



## Population, Fluctuations and Updating of Noctuid Moths (Lepidoptera) by Using A Light-trap at Aswan Governorate Egypt

M. Y. H. Henaish

Insect Classification Dept., Plant Protection Research Institute, ARC, Egypt.

E. mail: mahmoudaboyosof@yahoo.com

DOI: [10.21608/JALEXU.2023.193200.1119](https://doi.org/10.21608/JALEXU.2023.193200.1119)



### Article Information

Received: February 11<sup>st</sup> 2023

Revised: March 7<sup>th</sup> 2023

Accepted: February 19<sup>th</sup> 2023

Published: March 31<sup>st</sup> 2023

**ABSTRACT:** Studies on the population size and fluctuations of noctuid moths (Lepidoptera) at Aswan governorate were undertaken by the use of a light trap throughout two successive years from August 2019 up to July 2021. Results obtained revealed 31 noctuid species within 16 genera. Catches of the noctuids showed significant variations in the number of moths in the two years. Large numbers were trapped during May up to September in the first year and during April up to October in the second one. The peak was during May in both years. The winter months demonstrated the lowest numbers of trapped moths. The species *Spodoptera frugiperda* (Smith), *Noctua pronoba* L. and *Spodoptera littoralis* (Boisduval) were the most abundant species with a total annual number of 1225, 1209, 1182 moths in the first year and 2304, 1433, 1747 moths in the second one, respectively. The species, *Agrotis trux*, *Sesamia wiltshire* and *Trichoplusia daubei* were the least abundant species.

**Keywords:** Lepidoptera, Noctuidae, Insect Classification

### INTRODUCTION

Noctuid moths are considered as the most serious pests for a wide range of agriculture plants. Great attention has been given to the ecological studies on the family in many parts of the world and in Egypt. However, the knowledge on the population dynamics is rather fragment and not enough in Upper Egypt, particularly in Aswan. Using light traps, noctuid moths (Lepidoptera) in Aswan Governorate were examined for population trends and updates. All these studies were carried out by the use of light traps (Bassiony *et al*, 1997; El Kady *et al*, 1980; El Saadany and Rizk 1973a, b; El Saadany *et al*, 1978; Etman *et al*, 1990; Hanna, 1972; Hanna *et al*, 1968; and 1975; Hassanein *et al*; 1971; Hussein *et al*, 1986; Salem *et al*, 1989; Zanaty *et al*, 1985; Hanna and Atries, 1968 and 1969; El-Saadany, 1973 a, b; Badr *et al*, 1985 a, b and 1987). Shaheen, 2013; Abdel Fattah and El-Torkey, 2017; Ragab, *et al* 2014; Lafontaine, and Schmidt 2010; Zahiri, *et al* (2013).

The family Noctuidae is cosmopolitan and can be found worldwide. For a very long period. It was thought to be the largest family of Lepidoptera and has approximately 20,000 species, but currently, it is the second largest family according to the most recent taxonomical studies, with about 1,089 genera and 11,772 species (Zhang, 2011). Additionally, many noctuid species are thought to be the most destructive pests to vegetables, destroying gardens, orchards, and crops every year (Capinera, 2008; Zahiri *et al*, 2012).

In Egypt, this family is represented by 320 species, of which, the caterpillars of the genus *Spodoptera* are among the most significant pests. They have been found in over 40 plant families, primarily dicotyledonous ones, and feed on a broad variety of plants. Four species of the genus *Spodoptera* are found in Egypt: *S. exigua* (beet army worm), *S. frugiperda* (fall army worm), *S. ciliun* (grasslawn army worm), and *S. littoralis* (cotton leafworm).

The main objective of this study is to explore the fauna of lepidopterous moths of the family Noctuidae in Aswan Governorate and study the population fluctuation and abundance of the species, aiming to contribute some information to the available ecological knowledge.

### MATERIALS AND METHODS

A traditional light-trap was placed in the farm of the Directorate of Agriculture in Aswan and was set up at a height of 3 meters above the ground and operated daily from sunset to sunrise for two successive years (2019/2020 – 2020/2021) starting from August, 2019 and ends in July, 2021. The farm was mostly planted with a variety of agricultural crops, vegetables, and fruit trees.

Captured insects were separated and sorted out into species. Noctuid moths of different species were identified, counted and recorded, then listed in alphabetical order according to genera and species. Data of monthly catches of each species were tabulated together with calculations of the total annual numbers and their percentage of abundance. Moths were identified and preserved in the insect classification

Department, Plant Protection Research Institute  
(PPRI) Agricultural Research Center (ARC)  
Egypt.

**RESULTS AND DISCUSSION**

Data indicated by the light trap and presented in  
tables (1) and (2) show different noctuid species,  
their relative abundance and fluctuations through  
the two years of study.

