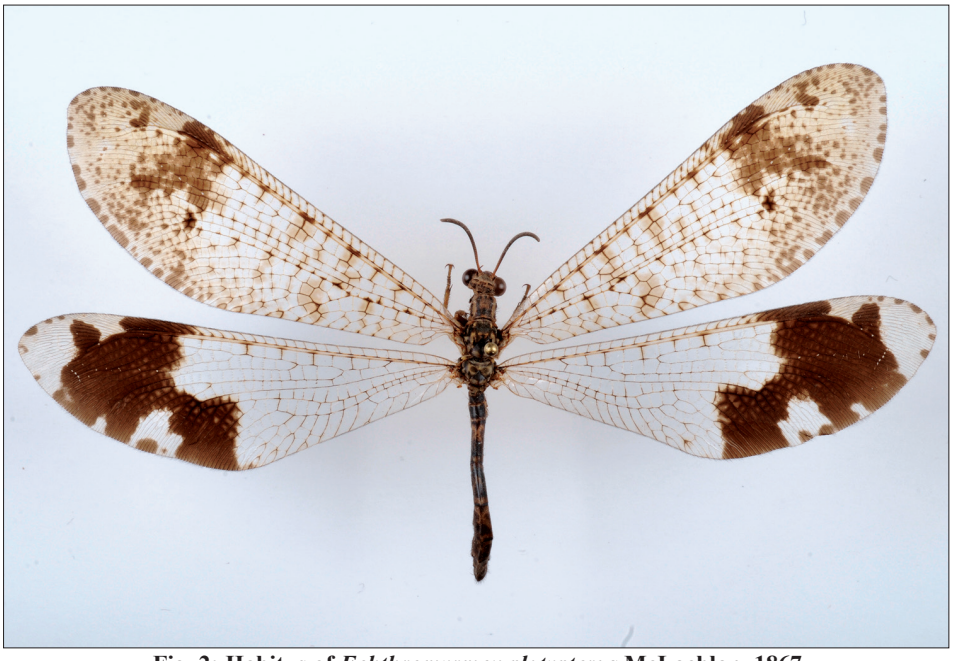

Fig. 2: Habitus of *Echthromyrmex platypterus* McLachlan, 1867

Fig. 3: Pronotum and vertex of *Echthromyrmex insularis* Kimmins, 1961

Fig. 4: Pronotum and vertex of *Echthromyrmex platypterus* McLachlan, 1867

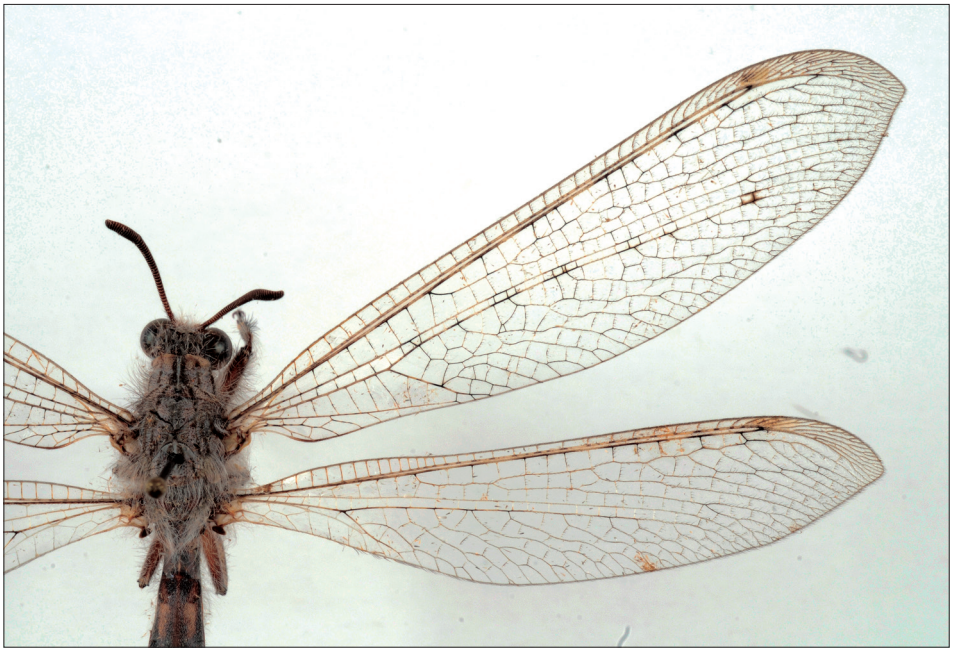

Fig. 5: Habitus of *Centroclisis lineata* (Kirby, 1903)

