

List of The Lepidoptera Insects Surveyed in El-Beida Area, With Their World Distribution, Host Plants and Notes on Taxonomy

M. S. El-Maghrabi, A. H. Amin

*Zoology Department, Faculty of Science, Garyounis University, Benghazi, Libya.
 Biology Department, Faculty of Science, Garyounis University, El-Merj, Libya.*

ABSTRACT

Different methods were used to collect insects in El- Beida area, during the period from early March to late December2000. The survey covered a wide range of ecological habitats. Among the captured species 66 belonged to the order Lepidoptera. They are grouped into 11 Super families, 20 families, 36 subfamilies with comments on their taxonomy, host plants and world distribution. Out of these species, 26 are newly recorded in Libya for the first time.

Key Words: Lepidoptera; taxonomy; host plants.

INTRODUCTION

Members of the order Lepidoptera are well known to every observer of nature. The Lepidoptera includes two quite distinct groups of insects, the moths and butterflies. The Lepidoptera of Libya has been very poorly studied and is known only from a few faunal lists. The first list was published by Zavattari (1934). Damiano (1961) listed 146 species of Lepidoptera from Libya. Larsen, T.B (1977d, 1982c, 1984a, 1986, 1990) gave an excellent study of African and Asian Lepidoptera, he described many species of the Lepidoptera, provided with synonyms and distribution, beside Andres, A. (1912) described many Lepidopteran species from Egypt. From time to time a few species were added by various authors notably among them is Ahmed (1978) who gave three species, El-Ghariani (1992) recorded many Lepidopteran species by using light traps in El- Beida region, El-Meghrabi, M.S (2001) described 26 Lepidopteran species from Benghazi; out of these species 15 are recorded in Libya for the first time. The present work deals with families: Pyraustidae, Papilionidae, Nymphalidae, Satyridae, Danaidae, Hesperidae, Pieridae, Sphingidae, Noctuidae and Arctiidae with brief notes on their world distribution, ecology and taxonomy.

EXPERIMENTAL

Material and Methods:

Many localities representing different types of habitats in El-Beida area were surveyed. This survey of Lepidopteran species was continued for nine months starting from early March until late December 2000. Sweeping nets and light traps were used for the collection. The collected specimens were killed in KCN bottles, then pinned, labelled and identified.

RESULTS AND DISCUSSION

The following species were collected during the present study. The names with an asterisk are newly recorded from Libya.

Scientific name	Classification	Host plants	Distribution
1. <i>Pieris rapae</i> L	Super.F: Papilionidea F: Pieridae Sub.F: Pierinae	Cabbage, Cauliflower and other cultivated plants.	North Africa (Libya, Egypt), Europe (France), Asia (China, Japan), North America (USA, Canada), Australia (New Zealand)
2- <i>Colias crocea</i> Fourcroy	Super.F: Papilionidea F: Pieridae Sub.F: Coliadinae	Alfalfa (<i>Medicago sativa</i>), Many Leguminous	N. Africa (Libya, Egypt), Central and South Europe
3. <i>Pieris brassica</i> L	Super.F: Papilionidea F: Pieridae Sub.F: Pierinae	Cabbage, Cauliflower and other cultivated plants	North Africa (Libya, Egypt), Most of Europe, Asia (Himalaya, Lebanon), N. America (USA and S. Canada), Australia (New Zealand)
4. * <i>Pontia glauconome</i> Klug	Super.F: Papilionidea F: Pieridae Sub.F: Pierinae	By Nets	Murantania, Jordan, Iraq, W. Africa (Murantania), Asia (Saudi Arabia)
5. * <i>Gonepteryx Cleopatra</i> (L)	Super.F: Papilionidea F: Pieridae Sub.F: Coliadinae	By Nets	Most of Europe
. <i>Danaus chrysippus</i> L	Super.F: Papilionidea F: Danaidae Sub.F: Danainae	By Nets	Mediterranean basin, N. Africa (Egypt, Libya, Canary Island), Europe (Italy), Europe (Italy), C. America