Table:1 Total monthly catches of noctuid moths at Aswan location during 2019 -2020

No.		Aug.	Sep.	Oct.	Nov.	Des.	Jan.	Feb.	Mar.	Apr.	May	June	July	total	%
1	<i>Agrotis ipsilon</i> (Hufnagel)	76	49	44	9	3	5	43	65	141	189	204	217	1045	5.395776
2	<i>Agrotis pictifascia</i> (Hampson)	10	22	15	5	1	2	14	54	56	99	84	59	421	2.173801
3	<i>Agrotis pierretti</i> (Bugnion)	17	5	7	2	8	3	6	8	9	14	22	31	132	0.681572
4	<i>Agrotis puta</i> (Hubner)	66	63	77	45	23	11	7	4	1	28	55	76	456	2.354521
5	<i>Agrotis ripae</i> Baker	12	8	13	7	5	3	3	1	5	9	6	11	83	0.428564
6	<i>Agrotis spinifera</i> (Hubner)	78	90	5	1	0	0	27	64	71	102	99	114	651	3.361388
7	<i>Agrotis trux</i> (Hubner)	7	11	2	3	1	0	1	3	2	1	1	1	33	0.170393
8	<i>Athetis atriluna</i> Guenee	111	101	48	26	12	8	12	32	54	99	117	137	757	3.908711
9	<i>Athetis clavipalpis</i> Scopoli	114	88	23	15	9	5	13	63	98	111	116	139	794	4.099757
10	<i>Autographa gamma</i> (Linnaeus)	99	75	2	0	5	1	12	36	76	179	166	101	752	3.882894
11	<i>chrysodeixis chalcitis</i> (Esper)	119	188	115	82	33	12	5	27	33	67	81	89	851	4.394072
12	<i>Hadula trifolii</i> (Hufnagel)	145	99	76	44	15	3	7	54	111	162	188	192	1096	5.659111
13	<i>Helicoverpa armigera</i> H.	84	40	5	3	3	15	44	52	82	117	102	134	681	3.516291
14	<i>Heliothis nubigera</i> Herrich-Schaffer	33	28	17	3	1	0	5	52	128	169	111	54	601	3.103217
15	<i>Heliothis peltigera</i> Schiffermuller	41	17	10	5	3	0	2	25	133	176	243	181	836	4.316621
16	<i>Leucania loreyi</i> (Duponchel)	129	88	67	33	9	3	5	12	76	173	122	112	829	4.280477
17	<i>Noctua pronuba</i> L.	64	24	101	267	144	87	48	5	132	228	76	33	1209	6.242578
18	<i>Sesamia cretica</i> (Lederer)	81	72	15	3	2	1	25	36	133	105	76	121	670	3.459493
19	<i>Sesamia nonagrioides</i> (Lefebvre)	13	9	4	0	1	1	2	1	5	7	16	27	86	0.444054
20	<i>Sesamia wiltshirei</i> Rungs	11	5	3	2	1	0	1	1	1	5	13	18	61	0.314969
21	<i>Soctia segetum</i> (Denis & Schiffermuller)	66	75	13	1	1	1	19	107	143	154	116	88	784	4.048123
22	<i>Spodoptera exigua</i> (Hubner)	115	161	23	35	17	13	19	26	68	128	99	103	807	4.166882
23	<i>Spodoptera frugiperda</i> (J.E. Smith)	138	101	53	45	27	19	12	30	87	199	289	225	1225	6.325192
24	<i>Spodoptera cilium</i> Lederer	112	123	88	78	25	34	10	23	53	78	67	154	845	4.363092
25	<i>Spodoptera littoralis</i> (Boisduval)	201	165	124	93	31	38	14	45	99	112	137	123	1182	6.103165
26	<i>Cornutiplusia circumflexa</i> (Linnaeus)	112	98	12	4	1	14	54	97	115	223	202	101	1033	5.333815
27	<i>Tarache lucida</i> Fabricius	53	34	13	6	2	1	1	12	35	54	17	41	269	1.388961
28	<i>Thyanoplusia orichalcea</i> (F.)	17	13	22	18	2	1	3	9	27	34	41	53	240	1.239221
29	<i>Trichoplusia circumscripta</i> (Freyer)	63	42	43	12	4	2	0	17	52	73	37	21	366	1.889813
30	<i>Trichoplusia daubei</i> (Boisduval)	23	17	11	6	2	0	0	1	0	7	15	45	127	0.655755
31	<i>Trichoplusia ni</i> (Hubner)	44	56	72	66	14	13	10	0	25	65	42	38	445	2.297723
		2254	1967	1123	919	405	296	424	962	2051	3167	2960	2839	19367	

Table: 2 Total monthly catches of noctuid moths at Aswan location during 2020 -2021