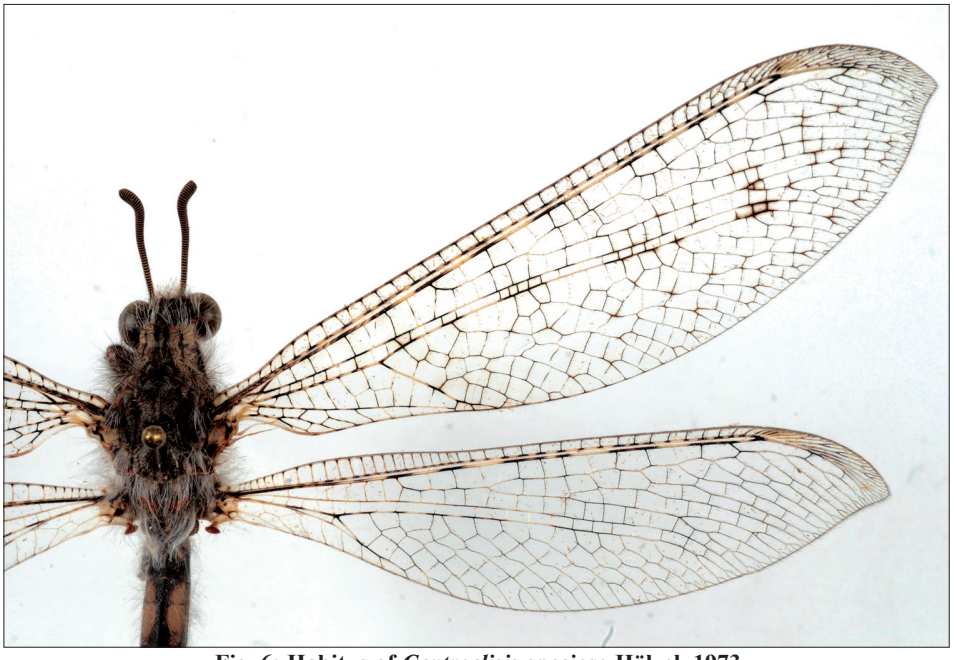

Fig. 6: Habitus of *Centroclisis speciosa* Hölzel, 1973

Centroclisis lineata (Kirby 1903) resembles to *Centroclisis speciosa* Hölzel, 1983 (Fig. 6) known from Oman. The later mentioned species was compared by HÖLZEL (1983) to *Centroclisis distincta* (Rambur, 1842) which is rather larger and morphological distinct species.

Table 1: The main differences between two similar species

Character	***Centroclisis lineata***	***Centroclisis speciosa***
Pattern on wings	indistinct	distinct
Relative size compared to each other	small	large
Pattern on pronotum	solid narrow lines	strikingly marked lines
Apical part of hind wing	slightly concave	strongly concave
Number of cross-veins in outer radial sector	15-16	16-18

Solter virgilii Navás, 1931

KIMMINS 1960, WHITTINGTON 2002

Material examined: 5♂ 1♀ Island C. Sokotra, top of Diksam cayon 2009.03.23. Leg. Saldaitis; 3♀ Island W. Sokotra, Shuab loc., coast line mangroves 2009.03.24. Leg. Saldaitis

It is a widespread species in Sahara and Sub-Sahara from Niger to Somalia (NAVÁS 1930) and from Israel via Arabian Peninsula to the Islands of Socotra (ASPÖCK et al. 2001).