List of The Lepidoptera Insects Surveyed in El-Beida Area, With Their World Distribution, Host Plants and Notes on Taxonomy

			an, Asia (Saudi Arabia)
7. <i>Vanessa atalanta</i> (L)	Super.F:Papilionidea F: Nymphalidae Sub.F: Nymphalinae	By Nets	Mediterranean basin,N.Africa(Egypt)
8. <i>Vanessa cardui</i> (L)	Super.F:Papilionidea F: Nymphalidae Sub.F: Nymphalinae	By Nets	Mediterranean basin,N.Africa(Egypt),N.America(Mexico,C anada,USA) , Asia (Pakistan)
9.* <i>Mesoacidalia aglaja</i> (L)	Super.F:Papilionidea F: Nymphalidae Sub.F: Nymphalinae	By Nets	Most of Europe
10.* <i>Lasiommata megera</i> (L)	Super.F:Papilionidea F: Satyridae	By Nets	Most of Europe Except the South
11.* <i>Melanargia occitanica</i> (Sper)	Super.F:Papilionidea F: Satyridae Sub.F: Satyrinae	By Nets	Most of Europe
12. <i>Lampides beoticus</i> (L)	Super.F:Papilionidea F: Lycaenidae Sub.F: Polymmatinae	By Nets, Leguminous	North Africa (,Egypt, Libya in Tripoli and oriental area) ,Asia (Iraq).
13.* <i>Lycaena phlaeas</i> (L)	Super.F:Papilionidea F: Lycaenidae Sub.F: Lycaeninae	By Nets	South Sudi-Arabia ,East Africa, North Africa was recorded from Egypt
14.* <i>Tomares ballus</i> (F)	Super.F:Papilionidea F: Lycaenidae Sub.F: Lycaeninae	By Nets	South of France
15.* <i>Polymmatius icarus</i> (Rotterm)	Super.F:Papilionidea F: Lycaenidae Sub.F: Polymmatinae	By Nets	Most of Europe
16. <i>Papilio machaon gorganus</i> L	Super.F:Papilionidea F: Papilionidae Sub.F: Papilioinae	Citrus leafage, Light traps	Britain, France and Libya (Benghazi)

17.* <i>Pyronia tithonus</i> (L)	Super.F:Papilionidea F: Nymphalidae Sub F: Satyrinae	By Nets	Most Europe
18. <i>Agrius convolvuli</i> (L)	Super.F: Sphingoidea F: Sphingidae Sub.F: Sphinginae	Light traps	North Africa(Libya),Asia(China), Europe(England,Iceland,,Germany),Australia(New Zealand)
19. <i>Macroglossa stellatarum</i> L	Super.F: Sphingoidea F: Sphingidae Sub.F: Macroglossinae	By Nets	North Africa(Libya),Asia(Korea, (Korea,Japan, South.India),Europe (Britain, France)
20. <i>Hippotion celerio</i> L	Super.F: Sphingoidea F: Sphingidae Sub.F: Macroglossinae	Grape	North Africa (Libya ,Egypt),
21. <i>Hyles lineata livornica</i> Esp	Super.F: Sphingoidea F: Sphingidae Sub.F: Macroglossinae	Grape	North Africa (Libya ,Egypt),
22. <i>Deilephila nerii</i> (L)	Super.F: Sphingoidea F: Sphingidae Sub.F: Macroglossinae	<i>Nerium oleander</i>	North Africa (Libya),Southern Mediterranean region,Middle East to Afghanistan
23. <i>Hyles euphorbia</i> L	Super.F: Sphingoidea F: Sphingidae Sub.F: Macroglossinae	Light traps	North Africa (Libya)

