Checklist of order Neuroptera in Egypt, with a key to families

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ABSTRACT

Order Neuroptera are the efficient predators of pests in different agroecosystems. In this paper, a checklist to the neuropteran species in Egypt, keys to families, updating the names, synonyms, local and World distributions were given. Totally 113 species of 59 genera including 8 families Myrmeleontidae, Chrysopidae, Nemopteridae, Coniopterygidae, Ascalaphidae, Hemerobiidae, Berothidae and Mantispidae were represented in Egypt fauna. This study was considered as the nucleus of more extensive studies on this order where a little work were done on it since Fadl, 1995 on Family Chrysopidae and El-Hamouly, 1996 on family Myrmeleontidae.

Key words: Neuropterous families, synonyms, distributions

INTRODUCTION

Order Neuroptera belongs to one of the most important group of insects because of their significant roles in integrated pest management as predators on aphids, mites and several other agricultural pests, and also as the valuable indicators for assessing ecological statement of a habitat (Canbulat, 2007). In Egypt it includes 8 families and about 113 species under 59 genera, some species almost certainly remain to be discovered. Most neuropteran species are predaceous as larvae (New 1986). The only known exceptions are the Ithonidae, which do not represent in Egypt. The larvae of Neuroptera, are suctorial feeders, ingesting liquid (or liquefied, by salivary enzymes) food. The mandibles and maxillae fit together to form canals for injection of saliva and ingestion of food.

The Neuroptera are soft bodied insects with four membranous wings that usually have a great many cross veins and extra branches of the longitudinal veins. There generally a number of cross veins along the costal border of the wing, between the C and Sc. The radial sector often bears a number of parallel branches. The wings are held roof like over the body at rest. The mouth parts are mandibulate, the antennae are generally long and many segmented, the tarsi are five-segmented. These insects undergo complete metamorphosis; the larvae are generally campodeiform, with mandibulate mouthparts.

Most species live on trees and bushes in forests, parks, orchards, gardens and tree avenues. Several species live on low grass and herb vegetation. Species living on plants prey on small insects, most frequently on Aphidoidea and Coccoidea or on phytophagous mites.

Neuroptera are consequently excellent indicators of environmental and habitat transformation, they are ideal subjects for scientific research owing to their diverse and cryptic life styles, and because of the restricted distributions and phenology of endemic species (Mansell, 2002).
Studies of Egyptian neuropteran fauna have not yet been completed. It needs to be studied more comprehensively. It can be expected that Egyptian Neuropteran species numbers can increase if it is studied in detail. With this study, the aim is to determine the neuropteran insect fauna of the Egypt, and the resent status of the order.

**Abreviations used in the text:**

**AF: AFRICA**  
AL: Algeria  
CI: Canary Islands  
EG: Egypt.  
ET: Ethiopia  
MZ: Mozambique  
LB: Libya  
SE: Senegal  
MA: Madagascar.  
MO: Morocco  
NI: Nigeria  
NG: Niger  
SO: Somalia  
SU: Sudan  
TU: Tunisia  
**AS: ASIA**  
AF: Afghanistan  
AZ: Azerbaijan  
CH: China  
KA: Kazakhstan  
IN: India  
INO: Indonesia  
IQ: Iraq  
IR: Iran  
JO: Jordan  
LI: Lebanon  
NZ: New Zealand  
OM: Oman  
PA: Palestine  
PK: Pakistan  
SA: Saudi Arabia  
SY: Syria  
TR: Turkey  
UAE: United Arab Emirates  
YE: Yemen  
EU: EUROPE  
AL: Albania  
BU: Bulgaria  
FI: Finland  
FR: France  
GE: Germany  
GR: Greece  
HU: Hungary  
IT: Italy  
MA: Malta  
PO: Portugal  
RU: Russia  
SP: Spain  

**MATERIALS AND METHODS**

**Materials:**

Specimens used in this study were those of:

1. **ALFC:** Alfieri's collection, Al-Azhar University, Faculty of Agriculture, Plant Protection Dept., Cairo, Egypt.
2. **ASUC:** Ain Shams university collection, Ain Shams university, Faculty of Science, Entomology Dept., Cairo, Egypt.
3. **CUC:** Cairo university collection, Cairo University, Faculty of Science, Entomology Dept., Cairo, Egypt.
4. **EESC:** Egyptian Entomological Society collection, Egyptian Entomological Society, Cairo, Egypt.
5. **MAC:** Ministry of Agriculture collection, Ministry of Agriculture, Plant Protection Institute, Insect Identification section, Cairo, Egypt.
RESULTS AND DISCUSSION

Key to families of order Neuroptera in Egypt

1- Very small insects, body covered with white or greyish waxy substances. Venation with no terminal twiggings, wings with relatively few veins, Rs with only two branches (Fig.1) ...........Coinopterygidae

- Insects not covered by a waxy substance. Venation with terminal twiggings, wings with many veins, RS usually with more than 2 branches .........................2

2- Front legs raptorial and arising from anterior end of prothorax, mantid-like insects (Figs. 3 & 4) ....... Mantispidae

- Front legs not raptorial and arising from posterior end of prothorax .................. 3

3- Antennae clubbed ....................... 4

- Antennae not clubbed ..................... 5

4- Antennae about as long as head and thorax together, hypostigmatic cell (the cell behind the point of fusion of Sc and R) very long, several times as long as wide (Fig.5), eyes entire .................... Myrmeleontidae

- Antennae nearly or quite as long as body, Wings elongate, hypostigmatic cell short, not more than 2 or 3 times as long as wide (Fig.6), eyes entire or divided horizontally .................. Ascalaphidae

5- Fore wings different from hind ones, hind wing very long with ribbon-shaped (Fig.2), head snout-like; with long beaks, antennae short .................. Nemopteridae

- Both two wings normal, head not as above ..................................................6

6- Fore wing with 2 or more branches of radial sector which arising from fused stem of R1 and Rs (Fig.7), some costal cross veins forked .................. Hemerobiidae