No.		Aug.	Sep.	Oct.	Nov.	Des.	Jan.	Feb.	Mar.	Apr.	May	June	July	total	%
1	<i>Agrotis ipsilon</i> (Hufnagel)	77	55	44	23	9	12	58	98	101	397	286	167	1327	5.44589
2	<i>Agrotis pictifascia</i> (Hampson)	15	31	33	9	6	7	22	67	65	114	123	81	573	2.351541
3	<i>Agrotis pierretti</i> (Bugnion)	23	8	12	3	16	8	11	15	21	34	52	61	264	1.083433
4	<i>Agrotis puta</i> (Hubner)	78	88	93	52	44	18	13	15	3	43	86	97	630	2.585464
5	<i>Agrotis ripae</i> Baker	23	15	25	13	11	5	5	1	12	17	16	21	164	0.673041
6	<i>Agrotis spinifera</i> (Hubner)	89	102	17	2	3	2	54	78	98	118	124	161	848	3.480117
7	<i>Agrotis trux</i> (Hubner)	15	19	6	7	0	1	4	8	5	1	2	3	71	0.291378
8	<i>Athetis atriluna</i> Guenee	134	120	45	23	13	15	19	67	88	134	105	151	914	3.750975
9	<i>Athetis clavipalpis</i> Scopoli	77	65	44	34	18	7	24	57	86	98	102	156	768	3.151804
10	<i>Autographa gamma</i> (Linnaeus)	116	97	5	1	9	4	18	56	93	194	189	116	898	3.685312
11	<i>chrysoideixis chalcitis</i> (Esper)	128	202	134	103	44	19	9	36	55	81	98	105	1014	4.161366
12	<i>Hadula trifolii</i> (Hufnagel)	151	106	84	56	32	8	5	66	119	145	178	201	1151	4.723602
13	<i>Helicoverpa armigera</i> H.	99	53	11	7	5	17	34	67	79	128	116	149	765	3.139492
14	<i>Heliothis nubigera</i> Herrich-Schaffer	29	33	26	8	2	1	9	44	112	182	147	77	670	2.74962
15	<i>Heliothis peltigera</i> Schiffermuller	54	43	22	7	4	1	5	67	153	199	276	205	1036	4.251652
16	<i>Leucania loreyi</i> (Duponchel)	154	126	98	46	34	26	39	53	87	204	274	261	1402	5.753683
17	<i>Noctua pronuba</i> L.	71	29	116	284	166	103	72	18	153	261	99	61	1433	5.880905
18	<i>Sesamia cretica</i> (Lederer)	78	88	24	6	5	0	38	44	127	114	83	133	740	3.036894
19	<i>Sesamia nonagrioides</i> (Lefebvre)	17	11	7	1	0	2	3	3	6	4	11	34	99	0.406287
20	<i>Sesamia wiltshirei</i> Rungs	14	7	4	1	0	0	0	0	1	6	9	12	54	0.221611
21	<i>Soctia segetum</i> (Denis & Schiffermuller)	54	32	19	2	3	6	14	87	174	184	105	76	756	3.102557
22	<i>Spodoptera exigua</i> (Hubner)	114	132	76	74	42	22	15	78	97	124	118	128	1020	4.185989
23	<i>Spodoptera frugiperda</i> (J.E. Smith)	267	131	114	77	65	44	142	162	194	331	414	363	2804	11.50737
24	<i>Spodoptera cilium</i> Lederer	111	98	87	65	34	32	21	77	103	116	107	141	992	4.07108
25	<i>Spodoptera littoralis</i> (Boisduval)	211	99	102	65	43	32	112	127	154	232	333	237	1747	7.169533
26	<i>Cornutiplusia circumflexa</i> (Linnaeus)	116	99	13	6	0	43	76	100	149	223	216	227	1268	5.203759
27	<i>Tarache lucida</i> Fabricius	44	23	7	2	1	1	0	8	14	24	9	33	166	0.681249
28	<i>Thyanoplusia orichalcea</i> (F.)	21	7	11	8	1	0	1	4	14	15	27	28	137	0.562236
29	<i>Trichoplusia circumscripta</i> (Freyer)	75	34	38	5	2	1	0	8	23	44	19	16	265	1.087536
30	<i>Trichoplusia daubei</i> (Boisduval)	14	8	6	2	1	1	1	0	0	3	6	33	75	0.307793
31	<i>Trichoplusia ni</i> (Hubner)	34	45	61	53	19	6	3	1	17	33	15	29	316	1.296836
	<b>Total collected moths per months</b>	<b>2503</b>	<b>2006</b>	<b>1384</b>	<b>1045</b>	<b>632</b>	<b>444</b>	<b>827</b>	<b>1512</b>	<b>2403</b>	<b>3803</b>	<b>3745</b>	<b>3563</b>	<b>24367</b>	

A total number of 19367 moths were trapped during the first year and 23867 moths were trapped in the second one. These moths represented 31 species of 16 genera belonging to the family Noctuidae. The highest numbers were trapped during late spring and summer months (May to September) and the peak were during May in both years (3167 moths in the first year and 3803 moths in the second one).