Myrmeleon saldaitisi **sp.n**. (Fig. 7).

Morter alternans (Brullé in Webb & Berthelot, 1839) sensu KIMMINS 1960; *Myrmeleon alternans* Brullé in Webb & Berthelot, 1839 sensu WHITTINGTON 2002.

Material examined: Holotype: 1 ♂, Island C. Sokotra, top of Diksam valley 2009.03.22. Leg. Saldaitis; Paratypes 2♂ 5♀, topotypic. Holotype and paratypes are deposited in the entomological collection of Somogy County Museum and paratype 1♀ topotypic is also deposited in the entomological collection of Upper Silesian Museum, Bytom (Poland).

Head: Vertex yellow with shining black spot in two rows, hairless. Frons, gena, clypeus shining yellowish brown, hairless. Labrum yellow. Mandible yellow with brown inner margin and apices. Maxillar and labial palps yellow to brown. Eye shiny brown. Antenna clavate, 5 mm long. Scape, pedicel, flagellar segments and club yellow with short dense and brown setae.

Thorax: Pronotum as long as wide brown with yellow marks (Fig. 9) with sparse short and brown setae. Mesonotum and metanotum brown with distinct yellowish spots and with sparse short setae. Sides brown with rectangular-shaped and yellowish spots right under wings and with sparse short and white hairs.

Legs: Coxae brown with sparse short and white hairs. Femora, tibiae and tarsi yellow. Tibiae somewhat shorter than femora. Tibial spurs about half length of basitarsi. Pubescence on femora and tibiae consist 2 types of hairs: long rigid and black bristles and short and black hairs. Tarsal segments unequal in length. Tarsal segment 1 somewhat shorter than segment 5, Tarsal segment 5 as long as tarsal segments 2-4 together.

Wings: Fore wing: 26 mm long, 7 mm wide. Hind wing: 23 mm long, 6 mm wide. Fore wing long oval with acute apices and rounded basal projection. Membrane transparent.

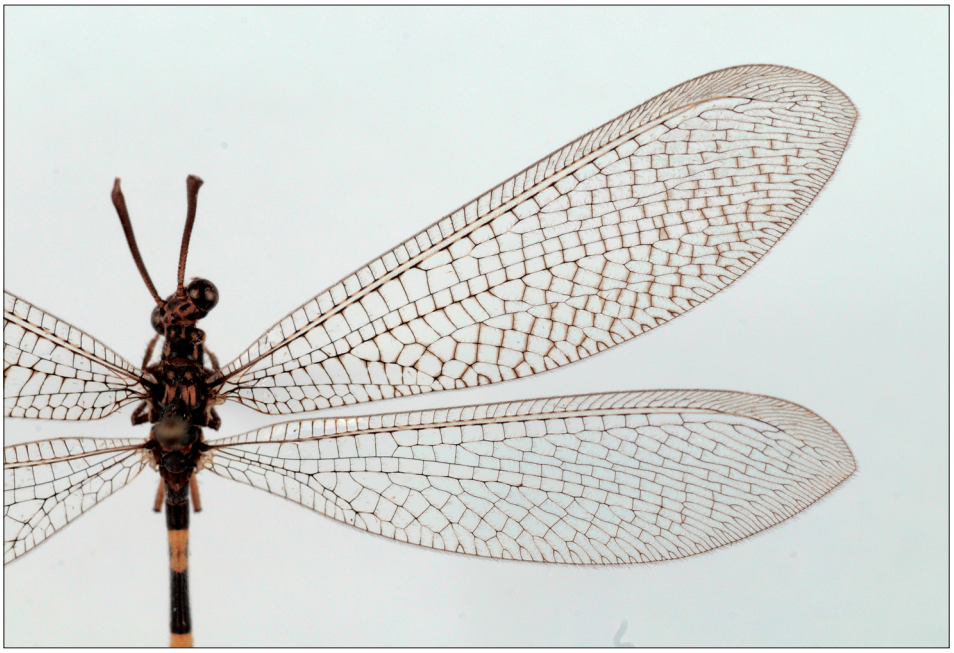

Fig. 7: Habitus of *Myrmeleon saldaitisi* sp.n.