- Fore wing with only one radial sector, which has 2 or more branches, all branches of Rs arising from a single Rs stem ..................................................7

7- Costal cross veins forked in fore wings (Fig.8); antennae moniliform ... Berothidae

- Costal cross veins not forked in fore wing (Fig. 9) ................. Chrysopidae

Order Neuroptera

This order is the largest one of the superorder Neuropterida which spread over the world and contains about 4,700 species. Originally the Order Neuroptera was much larger and contained several sub-orders, Planipennia (lacewings, antlions, owlflies, etc), Raphidioidea (snakeflies) and Megaloptera (alderflies, dobsonflies, fishflies). Currently these groups are treated as three separate orders of the superorder Neuropterida and the order divided into three suborders, Hemerobiiformia, Myrmeleontiformia and Nevrorthiformia, the first two suborders represented only in Egypt and the last one not represented.
Suborder: myrmeleontiformia
Family: Myrmeleontidae

Ant lions

This is the largest family of the order Neuroptera, the members of this family are feeble fliers and are often attracted to lights. The wings are clear in some species and irregularly spotted in others. Ant lion larvae, or doodlebugs, are queer-looking creatures with long sickle-like jaws, and dwell at the bottom of conical pits constructed in sandy soil. They pupate in the soil, in a cocoon made of sand and silk.

These insects are mainly found in arid and semiarid regions, both adults and larvae are predators and are economically beneficial. Adults commonly feed on caterpillars and aphids, whereas the larvae feed on surface dwellers such as ants and other insect larvae. This family is represented in Egypt by two subfamilies Palparinae and myrmeleontinae and six tribes included 29 genera and 70 species.

Subfamily Palparinae

Tribe: Palparini

1- Goniocerus klugi (Kolbe, 1898)
Syn. Palpares klugi Kolbe 1898
Egyptian Collections: MAC.
Distribution Local: Coastal stripe and Sinai.
World: AF: EG, ET & SU; AS: IN, OM, PA & SA.

2- Goniocerus walkeri (McLachlan, 1894)
Syn. Palpares walkeri McLachlan 1894
Egyptian Collections: ASUC.
Distribution: Local: Red Sea and Upper Egypt.
World: AF: EG, ET, KE & SU; AS: IN, OM, PA, SA & YE.

3- Palpares angustus McLachlan, 1898
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Siwa.
World: AF: AL, EG, LB, SO & TU; AS: JO, SA & SY.

4- Palpares cephalotes (Klug, 1834)
Syn. Myrmeleon cephalotes Klug 1834
Palpares subducens Walker 1853
Palpares sollicitus Walker 1853
Egyptian Collections: CUC, EESC & MAC.
Distribution: Local: Lower & Upper Egypt and Gabal Elba.
World: AF: AL, EG, ET, SU & TU; AS: AF, IR & SA.

5- Palpares dispar Navas, 1912
Egyptian Collections: CUC, EESC & MAC.
Distribution: Local: Lower & Upper Egypt, Sinai and Eastern desert.
World: AF: EG & LB; AS: OM, PA, SA & UAE.

6- Palpares geniculatus Navas, 1912
Egyptian Collections: MAC.
Distribution: Local: Coastal strip and Lower Egypt.
World: AF: AL, EG, LB, MO & TU; AS: PA.

7- Palpares hispanus Hagen, 1860
Egyptian Collections: MAC.
Distribution: Local: Upper Egypt.
World: AF: AL & EG; AS: IR & PA; EU: PO & SP.

8- Palpares libelloides (Linnaeus, 1764)
Syn. Hemerobius libelloides Linnaeus 1764
Myrmeleon nordmanni Kolenati 1846
Palpares chrysopterus Navas 1910
Egyptian Collections: MAC.
Distribution: Local: Coastal stripe.
World: AF: EG & ET; AS: AZ, PA, SA & TR; EU: AL, BU, FR, GR, IT, PO & SP.

9- *Parapalpares solidus* Gerstacker, 1893

Syn. *Palpares solidus* Gerstacker 1893  
*Palpares klapaleki* Navas 1912  
*Palpares validus* Navas 1927

Egyptian Collections: CUC.
Distribution: Local: Upper Egypt.
World: AF: EG; AS: AF, IN, IQ, IR, PK & TR.

Subfamily: Myrmeleontinae

Tribe: Acanthaclisini

10- *Acanthaclisis occitanica* (Villers, 1789)

Syn. *Myrmeleon occitanicum* Villers 1789

Egyptian Collections: ASUC, CUC & MAC.
Distribution: Local: Sinai, Coastal stripe and Lower Egypt.
World: AF: EG; AS: AF, IR & PK; EU: FR & RU.

11- *Fadrina formosa* Holzel, 1980

Syn. *Acanthalisis formosa* Holzel 1980

Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG & SU; AS: OM, PA, SA & YE.
Note: This species was recorded by Holzel 1980 from Sinai

12- *Centroclisis cervina* (Gerstacker, 1863)

Syn. *Acanthaclisis cervina* Gerstacker 1863

Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG & SU; AS: PA, SA & SI.
Note: This species was recorded by Holzel 1982.

13- *Centroclisis lineata* Navas, 1914

Syn. *Neoclis lineata* Navas 1914

Egyptian Collections: CUC & MAC.
Distribution: Local: Sinai and Lower Egypt.
World: AF: EG & LB; AS: YE.

14- *Centroclisis speciosa* Holzel, 1983

Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG, MZ & SU; AS: OM, SA & YE.
Note: This species was recorded by Holzel 1982.

15- *Phanoclistis longicollis* (Rambur, 1842)

Syn. *Acanthaclisis longicollis* Rambur 1842  
*Myrmeleon longicollis* (Rambur 1842)  
*Phanoclistis longicollis* var. *flagellata* (Navas 1913)

Egyptian Collections: ASUC & MAC.
Distribution: Local: Coastal strip and Gabal Elba.
World: AF: EG, SE, SU & TU; AS: INO & SA.