The most abundant species in the first year are arranged as follows: The fall armyworm *Spodoptera frugiperda* (Smith) (1225 moths, representing 6.33% of the total catch), the large yellow under wing *Noctua pronoba* Linnaeus (1209 moths, of 6.24%), the cotton leafworm *Spodoptera littoralis* (Boisduval) (1182 moths, 6.1%), the clover cutworm *Hadula trifolii* (Hufngel) (1096 moths, 5.66%), the black cutworm *Agrotis ipsilon* (Hufngel) (1045 moths, 5.39%), The Essex *Cornutiplusia circumflexa* (Linnaeus) (1033 moths, 5.33%), The tomato looper or golden twin-spot moth *Chrysodeixis chalcitis* (Esper) (851 moths, 4.39%), the grasslawn armyworm *Spodoptera Cilium* Guenee (845 moths, 4.36%), the bordered straw *Heliothis peltigera* (Schiffmuller) (836 moths, 4.31%), the false army worm *Leucania loreyi* (Duponchel) (829 moths, 4.28%) and the beet armyworm or small mottled willow *Spodoptera exigua* (Hubner) (807 moths, constituting 4.16% of the total catch). Whereas, the least abundant species were: the crescent dart *Agrotis trux* (Hubner) (33 moths), and *Sesamia wiltshire* Rungs (61 moths). Other species are of considerable moderate numbers (Table 1).

In the second year, the following species were the most abundant and active species and are arranged as: *Spodoptera frugiperda* (2304 moths, constituting 9.65% of the total noctuid catch), *Spodoptera littoralis* (1747 moths, with 7.31%), *Noctua pronoba* (1433 moths, 6%), *Leucania loreyi* (1402 moths, 5.87%), *Agrotis ipsilon* (1327 moths, 5.55%), *Cornutiplusia circumflexa* (1268 moths, 5.31%), *Hadula trifolii* (1151 moths, 4.82%), *Heliothis peltigera* (1036 moths, 4.34%), *Spodoptera exigua* (1020 moths, 4.27%) and *Chrysodeixis chalcitis* (1014 moths, representing 4.24% of the total catch). Other species are of considerable numbers, whereas, the least abundant species were: *Sesamia wiltshire* (54 moths), *Agrotis trux* (71 moths), and *Trichoplusia daubei* (75 moths), (Table 2).

It is also obvious from table 1 and 2 that, the moths of the species *Spodoptera frugiperda* constituted the highest number of Noctuid catch in both years (1225 moths in the first year and 2304 moths in the second one). Moths of this species were most abundant during summer months with a peak in June in both years (289 and 414 moths in the two years, respectively) and

showing low numbers from November to March. Fairly considerable numbers were obtained during Autumn and the least numbers were during winter months.

In the first year, the species *Noctua pronoba* came next in abundance with 1209 moths and ranked the third in the second one with 1433 moths. It has three peaks of abundance during November, May and August in both years (267, 228 and 64 moths, in the first year and (284, 261 and 71 moths, in the second year, respectively). less numbers were obtained in Summer and Spring and the least numbers were during March and September in both years (5 and 24 moths, in the first year and 18 and 29 moths in the second year, respectively).

The species *Spodoptera littoralis* was more abundant in the second year and ranked the second in abundance with 1747 moths, and with only one peak during June (333 moths) and came the third in the first year with 1182 moths, with two peaks during August and June (201 and 137 moths, respectively). It was least abundant during winter and early spring in both years.

*Hadula trifolii* came after in the first year with 1096 moths, but came the seventh in rank in the second year with 1151 moths, the peak was during July in both years (192, 201 moths, respectively). Other mentioned species were trapped in relatively high numbers of moths in both years.

The species *Agrotis trux*, *Sesamia wiltshire* and *Trichoplusia daubei* were the least abundant species.

It is to be noted that, most species were trapped all over the year, except some species that were disappeared in some months, especially during the most winter months, these species are: *Agrotis spinifera* which disappeared during December and January in the first year and found in very few numbers in the second one; *Agrotis trux* which disappeared during January in the first year and during December in the second; *Autographa gamma* disappeared only in the first year during November; *Heliothis nubigera* and *Heliothis peltigera* disappeared only during January in the first year; *Sesamia wiltshirei* disappeared during January in the first year and from December to March in the second one; *Trichoplusia circumscripta* disappeared during February in the first year and during March and April in the second one; *Trichoplusia daubei* disappeared during January and February in the first year and during March and April in the second one; *Trichoplusia ni* disappeared only in the first year during March.

It is to be noted here that, the fall Armyworm, *Spodoptera frugiperda* is recorded in Egypt for the first time in 2019 and on sugarcane and corn

crops in Aswan Governorate during the present work.

***Agrotis ipsilon* (Hufnagel 1766)**

*Phalaena ipsilon* Hufnagel, 1766  
*Noctua suffusa* Denis & Schiffermüller, 1775  
*Noctua ypsilon* Rottentburg, 1777  
*Phalaena idonea* Cramer, 1780  
*Bombyx spinula* Esper, 1786  
*Phalaena spinifera* Villers, 1789  
*Phalaena spinula* Donovan, 1801  
*Agrotis telifera* Harris, 1841  
*Agrotis bipars* Walker, 1857  
*Agrotis frivola* Wallengren, 1860  
*Agrotis aneituna* Walker, 1865  
*Agrotis pepoli* Bertolini, 1874  
*Agrotis aureolum* Schaus, 1898  
*Agrotis pictifascia* Hampson, 1896  
*Agrotis aridior* Wiltshire, 1980  
*Agrotis elbaensis* Rebel, 1948