Fig. 8: Habitus of *Myrmeleon fasciatus* Navás, 1912

Fig. 9: Pronotum and vertex of *Myrmeleon saldaitisi* sp.n.

Fig.10: Pronotum and vertex of *Myrmeleon fasciatus* Navás, 1912

Sc yellow, other longitudinal veins yellow with brown interruptions. Cross-veins brown with light brown shadows. Pterostigma indistint, 8 radial cross-veins in front of origin of Rs (Fig. 7). Hind wing colour similar to fore wing, its cross-veins without shadows. 6-7 radial cross-veins in front of origin of Rs. Male with pillula axillaries.

Abdomen: 20 mm long. Yellow and brown brands alternate each other on tergites and sternites as well. Pubescence short white and black.

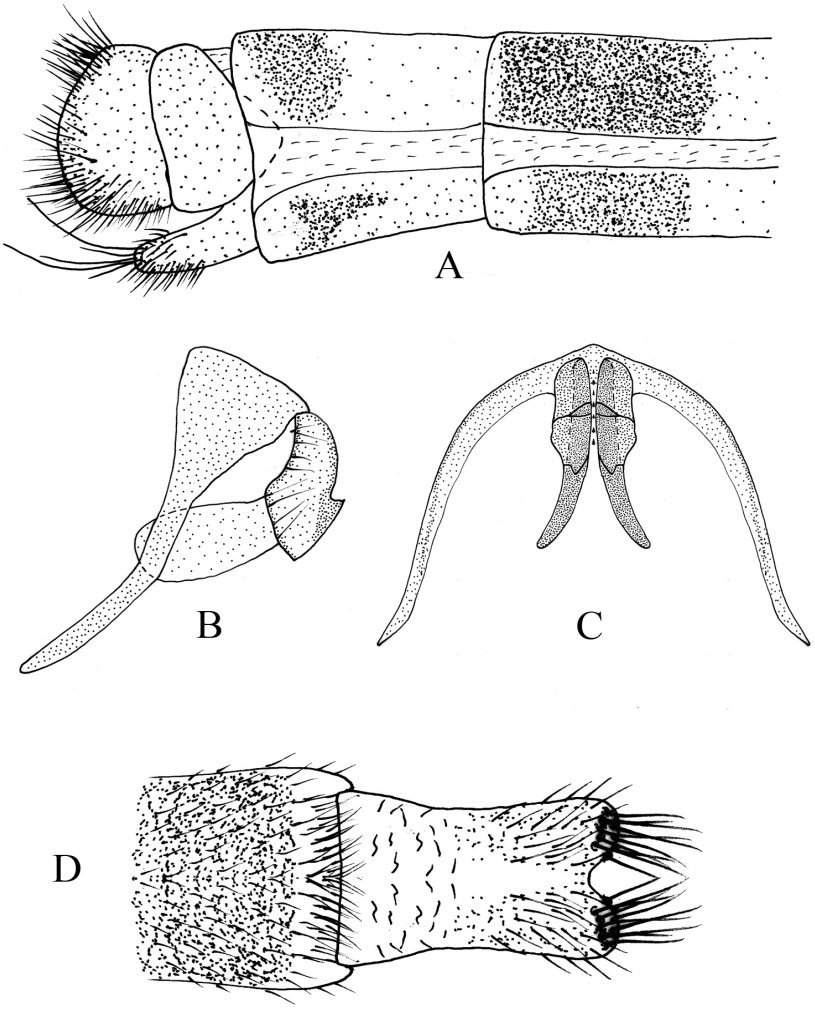

Fig. 11: Male and female genitalia of *Myrmeleon saldaitisi* sp.n.
A: male genitalia in lateral view, B: gonarcus and parameres in lateral view, C: the same in ventral view, D: female sternite 6 and 7 in ventral view

Genitalia: Male. In lateral view (Fig. 11 A), tergite 9 sub-rhomboid-shaped, yellow with short sparse white hairs. Ectoproct wide oval with black hairs on distal and ventro-caudal margins. Sternite 9 elongate with at least 3x longer caudal hairs than those on ectoproct. Gonarcus, parameres and mediuncus as in Fig. 11. B and C.