24. <i>Acherontia atrops</i> (L)	Super.F: Sphingoidea F: Sphingidae Sub.F: Sphinginae	<i>Solanum melongena</i> L	Mediterranean basin(Libya),North Africa,N.America(USA),Europe (England,Scotland,Denmark,Iceland,Spain,Italy,Sweden,Finland,Holland)
25. <i>Autographa ni</i> Hbn	Super.:F:Noctuoidea F: Noctuidae Sub.F:Amphipyridae	Light traps, Ornamental plants	North Africa (Egypt, Libya in Tripoli)
26. <i>Autographa gamma</i> L	Super.F:Noctuoidea F: Noctuidae Sub.F:Amphipyridae	Light traps, Tomatoes	Mediterranean basin(Libya),North Africa),Asia (Iraq), Most Europe
27. <i>Noctua fimbriata</i> (Schreb)	Super.:F:Noctuoidea F: Noctuidae Sub.F:Noctuinae	Light traps	N. Africa(Benghazi), Most Europe
28. <i>Agrotis ipsilon</i> (Hufn)	Super.:F:Noctuoidea F: Noctuidae Sub.F:Agrotinae	Light traps	North Africa (Egypt, and Libya in Tripoli and Benghazi),Asia (Iraq),Central and south Europe
29. <i>Agrotis spinifera</i> Hb	Super.:F:Noctuoidea F: Noctuidae Sub.F:Agrotinae	Light traps	North Africa (Egypt, and Libya)
30. <i>Agrotis segetum</i> Schiff M. S. El-Maghrabi, A. H. Amin inae	Super.:F:Noctuoidea F: Noctuidae Sub.F:Agrotinae	Light traps	North Africa (Egypt, and Libya)
31. <i>Noctua pronuba</i> L	Super.:F:Noctuoidea F: Noctuidae Sub.F:Noctuinae	Light traps	Most of Europe

32. <i>Helcioverpa armigera</i> (Hubner)	Super.:F:Noctuoidea F: Noctuidae Sub.F:Heliiothinae	Tomatoes	Africa (Egypt, Libya, Kenya, Cote D'Ivoire,Tanzania) ,Asia (Araq,China,India,Indonesia,Nepal,Thailand),Europe(Canary Islands,Finland,France, Germany,Holand),Ausralia(NewZealand)
33. <i>Anua tirrhae</i> Gr	Super.:F:Noctuoidea F: Noctuidae Sub.F:Catocalinae	Light traps	North Africa (Egypt, and Libya) ,Asia (Iraq),South Europe
34. <i>Diachrysia orichalcea</i> (F)	Super.:F:Noctuoidea F: Noctuidae Sub.F:Plusinae	Light traps	Libya in Tripoli, Central and south Europe
35.* <i>Phlogophora meticulosa</i> L	Super.:F:Noctuoidea F: Noctuidae Sub.F:Ipimorphinae	Light traps	Most of Europe
36* <i>Catocala nymphaea</i> Esp	Super.:F:Noctuoidea F: Noctuidae Sub.F:Catocalinae	Light traps	Libya in Tripoli
37*. <i>Catocala nupta</i> Esp	Super.:F:Noctuoidea F: Noctuidae Sub.F:Catocalinae	Light traps	Most of Europe
38. <i>Spodoptera exigua</i> (Hbn)	Super.:F:Noctuoidea F: Noctuidae Sub.F:Amphipyriinae	Light traps	Libya (Tripoli),Egypt, Sudan, Mediterranean basin, ,Asia (Iraq)
39. <i>Spodoptera littoralis</i> (Boisd))	Super.:F:Noctuoidea F: Noctuidae Sub.F:Amphipyriinae	Light traps	North Africa (Egypt, and Libya) ,Asia (Iraq)
40. <i>Earias insulana</i> Boisd	Super.:F:Noctuoidea F: Noctuidae Sub.F:Chloephorinae	Light traps	North Africa (Egypt) ,Asia (Iraq)