***Agrotis pierretti* (Bugnion, 1837)**

*Powellinia pierretti* (Bugnion, 1837)  
***Agrotis puta* (Hubner)**  
*Agrotis renitens* (Hübner, 1824)  
*Noctua renitens* Hübner, 1824  
*Euxoa renitens* (Hübner, 1824)  
*Noctua puta* Hübner, [1803]  
*Bombyx radius* Haworth, 1803  
*Euxoa rottroui* Rothschild, 1920  
*Noctua lignosa* Godart, 1825  
*Xylina erythroxylea* Treitschke, 1826  
*Agrotis radiola* Stephens, 1829  
*Aporophyla catalaunensis* Milliere, 1873  
*Agrotis puta* var. *meridionalis* Spuler, 1905  
*Euxoa andreasii* Turati, 1924  
*Euxoa hoggarti* var. *minima* Turati, 1924  
*Euxoa silvestrii* Turati, 1924

***Agrotis ripae* Baker**

*Scotia ripae*  
***Agrotis spinifera* (Hubner 1808)**  
*Agrotis biconica* Kolar, 1844  
*Agrotis biconicus* Kolar, 1844  
*Noctua spinifera* Hübner, 1808  
*Agrotis spiculifera* (Hübner, 1808)  
*Euxoa spinifera*

***Agrotis trux* (Hubner 1824)**

*Noctua trux* Hübner, (1824)  
*Agrotis lenticulosa* Duponchel, 1826  
*Agrotis lunigera* Stephens, 1829  
*Agrotis terranea* Freyer, 1831  
*Agrotis amasina* Staudinger, 1901  
*Agrotis subalba* Corti & Draudt, 1933  
*Agrotis adolfi* Corti & Draudt, 1933  
*Caradrina clavipalpis* (Scopoli, 1763)  
*Athetis clavipalpis* (Scopoli, 1763)  
*Caradrina* (*Paradrina*) *avicula* Krulikowsky, 1909  
*Caradrina* (*Paradrina*) *bimaculata* Lempke, 1966  
*Caradrina* (*Paradrina*) *cubicularis* (Denis & Schiffermüller) 1775

*Caradrina* (*Paradrina*) *distincta* Lempke, 1966  
*Caradrina* (*Paradrina*) *grisea* Hufnagel, 1766  
*Caradrina* (*Paradrina*) *leucoptera* Thunberg, 1791  
*Caradrina* (*Paradrina*) *mauretanicus* Draudt, 1934  
*Caradrina* (*Paradrina*) *minor* Rothschild  
*Caradrina* (*Paradrina*) *nigrofasciata* Hoffmann, 1916  
*Caradrina* (*Paradrina*) *obsoleta* Lempke, 1942  
*Caradrina* (*Paradrina*) *pallida* Lempke, 1942  
*Caradrina* (*Paradrina*) *paradoxa* Lempke, 1966  
*Caradrina* (*Paradrina*) *phaeophoba* Schawerda, 1942  
*Caradrina* (*Paradrina*) *quadripunctata* Fabricius, 1775  
*Caradrina* (*Paradrina*) *signata* Lempke, 1966  
*Noctua cubicularis* Denis & Schiffermüller, 1775  
*Paradrina clavipalpis* (Scopoli, 1763)  
*Phalaena clavipalpis* Scopoli, 1763

***chrysodeixis chalcitis* (Esper, 1789)**

*Phalaena-Noctua chalcites* Esper, 1789  
*Plusia verticillata* (Guenee, 1852)  
*Plusia chalcites* (Esper, 1789)  
*Phytometra chalcites*  
*Autographa chalcites*

***Hadula trifolii* (Hufnagel, 1766)**

*Apamea glaucovaria* Walker, 1860  
*Apamea inquieta* Walker, 1857  
*Cardepiya taylori* Rothschild, 1921  
*Discestra trifolii* (Hufnagel, 1766)  
*Hadena albifusa* Walker, 1857  
*Hadena intermissa* Walker, 1857  
*Mamestra canescens* Moore, 1878  
*Mamestra trifolii* var. *major* Speyer, 1875  
*Noctua chenopodii* [Denis & Schiffermüller], 1775  
*Noctua contribulis* Duponchel, 1827  
*Noctua infraina* Haworth, 1809  
*Noctua verna* Esper, 1787  
*Orthosia farkasii* Treitschke, 1835  
*Phalaena Noctua saucia* Esper, 1790  
*Scotogramma cinnamomina* Rothschild, 1913  
*Scotogramma trifolii* Speyer, 1875  
*Scotogramma trifolii* Draudt, 1934  
*Scotogramma trifolii* Dumont, 1925

***Helicoverpa armigera* (Hubner 1808)**

*Chloridea armigera* (Hübner, 1808)  
*Chloridea obsoleta* Duncan & Westwood, 1841  
*Helicoverpa commoni* Hardwick, 1965  
*Helicoverpa obsoleta* Auctorum,  
*Heliothis armigera* Hübner, 1805  
*Heliothis conferta* Walker, 1857  
*Heliothis fusca* Cockerell, 1889  
*Heliothis pulverosa* Walker, 1857  
*Heliothis rama* Bhattacharjee & Gupta, 1972  
*Heliothis uniformis* Wallengren, 1860  
*Noctua armigera* Hübner, [1805]  
*Noctua barbara* Fabricius, 1794