Tribe: Nemoleontini

16- *Creoleon aegyptiacus* (Rambur, 1842)

Syn. *Myrmeleon aegyptiaca* Rambur 1842  
*Creoleon v-nigrum* var. *collinus*  
Navás 1919

Egyptian Collections: ASUC & MAC.
Distribution: Local: Sinai and Lower Egypt.
World: AF: AL, EG, LB, MO & TU; AS: AF & CH; EU: FR & SP.

17- *Creoleon antennatus* (Navás, 1914)

Syn. *Creagris antennata* Navás 1914  
*Creoleon indigus* Navás 1926

Egyptian Collections: ASUC, CUC & MAC.
Distribution: Local: Sinai and Lower Egypt.
World: AF: AL, EG & SU; AS: IR.

18- *Creoleon griseus* (Klug, 1834)

Syn. *Myrmeleon griseus* Klug 1834
Egyptian Collections: ASUC, CUC, EESC & MAC.
Distribution: Local: Sinai, Western desert, Lower and Upper Egypt. World: AF: EG, SU & TU; AS: IN, IQ, IR, OM, PA & SA; EU: IT.

19- Creoleon gularis Navas, 1926
Egyptian Collections: ASUC & MAC.
Distribution: Local: Coastal stripe and Sinai. World: AF: EG.

20- Creoleon plumbeus (Olivier, 1811)
Syn. Myrmeleon plumbeus Olivier 1811
Myrmeleon murinus Klug 1834
Creagris plumbea Hagen 1860
Egyptian Collections: MAC.
Distribution: Local: Upper Egypt. World: AF: EG; AS: AZ, IR, RU & TR; EU: AL, BU, GR, IT, HU, PO & YU.

21- Creoleon surcarfi (Navas, 1912)
Syn. Creagris surcoufi Navás 1912
Creoleon klugi Navás 1926
Egyptian Collections: CUC, EESC & MAC.
Distribution: Local: Sinai and Lower Egypt. World: AF: AL, EG, ET, SU & TU; AS: IR, PA & SA; EU: IT.

22- Delimeus scriptus Navas, 1912
Egyptian Collections: ASUC, CUC & MAC.
Distribution: Local: Sinai, Gabal Elba and Coastal stripe. World: AF: AL & EG; AS: PA.

23- Distoleon annulatus (Klug, 1834)
Syn. Formicaleo annulatus Klug 1834
Myrmeleon annulatus Klug 1834
Egyptian Collections: This species is not represented in the Egyptian Collections. Distribution: Local: No data.

24- Ganguilus pallescens Navas, 1912
Syn. Cordeses oblitus Navas 1914
Ganguilus oblitus (Navas 1914)
Nelees longipes Navas 1918
Megistopus flavipennis Navas 1932
Egyptian Collections: CUC & MAC.
Distribution: Local: Coastal stripe. World: AF: EG, NI, SO, SU & TU; AS: IR, PA & SA.

25- Gryria lepidula (Navas, 1912)
Syn. Macronemurus lepidulus Navas 1912
Macronemurus pupillus Navas 1918
Micronemurus lepidulus (Navas 1912)
Geyria zavattarina (Navas 1932)
Egyptian Collections: ASUC, CUC & MAC.

26- Quinemurus inflatus (Navas, 1926)
Syn. Nelees inflatus Navas 1926
Egyptian Collections: MAC.
Distribution: Local: Lower Egypt. World: AF: EG & TU.

27- Macronemurus appendiculatus (Latreille, 1805)
Syn. Myrmeleon appendiculatus Latreille, 1807
Nelees surcoufi Navas, 1928
Egyptian Collections: CUC & MAC.
Distribution: Local: Sinai. World: AF: AL, EG, MO & TU; AS: PA; EU: FR, IT, MA, PO & SP.

28- Macronemurus maghrebinus Holzel, 1987
Egyptian Collections: ASUC.
Distribution Local: Lower Egypt  
World: AF: EG & MO.

29- *Megistopus mirabilis* Holzel, 1980  
Egyptian Collections: This species is not represented in the Egyptian Collections.  
Distribution: Local: Sinai.  
World: AF: EG; EU: IT.  
This species was recorded by Holzel 1980 from Sinai.

30- *Mesonemurus harterti* (Navas, 1920)  
Syn. *Myrmneurus clavatus* Navas 1926  
*Nefta tunetana* Navas 1930  
Egyptian Collections: CUC & MAC.  
Distribution: Local: Sinai and Lower Egypt.  
World: AF: AL, EG & TU; AS: AF, IQ, IR, LI, PA, PK, SA & SY; EU: MA.

31- *Neuroleon (Neuroleon) asirensis*  
Holzel, 1983  
Egyptian Collections: ASUC.  
Distribution: Local: Sinai and Lower Egypt.  
World: AF: EG; AS: OM & SA.

32- *Neuroleon (Neuroleon) gracilis*  
(Navas, 1926)  
Egyptian Collections: MAC.  
Distribution: Local: Upper Egypt.  
World: AF: EG; AS: SA.

33- *Neuroleon (Neuroleon) hieraticus*  
Navas, 1926  
Egyptian Collections: ASUC & MAC.  
Distribution: Local: Upper Egypt.  
World: AF: EG & SU.

34- *Neuroleon (Neuroleon) lugubris*  
(Navas, 1926)  
Syn. *Gymnoleon lugubris* Navás 1926  
*Neuroleon lugubris* (Navas 1926)  
Egyptian Collections: ASUC & MAC.  
Distribution Local: Lower Egypt and Gabal Elba.  
World: AF: EG & SU; AS: OM, PA, SA & YE.

35- *Neoroleon (Ganussa) tenellus* (Klug, 1834)  
Syn. *Myrmeleon tenellus* Klug 1834  
*Neurleon naxensis* Navas 1915  
Egyptian Collections: ASUC, CUC, EESC & MAC.  
Distribution: Local: Lower Egypt, Coastal stripe, Sinai and Siwa.  
World: AF: EG, SU & TU; AS: AF, IQ, IR, LI, PA & SA; EU: GR.