Paratypes ♀

Forewing: 29-30 mm long, 7.5 mm wide. Hind wing: 26-27 mm long, 6.5 mm wide; abdomen 22 mm long. Female genitalia in ventral view as in Fig. 11 D.

Myrmeleon alternans Brullé in Webb & Berthelot, 1839 is an endemic species of Azores Archipelago. The closely related species, *Myrmeleon fasciatus* (Navás, 1912) (Fig. 8) is spreading from West Sahara to Arabian Peninsula. The new species is not conspecific with *Myrmeleon alternans* Brullé in Webb & Berthelot, 1839 which is mentioned from Socotra by KIMMINS (1960) and WHITTINGTON (2002).

Based on male genitalia, the new species belongs to the *fasciatus*-group (*M. alternans* Brullé in Webb & Berthelot, 1839, *M. fasciatus* Navás, 1912, *M. pseudofasciatus* Hölzel, 1980) with uniform and unseparable male genitalia (HÖLZEL 1980).

General colour of *Myrmeleon fasciatus* is reddish brown and smaller than the new species. Pattern on pronotum is rather indistinct and different from that of the new species (Figs. 9 and 10). Dashes on longitudinal veins are very short but they are approximately equal and yellow and brown dashes alternate each other on wing of *Myrmeleon saldaitisi* sp.n. Anal area of fore wing of the new species with 4-5 cells in two rows between A1 and anal margin. In *M. fasciatus*, there are only 2-3 cells in two rows. Most of the *Myrmeleon* without any Banksian-lines but in the new species, posterior Banksian-line or its trace is clearly noticeable.

Type material of *Nemeyus sanaanus* Navás, 1929 from Yemen lost (ASPÖCK et al. 2001). Based on Navás's description, it is combined to *Myrmeleon sanaanus* (Navás, 1929) by STANGE (2004). The proposal combination is confirmed by base of fore wing and pillula axillary of hind wing (NAVÁS 1929 in Fig. 6). In both species, patterns of pronotum and vertex are different from that of the new species.

Etymology: the new species is dedicated to Dr. Aidas Saldaitis (Lithuanian entomologist).

Myrmeleon hyalinus isolatus **ssp. n**.

WHITTINGTON 2002 as *Myrmeleon* sp. near *hyalinus* Olivier, 1871

Material examined: 1♀ Island W. Sokotra, Shuab loc., coast line mangroves 24. 03. 2009. Leg. Saldaitis.

The holotype is deposited in the entomological collection of Somogy County Museum.

Frons with small shinning dark brown spot. Clypeus with two indistinct, rounded, light brown spots. (Fig. 12 A). Pronotum with narrow brown central strip and dark brown lateral spots (Fig. 12 B). Fore wing: 19 mm, hind wing: 17 mm long. Venation yellow with tiny dark brown spots, basal half of Sc and R, M with dark brown dashes at cross-veins. In apical part of fore wing, end parts of radial veins dominantly dark brown (Fig. 13).

Myrmeleon hyalinus is a widespread species in the Saharan and Sub-Saharan zones. It is not uniform species morphologically within distribution area, divided four subspecies by HÖLZEL (1986). The locus typicus of *M. hyalinus hyalinus* Olivier, 1811 can be found in the Arabian Peninsula. The new subspecies come from the island of Socotra is distinguished by smaller size and especially tiny dark brown spotted veins of wings and isolated population.