***Heliothis nubigera* Herrich-Schaffer 1851**  
*Chloridea nubigera* Rothschild, 1915

**(*Heliothis peltigera* Denis & Schiffermuller 1775)**  
*Noctua peltigera* Denis & Schiffermuller 1775  
*Heliothis alpeha* (Cramer, 1780)  
*Phalaena alpeha* Cramer, 1780  
*Heliothis charmione* (Stoll, 1790)  
*Phalaena charmione* Stoll, 1790  
*Heliothis florentina* (Esper, 1788)  
*Phalaena florentina* Esper, 1788  
*Heliothis insulata* (Navas, 1924)  
*Chloridea insulata* Navas, 1924  
*Heliothis straminea* (Donovan, 1793)  
*Phalaena straminea* Donovan, 1793  
*Phalaena scutigera* Borkhausen, 1792  
*Heliothis barbara* (Fabricius, 1794)  
*Heliothis guidellii* Constantini, 1922

***Leucania loreyi* (Duponchel, 1827)**  
*cantholeucania loreyi* (Duponchel, 1827)  
*Noctua loreyi* Duponchel, 1827  
*Leucania caricis* Treitschke, 1835  
*Leucania collecta* Walker, 1856  
*Leucania curvula* Walker, 1856  
*Leucania denotata* Walker, 1856  
*Leucania designata* Walker, 1856  
*Leucania exterior* Walker, 1856  
*Leucania thoracica* Walker, 1856  
*Borolia melanostrotoides* Strand, 1915  
*Leucania pseudoloreyi* Rungs, 1953  
*Mythimna loreyi* (Duponchel, 1827)

***Noctua pronuba* L. 1758**  
*Agrotis pronuba* (Linnaeus, 1758)  
*Noctua attenuata* Cockayne, 1952  
*Noctua brunnea* Tutt, 1892  
*Noctua caesia* Feichtenberger, 1962  
*Noctua cinerea* Lempke, 1943  
*Noctua coeruleascens* Tutt, 1892  
*Noctua connuba* Hübner, 1822  
*Noctua cracoviensis* Prüffer, 1914  
*Noctua cricori* Vaughan-Roberts, 1954  
*Noctua cruda* Lempke, 1962  
*Noctua decolorata* Turati, 1923  
*Noctua denigrata* Schultz, 1907  
*Noctua distinctacaerulescens* Tutt, 1892  
*Noctua flavescens* Lempke, 1962  
*Noctua fumata* Cockayne, 1946  
*Noctua griseabrunnea* Tutt, 1892  
*Noctua griseainnuba* Tutt, 1892  
*Noctua hoegei* Herrich-Schäffer, 1861  
*Noctua hoegei* Schindler, 1914  
*Noctua immaculata* Lempke, 1939  
*Noctua infrapallida* Smith, 1954  
*Noctua innuba* Treitschke, 1825  
*Noctua latemarginata* Lempke, 1962  
*Noctua maculina* Wihan, 1917  
*Noctua nigra* Krausse, 1912  
*Noctua nigra* Lempke, 1939  
*Noctua nigribasalis* Cockayne, 1952

*Noctua nivea* Cockayne, 1952  
*Noctua nuba* Kaiser, 1919  
*Noctua ochrea* Tutt, 1892  
*Noctua ochreabrunnea* Tutt, 1892  
*Noctua ochreainnuba* Tutt, 1892  
*Noctua pallida* Kaiser, 1919  
*Noctua postnigra* Turner, 1938  
*Noctua pronuba* Kaiser, 1919  
*Noctua semiconfluens* Lempke, 1962  
*Noctua xanthostaxis* Lempke, 1962  
*Phalaena pronuba* Linnaeus, 1758  
*Triphaena orbona* subsp. *connuba* (Hübner, 1822)  
*Triphaena pronuba* (Linnaeus, 1758)

***Sesamia cretica* Lederer, 1857**  
*Nonagria cyrnaea* Mabilie, 1867  
*Sesamia cyrnaea* Mabilie, 1866  
*Sesamia fraterna* Moore, 1882  
*Sesamia hesperica* Freyer, 1852  
*Sesamia pecki* Tams, 1938  
*Sesamia rufescens* Schawerda, 1916  
*Sesamia striata* Staudinger, 1888  
*Sesamia vuterioides* Strand, 1915

***Sesamia nonagrioides* (Lefebvre 1827)**  
*Cossus nonagrioides* Lefebvre, 1827  
*Sesamia ciccarelli* Mariani, 1934  
*Sesamia gracilis* Rebel, 1899  
*Sesamia hesperica* Rambur, 1837  
*Sesamia sacchari* Wollaston, 1858