List of The Lepidoptera Insects Surveyed in El-Beida Area, With Their World Distribution, Host Plants and Notes on Taxonomy

41. <i>Oria musculosa</i> Hb	Super.:F:Noctuoidea F: Noctuidae Sub.F:Noctuinae	<i>Cynodon dactylon</i> (L)	North Africa (Libya in Tripoli and oriental area) ,Asia (Iraq).
42. <i>Sesamia cretica</i> Led	Super.:F:Noctuoidea F: Noctuidae Sub.F:Amphipyridae	Corn	North Africa (Egypt, Libya in Tripoli and oriental area) ,Asia (Iraq).
43.* <i>Utetheisa pulchella</i> (L)	Super.:F:Noctuoidea F: Arctiidae Sub.F:Arctiinae	By Nets	Asia (Iraq) Central and south Europe.
44. <i>Ocnogyna mutabilis</i> Turati	Super.:F:Noctuoidea F: Arctiidae Sub.F: Arctiinae	Light traps	North Africa (Libya in Oriental area)
45.* <i>Malacosoma neustria</i> L	Super.:F:Bombycoidea F: Lasiocampidae Sub.F: Lasiocampinae	<i>Amygdalus communis</i> L, <i>Malus sylvestris</i> Mill, <i>Quercus coccifera</i>	New Zealand and Desert region
46. <i>Palpita unionalis</i> (Hbn)	Super.:F: Pyraloidea F: Pyraustidae Sub.F: Pyraustinae	Light traps	North Africa (Libya in Tripoli)
47. <i>Pyralis farinalis</i> L	Super.:F: Pyraloidea F: Phycitidae SsubF Pyralinae	Flour	North Africa (Egypt, Libya in Tripoli and oriental area,Fezan) .
48. <i>Ephestia cautella</i> (Wlk)	Super.:F: Pyraloidea: F: Pyralidae SsubF: Phycitinae	Stored grain products (dry fruit, Flour)	North Africa (Egypt, Libya in Tripoli and, Fezan).
49. <i>Plodia interpunctella</i> (Hbn)	Super.:F: Pyraloidea: F: Pyralidae SsubF Phycitinae	Stored grain products (Wheat)	World distribution and in Libya (Tripoli and oriental area,Fezan)

50. <i>Ephestia elutella</i> (Hbn)	Super.:F: Pyraloidea: F: Pyralidae SubF Phycitinae	Stored grain products (sweaty and dried fruits, Flour)	North Africa (Egypt, Libya in oriental area) .
51. <i>Galleria mellonella</i> (L)	Super.:F: Pyraloidea F: Galleriidae SubF: Galleriinae	Its larvae feeds on pure bee wax and combs of beehives	World distribution and in Libya (Oriental area)
52. <i>Achroia grisella</i> F	Super.:F: Pyraloidea F:Pyralidae Sub.F: Galleriinae	Its larvae feeds on pure bee wax and combs of beehives	North Africa (Libya in Oriental area).
53. <i>Plutella maculipennis</i> Curtis	Super.:F: Yponomeutoid ea F: Yponomeutidae SubF: Plutellinae	Light traps	North Africa (Egypt, Libya in Tripoli and oriental area,Fezan), N.America,Europe.
54.* <i>Plutella xylostella</i> (L)	Super.:F: Yponomeutoid ea F: Yponomeutidae SubF: Plutellinae	Light traps	N.America, Europe, Asia (Iraq).
55*. <i>Yponomeuta padellus</i> (L)	Super.:F: Yponomeutoid ea F: Yponomeutidae Sub.F: Yponomeutinae	Light traps	N.America, Europe
56.* <i>Synanthedon myopaeformis</i> (Borkm)	Super.:F: Sesidoidea F: Sesiidae Sub.F: Sesiinae	<i>Malus sylvestris</i> Mill,	North Africa (Egypt), N.America
57. <i>Zeuzera pyrina</i> (L)	Super.:F: : Cossioidea F: Cossidae Sub.F: Zeuzerinae	On the different varieties of tree fruit	North Africa (Egypt, Libya),Most Europe ,Australia