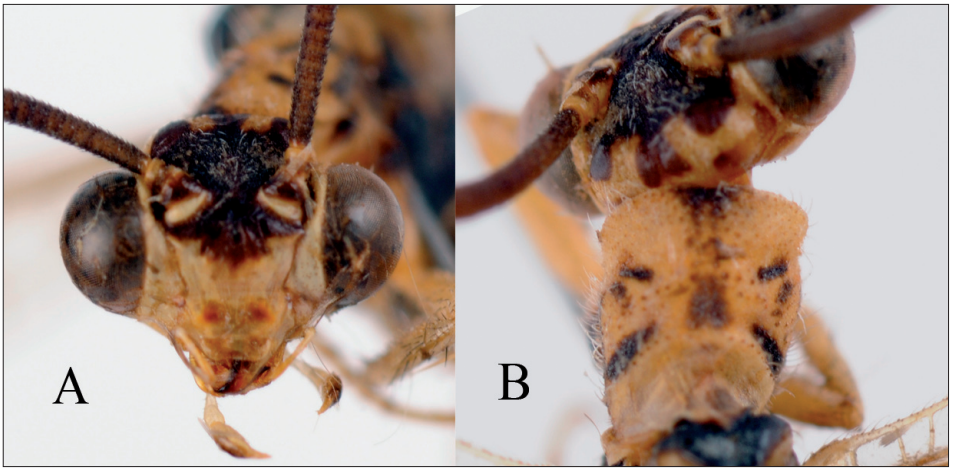

Fig. 12: Head in frontal view (A) and vertex and pronotum (B) in dorsal view of *Myrmeleon hyalinus isolatus* ssp.n.

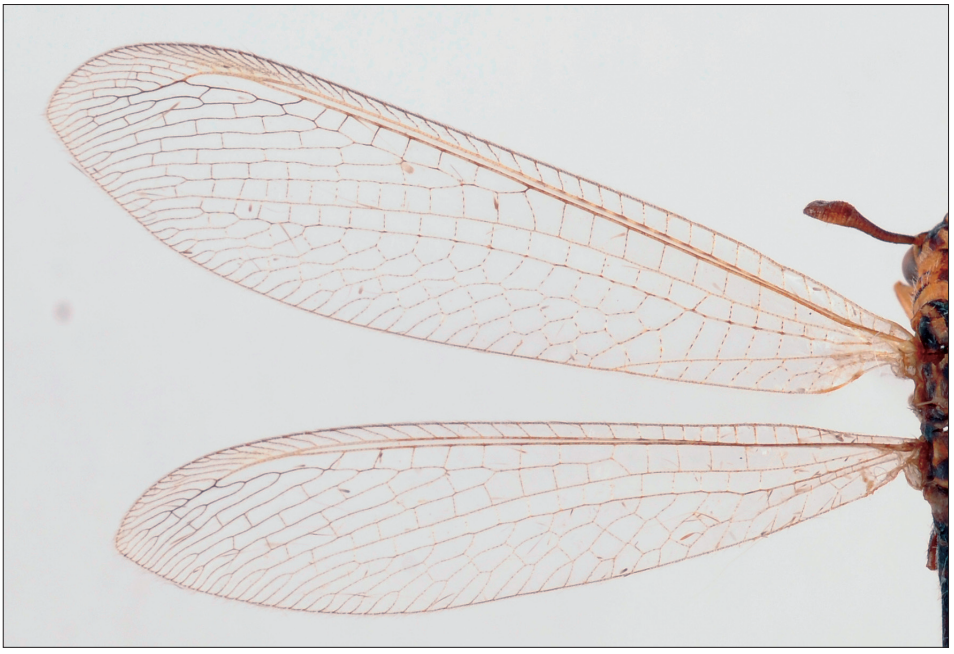

Fig. 13: Wings of *Myrmeleon hyalinus isolatus* ssp.n.

Fig. 14: Habitus of *Neuroleon socotranus* (Taschenberg, 1883)

Fig. 15: Pronotum and vertex of *Neuroleon socotranus* (Taschenberg, 1883)

Neuroleon sociorum Hölzel & Ohm, 1983

Material examined: 1 ♀ Island W. Sokotra, Shuab loc., coast line mangroves 2009.03.24. Leg. Saldaitis

It is widespread in Sahara and Arabian regions, new for the fauna of Socotra (ASPÖCK et al. 2001).