36- *Noaleon limbatellus* (Navas, 1913)  
Syn. *Neuroleon limbatellus* Navas 1913  
*Ganussa limbatella* (Navas 1913)  
Egyptian Collections: EESC & MAC.  
Distribution: Local: Sinai.  
World: AF: AL, EG & SU; AS: IR, PA & SA; EU: SP.

37- *Pseudoformicaleo gracilis* (Klug, 1834)  
Syn. *Myrmeleon gracilis* Klug 1834  
*Creoleon gracilis* (Klug 1834)  
*Pseudoformicaleo anterior* (Navas 1913)  
Egyptian Collections: ASUC & MAC.  
Distribution: Local: Coastal strip and Siwa.  
World: AF: AL, EG & TU; AS: IR, PA, SA & SY.

38- *Pseudoformicaleo nobilis* (Navas, 1913)  
Egyptian Collections: MAC, ASUC, EESC & CUC.  
Distribution: Local: coastal strip, Sinai and Lower Egypt.  
World: AF: EG.

Tribe: Nesoleonintini  
39- *Ceuta divisa* (Navas, 1912)  
Syn. *Nesoleon divisus* Navas 1912  
*Cueta klugi* Hölzel 1982
Egyptian Collections: ASUC, EESC & MAC.
Distribution: Local: Coastal stripe and Lower Egypt.

40- **Ceuta lineosa** (Rambur, 1842)
Syn. *Myrmeleon lineosus* Rambur 1842
*Cueta trilineata* Navas 1911
*Cueta lineosa* Holzel 1968

Egyptian Collections: ASUC & MAC.
Distribution: Local: Coastal stripe, Sinai, Gabal Elba and Lower Egypt.
World: EG, SU & TU; AS: AF, IQ, IR, LI, PA, PK, SA & UAE; EU: AL, GR, IT & RU.

41- **Ceuta longula** Navas, 1926
Egyptian Collections: ASUC, EESC & MAC.
Distribution: Local: Sinai, Upper and Lower Egypt.
World: AF: EG & ET.

42- **Ceuta pallens** (Klug, 1834)
Syn. *Myrmeleon pallens* Klug 1834
*Myrmeleon pertenus* Klapalek 1912
*Macronemeurus chrysseus* Navas 1913
*Furga tunetana* Navas 1930

Egyptian Collections: MAC.
Distribution Local: Upper and Lower Egypt.
World: AF: EG, MA, NG, SU & TU; AS: PA, SA & YE.

43- **Ceuta puella** (Navas, 1913)
Syn. *Nesoleon puellus* Navás 1913
Egyptian Collections: MAC.
Distribution: Local: Sinai and Lower Egypt.
World: AF: AL, EG, LB & SO; EU: FR.

**Tribe: Myrmecaelurini**

44- **Gepus invisus** Navas, 1912
Syn. *Gepus curvatus* Navas 1914

Egyptian Collections: ASUC, CUC, EESC & MAC.
Distribution: Local: Coastal stripe, Lower & Upper Egypt, Gabal Elba, Western desert & Sinai.
World: AF: AL, EG, MO, SU & TU; AS: IQ, IR, PA & SA.

45- **Gepus labeosus** Holzel, 1982
Egyptian Collections: ASUC.
Distribution: Local: Upper Egypt.
World: AF: EG, LY & SU.

46- **Iranoleon octavus** Holzel, 1968
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: Egypt.
This species was recorded in Egypt by Holzel 1980 from Sinai.

47- **Lopezus fedtschenkoi persicus** Holzel, 1972
Egyptian Collections: CUC & MAC.
Distribution: Local: Sinai.
World: AF: EG, AS: AF, IR & TR.

48- **Maracanda amoena** McLachlan, 1875
Egyptian Collections: MAC.
Distribution: Local: Upper Egypt.
World: AF: AL, EG & TU; AS: KA.

49- **Myrmecaelurus acerbus** (Walker, 1853)
Syn. *Myrmeleon acerbus* Walker 1853
*Myrmecaelurus nigellus* Navas 1930
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG; AS: AF, IN, IQ, PA, PK, SA & TR.
50- *Myrmecaelurus lepidus* (Klug, 1834)
Syn. *Myrmeleon lepidus* Klug 1834
*Nohoveus lepidus* Holzel 1970
Egyptian Collections: ASUC.
Distribution: Local: Sinai and Gabal Elba.
World: AF: AL, EG, LB & TU; AS: OM & SA.

51- *Myrmecaelurus lateus* (Klug, 1834)
Syn. *Myrmeleon laetus* Klug 1834
*Myemecaelurus laetus* Holzel 1968
Egyptian Collections: MAC, CUC & ASUC.
Distribution: Local: Western desert, Sinai, Upper Egypt, Coastal stripe & Gabal Elba.
World: AF: EG & TU; AS: AF, IQ, OM, PA, PK, SA & YE.

52- *Myrmecaelurus lobatus* Navas, 1912
Egyptian Collections: MAC, CUC & ASUC.
Distribution: Local: Sinai, Coastal stripe, and Gabal Elba.
World: AF: EG, ET& LB; AS: PA & SA.

53- *Myrmecaelurus trigramms* (Pallas, 1771)
Syn. *Myrmeleon trigrammus* Pallas 1771
*Myrmeleon luteus* Hagen, 1858
*Myrmeleon flavus* Rambur 1842
Egyptian Collections: MAC, CUC, ASUC & EESC.
Distribution: Local: Coastal stripe, Sinai, Gabal Elba, Lower and Upper Egypt.
World: AF: AL, EG; EU: FR.

54- *Myrmecaelurus venalis* Navas, 1926
Syn. *Nohoveus venalis* Navas 1926
Egyptian Collections: MAC, EESC & ASUC.
Distribution: Local: Coastal strip and Gabal Elba.
World: AF: EG.