List of The Lepidoptera Insects Surveyed in El-Beida Area, With Their World Distribution, Host Plants and Notes on Taxonomy

58*. <i>Geometra papilionaria</i> (L)	Super.:F: Geometoridea F: Geometridae Sub.F: Geometrinae	Light traps	Most of Europe
59. <i>Xanthorhoe fluctuate</i> (L)	Super.:F: Geometoridea F: Geometridae Sub.F: Larentiinae	Light traps	Most of Europe Asia (Japan)
60.* <i>Calothyssanis amata</i> (L)	Super.:F: Geometoridea F: Geometridae Sub.F: Geometrinae	Light traps	Most o Europe, S.America(Brazil)
61*. <i>Rhodometra sacraria</i> (L)	Super.:F: Geometoridea F: Geometridae Sub.F: Sterrinae	Light traps	Central and South Europ
62.. <i>Anarsia lineatella</i> Zell	Super.:F: Gelechioidea F: Gelechiidae Sub.F: Chelarinae	Prune, almonds, apricots,peaches,plums	World distribution, , Libya in Tripoli and oriental area)
63. <i>Sitotroga cerealella</i> (Oliver	Super.:F: Gelechioidea F: Gelechiidae Sub.F: Pexicopiinae	Stored grain (wheat, Corrn)	World distribution, , Libya in Tripoli and oriental area)
64.* <i>Cydia pomonella</i> (L)	Super.:F: Torticoidea F: Torticidae Sub.F:Olethreutinae	By Nets, apple, pear	World distribution, , Libya in Tripoli and oriental area)
65.* <i>Thiodia citrana</i> (Hubner)	Super.:F: Torticoidea F: Torticidae Sub.F:Olethreutinae	Light traps, orange leafage	

M. S. El-Maghrabi, A. H. Amin

66.* <i>Phyllocnistis citrella</i> Stainton	Super.:F:Geometroidea F: Gracillariidae SubF:Phyllocnistinae	Citrus , leafage	Asia (India, Yeman, Saudi-Arabia, Indonesia, Hong Kong, China, Philippin, T euan, S. Japan, Africia(Sudan), N. America(USA)
--	--	------------------	---

Results of the present study indicated that the order Lepidoptera is widely distributed in El-Beida area. The study revealed the presence of 66 species in El-Beida area, belonging to 11 Super families, 20 families, 36 subfamilies. The following species *Pontia glauconome* Klug *Gonepteryx Cleopatra*(L), *Mesoacidalia aglaja*(L), *Lasiommata megera*(L) , *Melanargia occitanica*(Sper), *Lycaena phlaeas* (L), *Tomares ballus*(F), *Polymmatius icarus*(Rotterm) *Pyronia tithonus*(L), *Noctua pronuba* L, *Phlogophora meticulosa* L, *Catocala nymphaea* Esp, *Catocala nupta* Esp, *Utetheisa pulchella* (L), *Malacosoma neustria* L, *Plutella xylostella* (L), *Yponomeuta padellus* (L), and *Synanthedon myopaeformis* (Borkm), *Rhodometra sacraria* (L), *Geometra papilionaria*, *Catorthysanis amate*(L), *Cydia pomonella* (L), *Phyllocnistis citrella* Sainto, *Phyllocnistis citrella* Sainto, *Thiodia citrana* (Hubner), and *Lycaena phlaeas* (L) are recorded in Libya for the first time. Their wide range of distribution may be attributed to favorable climatic conditions which aid the insects to be established and widely distributed. Also the presence of many suitable habitats may provide suitable environment for breeding and hiding from their enemies. Absence of control measures helps in the increase in prevalence of these insects. This order is very important with regard to man's welfare. Among its members are many of butterflies (e.g. *Pieris rapae* L, Family: Pieridae) widely prevalent in gardens all over El-Beida area. Their larvae are extremely destructive to cruciferous vegetables, leguminosae and capparidaceae. *Agrotis ipsilon* (Hufn) larvae are known as cut worms (worst insect pest in the world) because they feed on the roots and shoots of various herbaceous plants and the plants are often cut off at the surface of the ground.