Neuroleon socotranus (Taschenberg, 1883) (Figs. 14 and 15).

TASCHENBERG 1883 as *Myrmecoleon socotranus*; KIMMINS 1960 as *Neleoma socotranus*; ASPÖCK et al. 2001 new combination as *Neuroleon socotranus* (Taschenberg, 1883)

Material examined: 6♂ 5♀ Island C. Sokotra, Haghier Mt Ayhft valley 2009.03.20. Leg. Saldaitis; 7♂ 5♀ Island C. Sokotra, top of Diksam valley 2009.03.22. Leg. Saldaitis; 1♀ Island W. Sokotra, Shuab loc., coast line mangroves 2009.03.24. Leg. Saldaitis; 2♂ 5♀ Island N. Sokotra, Haghier Mt. Qadab loc. 2009.03.25. Leg. Saldaitis

Neleoma Navás, 1914 was synonymized by STEFFAN (1971) as *Neuroleon* Navás, 1909. It is an endemic species. Male and female genitalia in Fig. 16.

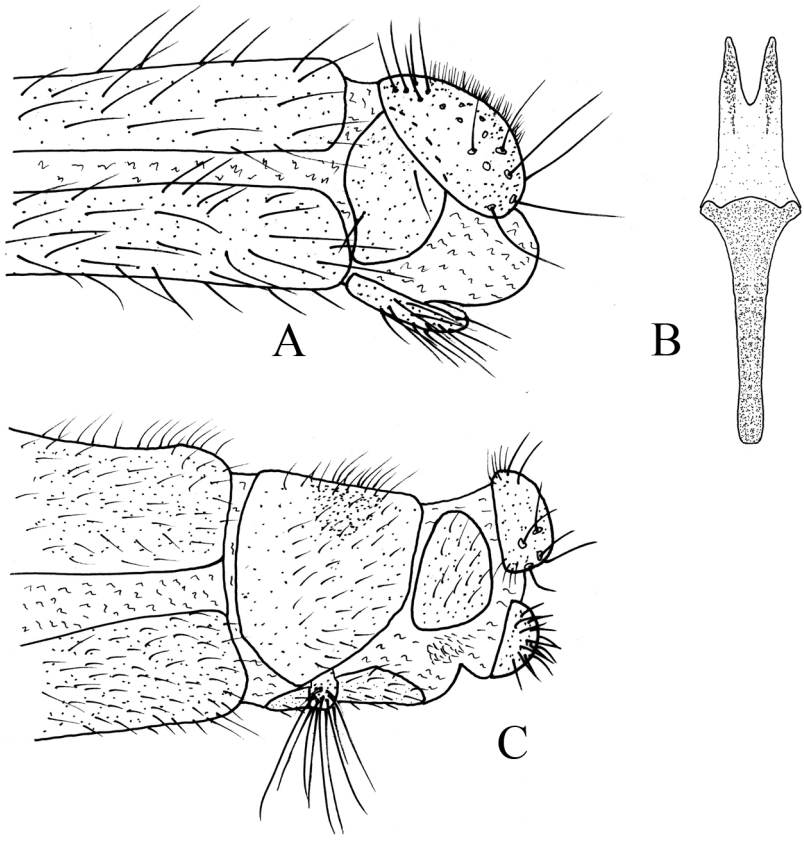

Fig. 16: *Neuroleon socotranus* (Taschenberg, 1883)
A: male genitalia in lateral view, B: gonarcus and parameres in wentral view, C: female genitalia in lateral view

Ascalaphidae

Ascalaphus aethiopicus (Kimmins, 1949)

KIMMINS 1960 as probably *Helicomitus festivus* (Rambur, 1842) or *H. aethiopicus* Kimmins, 1949; WHITTINGTON 2002 as *Ascalaphus* spp. undetermined material

Material examined: 1♂ Island N. Sokotra, Hills near Hadiboh 2009.03.21. Leg. Saldaitis

Although, the genus was revised by KIMMINS (1949), it appears that the species described from Africa in need of further revision.

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