55- *Naya palpalis* (Klapalek, 1914)
Syn. *Myrmecaelurus palpalis* Klapalek 1914
*Nohoveus surcouri* Navas 1918
*Naya stigmata* Navas 1932
*Nohoveus palpalis* Holzel 1968
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: AL, EG, LB & TU; AS: IR, PA & SA.
This species was recorded by Holzel 1972.

56- *Nophis flava* Holzel, 1972
Egyptian Collections: ASUC.
Distribution: Local: Sinai.
World: AF: EG & SU; AS: SA.

57- *Nophis teillardi* Navas, 1912
Syn. *Myrmecaelurus macrurus* Klapalek 1914
*Myrmecaelurus teillardi* (Navas 1912)
Egyptian Collections: ASUC, CUC, EESC & MAC.
Distribution: Local: Sinai, Coastal strip, Upper & Lower Egypt, Western desert & Gabal Elba.
World: AF: AL, EG & TU; AS: PA, SA & UAE.

58- *Solter dubiosus* Holzel, 1980
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG & SU.
Note: This species was recorded by Holzel 1980 from Sinai.

59- *Solter freidbergi* Holzel, 1980
Egyptian Collections: ASUC.
Distribution: Local: Sinai.
World: Egypt.

60- *Solter hardi* Holzel, 1968
Egyptian Collections: ASUC.
Distribution: Local: Upper Egypt.
World: AF: EG; AS: IR, PK & SA.
61- Solter katharinae Holzel, 1980
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai
World: Egypt
This species was recorded by Holzel 1980 from Sinai.

62- Solter liber Navas, 1912
Egyptian Collections: EESC & CUC.
Distribution: Local: Lower Egypt.
World: AF: EG, MO & TU; AS: PA, TR; EU: PO & SP.

63- Solter propheticus Holzel, 1980
Egyptian Collections: ASUC.
Distribution: Local: Sinai and Upper Egypt.
World: AF: EG; AS: PA & SA.

64- Solter rothschildi Navas, 1913
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Upper Egypt.
World: AF: AL, EG & TU.

65- Solter virgilli Navas, 1931
Egyptian Collections: ASUC.
Distribution: Local: Sinai.
World: AF: EG, NG, SO & SU; AS: PA, SA & YE.

66- Solter wittmeri Holzel, 1982
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG; AS: SA.
This species was recorded in Egypt by Holzel 1982

Tribe: Myrmeleontini

67- Myrmeleon alternus Brulle, 1839
Syn. Myrmeleon alternans, Brulle 1839
Morter alternans (Brullé 1839)
Myrmeleon fasciatus Hagen 1860
Egyptian Collections: EESC & MAC.
Distribution: Local: Lower Egypt.
World: AF: AL & EG; AS: SA & YE.

68- Myrmeleon (Myrmeleon) hyalinus distinguendus Rambur, 1842
Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Lower Egypt, Sinai & Coastal stripe.
World: AF: AL, CI, EG, MO, SU & TU; AS: AF, IN, IQ, IR, LE, PA, RU, SA & TR; EU: GR, IT & SP.

69- Myrmeleon (Myrmeleon) hyalinus hyalinus Olivier, 1811
Syn. Myrmeleon (Myrmeleon) hyalinus afghanus Holzel 1987
Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Lower Egypt, Sinai & Coastal stripe.
World: AF: AL, CI, EG, MO, SU & TU; AS: AF, IN, IQ, IR, LE, PA, RU, SA & TR; EU: GR, IT & SP.

70- Myrmeleon (Myrmeleon) fasciatus (Navas, 1912)
Syn. Nesoleon fasciatus Navas 1912
Morter fasciatus Navas 1912
Egyptian Collections: ASUC.
Distribution: Local: Sinai.
World: AF: AL, EG & TU; AS: PA & SA; EU: GR.

Family: Nemopteridae
spoon-winged or thread-like lacewings

Adult nemopterids are beautiful delicate insects. Males have a bulla on the wing usually along the margin or wing base that is used to disperse pheromone. The larvae are characterised by their very long necks. They live in the caves, tombs, neglected mines and other deserted human dwellings. They feed on small sluggish soft insects and animals inside the cave. It
represented in Egypt by 9 species under 7 genera.

Subfamily Nemopterinae

1- *Anacroce freidbergi* Hölzel, 1975
   Egyptian Collections: This species is not represented in the Egyptian Collections.
   Distribution: Local: Sinai
   World: AF, EG; AS: SI.

2- *Halter halteratus* (Forskal, 1775).
   Syn. *Panorpa halterata* Forskål 1775
   *Nemoptera halterata* Forskål 1775
   *Nemoptera pallida* Olivier 1811
   Egyptian Collections: EESC, CUC & MAC.
   Distribution: Local: Coastal strip, Suez road, Sinai, Burg Mariut, Lower Egypt.
   World: AF: AL & EG; AS: AF, IN, IR, IQ, PA, SA & SY.

3- *Nemoptera aegyptiaca* Rambur, 1842
   Syn. *Nemoptera hebraica* Westwood 1874
   Egyptian Collections: This species is not represented in the Egyptian Collections.
   Distribution: Local: Sinai
   World: AS: PA, SI & TR.

4- *Savigniella costata* (Klug, 1838)
   Syn. *Nemoptera costata* Klug 1838
   *Nemoptera olivieri* Rambur 1842
   *Savigniella olivieri* (Rambur 1842)
   Egyptian Collections: CUC & MAC.
   Distribution: Local: Coastal strip (salloum)
   World: AF: EG, MO & TU.

Subfamily : Crocinae

5- *Croce aristata* (Klug, 1838)
   Syn. *Nemoptera aristata* Klug 1838
   *Croce klugi* Navás 1932
   *Klugina aristata* (Klug 1838)
   Egyptian Collections: MAC & EESC
   Distribution: Local: Sinai and Lower Egypt (Cairo).
   World: AF: EG & LB; AS: OM, PA & SA.