CONCLUSIONS

In the present work a survey was conducted from early March to late December 2000, covering variety of ecological habitats in El-Beida area. The order Lepidoptera is widely distributed in El-Beida area and the neighborhood. They are very important and conspicuous group of insects, with very pronounced dimorphism between adults and larvae. The adults are almost entirely non pests, and the damage to agricultural crops is invariably carried out during the larval stages. They are all basically phytophagous. Butterflies and moths are usually very seasonal in their appearance, but they exhibit a wide range of life cycles. Insects fly for a few weeks at the appropriate season and then disappear until the following year. A typical example is *Pieris rapae* L. The fauna in Benghazi consist of forms otherwise occurring in European countries on the one hand and in Egypt and Tunisia on the other. A typical example is *Pieris rapae* L which was introduced from Europe into the Libya and now it is established throughout our region. It is a pest of cabbage and cauliflower but feeds on other cultivated plants.

List of The Lepidoptera Insects Surveyed in El-Beida Area, With Their World Distribution, Host Plants and Notes on Taxonomy

REFERENCES

- Ahmed, M.K. (1978). Insect pests of corn in the Libya Jamahiriya and infestations associated with its seedling stage. *Libyan Journal of Agricultural*. 7, 109- 114.
- Andres, A. (1912). Verzeichniss der bis jetzt in Agypt beobachtete Schmetterling. *Bulletin Society Entology Egypt*, 3, 53-114.
- Borror, D. J. & De Long, D.G. (1978). *An introduction to the study of insects. Order: Lepidoptera Holt*. New York: Rinehart.
- Damiano, A.(1961). Elenco delle specie di insetti dannosi ricordati per la Libia fino al 1960.Tipografia del governo. Nazirato dell Agricoltura.Tripoli, pp.27-81.
- El-Ghariani, I. M. (1992). Collection of insect species by using of light trap in El-Beida,Libya. *Menofiya Journal Agriculture Research*,17(3),1427-1434.
- El-Meghrabi, M.S. (2001). List of the Lepidoptera insects captured in Benghazi area ,their world distribution, host plants, and notes on taxonomy. *Journal of Arts and Science*, 6, 363-349.
- Hessein, N.A. (1981). Functioning of Rothamsted light traps and their use for collecting insect species. *Libyan Journal of Agriculture*,10, 111-116.
- ibd. ibd. A two-year study on the population trends of certain insect groups attracted to Rothamsted light traps in Tripoli (Libya). *Libyan Journal of Agriculture*; 10, 117- 136.
- Larsen, T. B., (1977). The butterflies of eastern Oman and their zoogeographical composition *Journal Oman Student*, 1, 179-207.
- ibd, (1982). The importance of butterfly migration to the fauna of Arabia. *Atlanta*, 13,248-259.
- ibd.,(1984). *Butterflies of Saudi Arabia and its neighbours*. London: .Stacey Intl.,
- ibd, (1986). Tropical butterflies of the Mediterranean. *Nota Lepid*, 9, 63-77.
- ibd, (1990). *The butterflies of Egypt*. Copenhagen: Apollo Books, Svendborg.
- Pfadt, R.E.(1972). *Fundamentals of applied entomology*. New York: Macmillan,
- Richard, O.W, & Davies, R.G.(1977). *Imms' general text of entomology, classification and biology*. London: Chapman and Hall.
- Zavatari, E. (1934). *Prodromo della fauna della Libia*. Pavia: Co-operativa.