***Scotia segetum* (Denis & Schiffermüller) 1775**  
*Agrotis albiptera* Turati, 1921  
*Agrotis anthracitica* Alphéraky, 1908  
*Agrotis aversa* Walker, 1856  
*Agrotis bilineata* Cockayne, 1952  
*Agrotis catenatus* Haworth, 1803  
*Agrotis centrifasciata* Lempke, 1962  
*Agrotis certificata* Walker, 1865  
*Agrotis conecta* Walker  
*Agrotis connexus* Haworth, 1803  
*Agrotis conspurcata* Walker, 1865  
*Agrotis correctata* Walker, 1856  
*Agrotis corticus* Haworth, 1803  
*Agrotis delineata* Lempke, 1962  
*Agrotis denticulosa* Wallengren, 1860  
*Agrotis dimidia* Zeller, 1847  
*Agrotis fervida* Hübner, 1824  
*Agrotis fuscolimbata* Lempke, 1962  
*Agrotis fuscosa* (Esper, 1786)  
*Agrotis glaucina* Kozhanchikov, 1923  
*Agrotis infuscofasciata* Chalmers-Hunt, 1961  
*Agrotis juncta* Lucas, 1959  
*Agrotis lassa* Swinhoe, 1886  
*Agrotis marginalis* Walker, 1856  
*Agrotis marginata* Cockayne, 1952  
*Agrotis mediocuneata* Cockayne, 1952  
*Agrotis minorata* Turati, 1924  
*Agrotis monileus* Haworth, 1803  
*Agrotis nictitans* Lempke, 1962  
*Agrotis nigricornis* Villers, 1789  
*Agrotis nigricornutus* Haworth, 1803

*Agrotis nocturna* Staudinger, 1915  
*Agrotis obliviosa* Walker, 1856  
*Agrotis pallida* Staudinger, 1881  
*Agrotis pallidaobsolata* Dannehl, 1925  
*Agrotis paradoxa* Cockayne, 1952  
*Agrotis pectinatus* Haworth, 1803  
*Agrotis praecox* (Haworth, 1809)  
*Agrotis preecox* Hübner, 1808  
*Agrotis protensa* Lempke, 1962  
*Agrotis pseudocos* Turati, 1924  
*Agrotis repulsa* Walker, 1865  
*Agrotis segetis* Hübner, 1803  
*Agrotis semiconfluens* Cockayne, 1952  
*Agrotis semiconfluens* Lucas, 1959  
*Agrotis seminigra* Cockayne, 1952  
*Agrotis sicania* Guenée, 1852  
*Agrotis sicula* Boisduval, 1840  
*Agrotis signatadelecta* Turner, 1937  
*Agrotis silvestrii* Turati, 1924  
*Agrotis sordida* (Denis & Schiffermüller) 1775  
*Agrotis spinula* Donovan, 1801  
*Agrotis spinulus* Haworth, 1803  
*Agrotis subatratus* (Haworth, 1803)  
*Agrotis subtratus* Haworth, 1803  
*Agrotis texanus* Grote, 1863  
*Agrotis unicolor* Pillich, 1909  
*Agrotis virilis* Staudinger, 1915  
*Euxoa segetum* (Denis & Schiffermüller, 1775)  
*Noctua segetum* Denis & Schiffermüller, 1775  
*Phalaena segetum* Denis & Schiffermüller, 1775  
*Scotia segetum* (Denis & Schiffermüller, 1775)

***Spodoptera cilium* Guenée, 1852**

*Spodoptera capicola* Herrich-Schäffer, 1854  
*Spodoptera cycloides* (Guenée, 1852)  
*Spodoptera elegans* (Lucas D., 1954)  
*Spodoptera imperviata* (Walker, 1865)  
*Spodoptera latebrosa* (Lederer, 1855)  
*Spodoptera obliterans* (Walker, 1862)  
*Spodoptera orbicularis* (Walker, 1857)  
*Spodoptera praeterita* (Walker, 1857)  
*Spodoptera procedens* (Walker, 1857)  
*Spodoptera retrahens* (Walker, 1870)

***Spodoptera exigua* (Hubner 1808)**

*Caradrina albimacula* Dannehl, 1929  
*Caradrina decolorata* Dannehl, 1929  
*Caradrina exigua* (Hübner, 1808)  
*Caradrina flavimaculata* Harvey, 1876  
*Caradrina junceti* Zeller, 1847  
*Caradrina pygmaea* Rambur, 1834  
*Caradrina sebhana* Austaut, 1880  
*Caradrina variegata* Dannehl, 1929  
*Caradrina venosa* Butler, 1880  
*Douzdrina protector* de Laever, 1985  
*Laphygma antipodea* Warren, 1914  
*Laphygma canior* Strand, 1916  
*Laphygma caradrinoides* Walker, 1856  
*Laphygma exigua* (Hübner, 1808)  
*Noctua exigua* Hübner, 1808  
*Noctua fulgens* Geyer, 1832

*Spodoptera antipodea* (Warren, 1914)  
*Spodoptera caradrinoides* (Walker, 1856)  
*Spodoptera fulgens* (Geyer, 1832)  
*Spodoptera junceti* (Zeller, 1847)  
*Spodoptera protector* (De Laever, 1985)  
*Spodoptera pygmaea* (Rambur, 1834)  
*Spodoptera sebhana* (Austaut, 1880)  
*Spodoptera venosa* (Butler, 1880)