6- *Dielocroce berlandi* (Navas, 1936)
   Syn. *Nina berlandi* Navás 1936
   *Dielocroce saharae* Pierre 1952
   Egyptian Collections: This species is not represented in the Egyptian Collections.
   Distribution: Local: Sinai
   World: AF: AL, EG, KE & SU; AS: PA & SA.

7- *Dielocroce chobauti*, (McLachlan, 1898)
   Syn. *Croce chobauti* McLachlan 1898
   *Nina chobauti* (McLachlan 1898)
   Egyptian Collections: EESC, MAC & CUC.
   Distribution: Local: Suez Road, Sinai, Wadi Digla, Wadi Guffan, Wadi Raìb, upper and lower Egypt.
   World: AF: AL, EG & SO; AS: PA, OM, SA & YE.

8- *Dielocroce necrosia* (Navas, 1913)
   Syn. *Croce necrosia* Navás 1913
   *Dielocroce withycombei* (Navás 1926)
   *Nina necrosia* (Navás 1913)
   Egyptian Collections: This species is not represented in the Egyptian Collections.
   Distribution: Local: Sinai, western desert and eastern desert.
   World: AF: EG, SO; AS: SA.

9- *Necrophylus arenarius* Roux, 1833
   Egyptian Collections: CUC, EESC & MAC.
   Distribution: Local: Sinai and Lower and Upper Egypt
   World: AF: EG; AS: SI.

Family: Ascalaphidae

Owlflies

These are large dragonfly-like insects. This family is closely related to the Myrmeleontidae and has a similar distribution. Some of the species are active fliers, hawking their prey after the manner of dragonflies; others, however, are
nocturnal and very seldom seen. The eggs are deposited in rows upon grass stems, twigs, etc., and the batches are often fenced in below by circles of modified eggs (New, 1971) or repagula which possibly guard them from the attacks of predaceous enemies. The larvae closely resemble ant lions and have similar dentate mandibles; they are often provided with lateral segmental processes fringed with modified setae. The larvae do not construct pitfalls, but concealed on the ground between stones and leaves wait their prey. It represented in Egypt by 6 species under 5 genera.

Subfamily: Ascalaphinae

1- *Ascalaphus festivus* (Rambur, 1842)

*Encyopus amicus* McLachlan 1871

*Ascalaphus amicus* McLachlan 1871

Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Western desert, Sinai, Lower & Upper Egypt & Coastal stripe.
World: AF: EG, ET, SE & SU; AS: IR, JO, PA, SA, SY & UAE; EU: GR

4- *Libelloides rhomboideus rhomboideus* (Schneider, 1845)

Syn. *Ascalaphus rhomboideus* Schneider

*Libelloides rhomboideus cretensis* (Van der Weele 1900).

Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Western desert, Sinai
World: AF: EG, CY; AS: PA, SY, TR; EU: AL & GR.

5- *Stephanolacsa alfieri* Navas, 1926

Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Western desert, Sinai
World: Egypt.

6- *Suphalasca fuscostigma* Navas, 1926

Egyptian Collections: MAC, EESC & CUC.
Distribution: Local: Western desert and Sinai.
World: Egypt.

Suborder: hemerobiiformia

Family: Chrysopidae

Green lace wing

The Chrysopidae is the second largest family in the order Neuroptera in Egypt. It is economically most important families of the order. It includes over 1200 currently recognized species and subspecies that are divided between 86 genera and subgenera. The larvae of all species and adults of a few genera are predaceous and most feed on aphids, coccids and other soft-bodied insects. For this reason, some species have been reared and successfully used for the biological control of agricultural pests (Brooks & Bernard, 1990). It usually occurs in grasses and weeds and on the foliage of trees and
Checklist of order Neuroptera in Egypt, with a key to families

Most of them are greenish in color with copper-colored eyes. Some chrysopids give off a rather disagreeable odor when handled. The adults may be predaceous, or feed on pollen, or feed on honeydew. The eggs are usually laid on foliage and each egg is laid at the end of a tiny stalk. The larvae pupate in silken cocoons that are generally attached to the underside of leaves. It represented in Egypt by 16 species under 7 genera.

Subfamily: Chrysopinae

Brinckochaena alfieri (Navas, 1926) 1-
Syn. Chrysopa alfieri Navas 1926
Egyptian Collections: MAC.
Distribution Local: Lower Egypt and western desert.
World: AF: EG & SU.

Chrysemosa andresi (Navas, 1915) 2-
Syn. Chrysopa andresi Navas 1915
Egyptian Collections: MAC.
Distribution Local: Lower Egypt
World: Northern Africa south to Senegal and Middle East.

3- Chrysopa formosa Brauer, 1850
Egyptian Collections: This species is not represented in the
Distribution Local: Lower Egypt
World: AF: EG; EU: AL, AU, TU, FR, GE, HU, IT, SP & YU.

4- Chrysopa pallens (Rambur, 1838)
Syn: Hemerobius pallens Rambur 1838
Chrysopa septempunctata Wesmael 1841
Hemerobius mauriciana Rambur 1842
Chrysopa nobilis Brauer, 1851
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution Local: Lower Egypt
World: AF: EG; AS: CH, IN & JA; EU: AL, AU, FI, GE, HU, MA & SP.

5- Chrysopa perla (Linnaeus, 1758)
Syn. Hemerobius perla Linnaeus, 1758
Chrysopa maculata Stephens, 1836
Chrysopa nigriceps Okamoto 1914
Chrysopa fallax Navás, 1914
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution Local: Lower Egypt
World: AF: RG; whole Europe and Palearctic regions.

6- Chrysopela carnea (Stephens, 1836)
Syn. Chrysopa carnea Stephens 1836
Chrysopa microcephala Brauer 1850
Chrysopa vulgaris Schneider 1851
Chrysopa ferganica Navás 1933
Chrysopa sinica Tjeder 1936
Egyptian Collections: All Egyptian Collections
Distribution Local: coastal strip Lower and Upper Egypt, Sinai, Western desert
World: AF: EG; EU: AU, FI, HU & GE.

7- Chrysopela mutata (McLachlan, 1898)
Syn. Chrysopela mutata McLachlan 1898
Chrysopa nepia Navás 1911
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution Local: Western desert (siwa)
World: AF: EG; AS: IN; EU: SP.

8- Italochrysa stigmatica (Rambur, 1838)
Syn. Hemerobius stigmaticus Rambur 1838
Egyptian Collections: MAC & CUC.
Distribution Local: Sinai, Western desert.
World: AF: AL, EG, MO & TU; AS: SY; EU: FR & SP.

9- Dichochrysa aegyptiaca (Navas, 1915)
Syn. Chrysopa aegyptiaca Navás 1915
Chrysopa vulgaris aegyptiaca Navás 1915
Mallada aegyptiaca (Navás 1915)
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Lower Egypt.
World: AF: EG.

10- *Dichochrysa gravesi* (Navas, 1926)
Syn. *Chrysopa gravesi* Navás 1926
*Mallada gravesi* (Navás 1926)
Egyptian Collections: MAC.
Distribution: Local: Lower Egypt.
World: AF: EG.

11- *Dichochrysa healdi* (Navas, 1926)
Syn. *Chrysopa healdi* Navas 1926
Egyptian Collections: MAC.
Distribution: Local: Sinai.
World: Egypt

12- *Dichochrysa venosa* (Rambur, 1838)
Syn. *Hemerobius venosus* Rambur 1838
*Chrysopa venosa* (Rambur 1838)
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai.
World: AF: EG, MO & SU; AS: AF, IR, LE, PA, PK, SA & TR; EU: FR & SP.

13- *Suarius alisteri* (Navas, 1914)
Syn. *Chrysopa puparia* Navás 1914
*Vasquezius alisteri* Navás 1914
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Upper Egypt.
World: AF: AL, EG & SU.

14- *Suarius caviceps* (McLachlan, 1898)
Syn. *Chrysopa caviceps* McLachlan 1898
*Chrysopa lucasi* Navás 1910
*Suarius lucasi* Navás 1910
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution Local: No data
World: AF: AL, EG & SU; AS: IQ, SA.
Note: Holzel (1979) recorded it from Egypt without locality.

15- *Suarius nanus* (McLachlan, 1893)
Syn. *Chrysopa nana* McLachlan 1893

16- *Suarius storeyi* (Navas, 1926)
Syn. *Cintameva storeyi* Navás 1926
*Chrysopa storeyi* (Navás 1926)
Egyptian Collections: EESC.
Distribution: Local: Western desert, Sinai and Lower Egypt.
World: AF: EG.

**Family: Coniopterigidae**

**Dust wings**
These are minute insects, 3mm in length or less, and are covered by a whitish powder. The wings with relatively few veins. The group is a small one, and its members are relatively rare. The larvae feed on small insects as members of family Aphididae, Coccidae and Acarina and its eggs and also on spider mites. It is useful agents in biological control. It represented in Egypt by 8 species under 5 genera.

**Subfamily: Coniopteriginae**

1- *Coniopteryx (Xeroconiopteryx) aegypiaca* Withycomb, 1924
Syn. *Coniopteryx aegypiaca* Withycomb 1924
*Coniopteryx (Aspoeckiana) aegypiaca* Withycomb 1924
Egyptian Collections: MAC.
Distribution: Local: Lower Egypt (Wadi Degla).
World: AF: EG, ET & MO; AS: YE.

2- *Coniopteryx (Xeroconiopteryx) kerzhneri* Meinander, 1971
Syn. *Coniopteryx kerzhneri* Meinander 1971
*Coniopteryx (Aspoeckiana) kerzhneri*
Checklist of order Neuroptera in Egypt, with a key to families

Meinander 1971
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: No data.
World: AF: AL, EG & TU; AS: KA, SP&UZ.

3- Nimboa macroptera, Aspock & Aspock, 1965
Syn. Nimboa halfae Meinander 1965
Nimboa vartianorum H. Aspöck & U. Aspöck 1965
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: No data
World: AF: EG & SU; AS: AF, IR, LI, OM & SA; EU: GR & SP.

4- Conwentzia psociformis Curtis, 1834
Syn. Coniopteryx psociformis Curtis 1834
Conwentzia pineticola var. furticella
Enderlein 1906
Conwentzia psociformis var. tetensi
Enderlein 1906
Coniopteryx aphidiformis Rambur 1842
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Lower Egypt.
World: Palearctic (widespread), New Zealand, Canada, USA.

5- Conwentzia pineticola Enderlein, 1905
Syn. Coniopteryx pineticola Curtis 1834
Conwentzia pineticola var. furticella
Enderlein 1906
Conwentzia pineticola var. tetensi
Enderlein 1906
Conwentzia angulata Navás 1914
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Lower Egypt.
World: It has a wide distribution in Holarctic region, Europe, North Africa: EG; AS: TU.

6- Semidalis aleyrodiformis (Stephens, 1836)
Syn. Aleyrodes gigantea Stephens 1829
Coniopteryx aleyrodiformis Stephens 1836
Semidalis curtisiana Enderlein 1906
Semidalis poincianae Withycombe 1925
Egyptian Collections: AAC & CUC.
Distribution: Local: Sinai (wadi um elek, wadi degla, mahatta maskhara)
World: AF: EG; AS: CH, IN, MA & TH.

7- Semidalis pluriramosa (Karny, 1924)
Syn. Protosemidalis pluriramosa Karny 1924
Semidalis kaisilai Meinander 1965
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: No data
World: AF: EG; AS: YE; EU: SP.

8- Hemisemidalis pallida (Withycomb, 1924)
Syn. Parasemidalis pallida Withycombe 1924
Parasemidalis tamaricis Meinander 1963
Egyptian Collections: MAC.
Distribution: Local: Lower Egypt (Wadi Digla)
World: Southern Europe (Spain), Northern Africa, Middle east & east to Mongolia.

Family: Berothidae
Beaded lace wings
Small to medium sized insects; adults are attracted to light at night, and resemble caddisflies. Females of some species have scales on the wings and thorax. The eggs are stalked; the larvae are predaceous on termites. This family is represented in Egypt by 3 species under 2 genera.
Subfamily: Berothinae
1-Nodalla (Caslachillea) eatoni
(MacLachlan, 1898)
Syn. Berotha eatoni McLachlan, 1898
Sphaeroberotha eatoni (McLachlan 1898)
Nodalla eatoni (McLachlan 1898)
Costachillea eatoni (McLachlan 1898)
Costachillea barbara Navás 1929
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Sinai
World: North Africa; AS: Om, SA, PA & YE; EU: FR & SP.

2-Nodalla (Nodalla) saharica (Esben-Petersen, 1920)
Syn. Berotha saharica Esben-Petersen 1920
Costachillea saharica (Esben-Petersen 1920)
Costachillea werneri Esben-Petersen 1931
Nodalla aegyptiaca Navás 1926
Nodalla saharica (Esben-Petersen 1920)
Nodalla sinaitica Navás 1926
Egyptian Collections: EESC & MAC.
Distribution: Local: Sinai
World: AF: EG; AS: PA; EU: FR, SP.

3-Lekrugeria kongei (Esben-Petersen, 1915)
Syn. Berotha kongei Esben-Petersen 1915
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: No data.
World: North Africa; AS: Pa; EU: FR, SP.

Family: Hemerobiidae
Brown lace wings
These insects resemble green lacewings (Chrysopidae); but are brownish instead of green and generally smaller, and they have different venation. Some species have a recurved and branched humeral vein in fore wing, some costal cross veins forked. Brown lace wings are generally found in wooded areas, and much less common than the Chrysopidae. The larvae and adults are predaceous on small insects as aphids, mealy bugs, insect eggs and spiders. It is useful agents in biological control.
This family is represented in Egypt by 2 genera and 2 species.

Subfamily: Hemerobiinae
1-Wesmaelius nervous (Fabricius, 1793)
Syn. Hemerobius nervousus Fabricius 1793
Hemerobius distinctus Rambur 1842
Boriomyia nervous var. neurasthenicus Navás 1914
Egyptian Collections: MAC & CUC.
Distribution: Local: Lower Egypt and Sinai.
World: Holarctic: Canada (widespread), Northern USA (widespread): Palearctic (widespread).

Subfamily: Sympherobiinae
2-Sympherobius fallax Navas, 1908
Syn. Sympherobius fallax Navas 1908
Sympherobius tenellus Navás 1908
Nefasitus tenellus Navás 1908
Nefasitus schmitzi Navás 1908
Nefasitus fallax Navás 1908
Sympherobius schmitzi Navás 1908
Nefasitus amicus Navás 1915
Egyptian Collections: This species is not represented in the Egyptian Collections.
Distribution: Local: Lower Egypt.
World: Southern Europe, Northern & Southern Africa, Middle East east to Pakistan.

Family: Mantipidae
Mantidflies
These insects resemble mantids in having the prothorax lengthened and the fore legs enlarged and fitted for grasping preys. The larvae of some species feed
primarily on the larvae of wasps, bees and flies, while those of other species feed as parasites on spider eggs or in spider egg cases. Mantidflies undergo hypermetamorphosis; the first-instar larvae are active and campodeiform, and the subsequent larval instars are scarabaeiform. Veins Sc and R1 connected towards the apex by a cross-vein or a distinct pterostigma. Trichosors usually present.

This family is represented in Egypt by 2 genera and 2 species.

Subfamily Mantispinae

1- *Nampista auriventris* (Guerin-Meneville, 1838)

Syn. *Mantispa auriventris* Guérin-Méneville 1838

*Nampista speciosa* Navás 1914

Egyptian Collections: CUC.

Distribution: Local: Western desert (Siwa).

World: AF: EG; AS: OM; EU: GR.

2- *Euclimacia africana* (Esben-Petersen,1927)

Syn. *Pseudoclimaciella africana* Esben-Petersen 1927

*Euclimacia africana* var. *ragazziana* Navás 1929

Egyptian Collections: CUC.

Distribution: Local: Western desert (Siwa) and Sinai.

World: AF: EG & SU.

REFERENCES


(Fig. 1) Fore wing of family Coniopterygidae, (Fig. 2) Hind wing of family Nemopteridae, (Fig. 3) Fore leg of family Mantispidae, (Fig. 4) Head and pronotum of family Mantispidae, (Fig. 5) Fore wing of family Myrmeleontidae, (Fig. 6) Fore wing of family Ascalaphidae, (Fig. 7) Fore wing of family Hemerobiidae, (Fig. 8) Fore wing of family Berothidae, (Fig. 9) Fore wing of family Chrysopidae. h: hypostigmatic cell, R: radius vein, RS: radial sector vein.
قائمة بالأنواع المسجلة تحت رتبة نيوروبترآ (شبكية الاجنحة) في مصر بالإضافة إلى مفتاح تصنيفي للفصائل

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اشتملت الدراسة الحالية على عمل لائحة تصنيفية للفصائل المختلفة لرتبة نيوروبترآ (شبكية الاجنحة) في مصر، وايضاً عمل مفتاح تصنيفي للفصائل التابعة لهذه الرتبة، مع تحديث الأسماء وكتابة المراجعات والتواريخ المحلي والعالمي لهذه الأنواع. وقد اظهرت هذه الدراسة وجود 113 نوع تحت 59 جنساً تابعين لثمان فصائل هي: ميرميشيونتبيدي، كريزوبيدي، يمبيتريدي، كونيوبتريدي، أسكالافيدي، هيموبتريدي، بيروثيدي، والدينيدي ممثلين في القونه المصرية.

وتعتبر هذه الدراسة نواة جيدة للدراسات اللاحقة على هذه الرتبة حيث أن الدراسة عليها في مصر قليلة فلم تم دراسة تصنيفها عليها في مصر منذ فصل 1995، والحامولي 1996.