***Spodoptera frugiperda* (Smith 1797)**

*Caradrina frugiperda*  
*Laphygma frugiperda* Guenée, 1852  
*Laphygma inepta* Walker, 1856  
*Laphygma macra* Guenée, 1852  
*Noctua frugiperda* J.E. Smith  
*Phalaena frugiperda* Smith & Abbot, 1797  
*Prodenia autumnalis* Riley, 1870  
*Prodenia plagiata* Walker, 1856  
*Prodenia signifera* Walker, 1856  
*Trigonophora frugiperda* Geyer, 1832

***Spodoptera littoralis* (Boisduval, 1833)**

*Hadena littoralis* Boisduval, 1833  
*Noctua gossypii* Fabricius, 1794  
*Prodena littoralis* Boisduval, 1833  
*Prodenia testaceoides* Guenée, 1852  
*Prodenia retina* Freyer, 1945  
*Spodoptera retina* Freyer, 1845  
*Spodoptera testaceoides* Guenée, 1852  
*Spodoptera metrioides* Bethune-Baker, 1991

***Cornutiplusia circumflexa* (Linnaeus, 1767)**

*Cornutiplusia clavata* Cyrillo, 1787  
*Cornutiplusia daubei* Herrich-Schäffer, 1845  
*Cornutiplusia flexuosa* (Donovan, 1807)  
*Cornutiplusia graphica* (Herrich-Schäffer, 1851)  
*Cornutiplusia lunata* (Fabricius, 1787)  
*Phalaena circumflexa* Linnaeus, 1767  
*Phalaena (Noctua) flexuosa* Donovan, 1807  
*Phalaena (Noctua) lunata* Fabricius, 1787  
*Plusia daubii* Freyer, 1838  
*Plusia graphica* Herrich-Schäffer, 1845  
*Plusia patefacta* Walker, 1857  
*Syngrapha circumflexa* (Linnaeus, 1767)

***Acontia (Acontia) lucida* (Hufnagel, 1766)**

*Phalaena lucida* Hufnagel, 1766  
*Noctua solaris* Denis & Schiffermüller, 1775  
*Noctua albicollis* Fabricius, 1781,  
*Phalaena Noctua rupicola* Borkhausen, 1792,  
*Noctua insolatrix* Hübner, 1822,  
*Acontia lucida* var. *lugens* Alphéraky, 1889,  
*Tarache lucida* var. *heliodora* Schawerda, 1923,  
*Acontia triradiata* Walker, 1857,

***Thyanoplusia orichalcea* (Fabricius, 1775)**

*Autographa orichalcea* (Fabricius 1775)  
*Diachrysia orichalcea* (Fabricius 1775)  
*Noctua aurifera* Hübner, 1813  
*Noctua orichalcea* Fabricius, 1775  
*Noctua orychalcea* Hübner, 1803  
*Phalaena chrysitina* Martyn, 1797  
*Phytometra orichalcea* (Fabricius 1775)



*Phytometra orichalcea* (Fabricius 1775)

*Plusia orichalcea* (Fabricius 1775)

*Trichoplusia orichalcea* (Fabricius 1775)

*Trichoplusia circumscripta* (Freyer, 1831)

*Thysanoplusia circumscripta* (Freyer, 1831)

*Plusia circumscripta* Freyer, 1831

*Trichoplusia ni* (Hubner 1803)

*Noctua ni* Hübner (1803)

*Phytometra ni* (Hübner, 1803)

*Plusia brassicae* Riley, 1870

*Plusia echinocystidis* Strecker, 1874

*Plusia innata* Herrich-Schäffer, 1868

*Plusia ni* (Hübner, 1803)

*Trichoplusia brassicae* (Riley, 1870)

*Trichoplusia comma* Schultz, 1907

*Trichoplusia deserticola* Rothschild, 1913

*Trichoplusia echinocystidis* (Strecker, 1874)

*Trichoplusia extrahens* (Walker, 1858)

*Trichoplusia florida* Dannehl, 1929

*Trichoplusia humilis* (Walker, 1858)

*Trichoplusia innata* (Herrich-Schäffer, 1868)

*Trichoplusia significans* (Walker, 1858)

*Trichoplusia unotata* Strand, 1917

#### REFERENCES

**Abdel Fattah M. Amer and Ashraf M. El-Torkey (2017):** Revision of Higher Classification of Superfamily Noctuoidea (Lepidoptera) in Egypt, Egypt. Acad. J. Biolog. Sci., (A.Entomology) Vol.10(1):55– 69.

**Badr, M.A. and Salem, M.M. (2001):** Comparative survey and relative abundance of Lepidopterus moths in four regions in Egypt by the use of light-traps. Egypt J. Appl. Sci., 16(10): 290-297.

**Badr, M.A.; Salem, M.M. and Etman, A.A.(1987):** The fluctuations in the population size of pyralid moths (Lepidoptera) at Fayoum district as indicated by a light-trap catches. Bull. Soc. Ent. Egypte, 67: 169-175.

**Badr, M.A.; Salem, M.M.; El Said, L.M. and Abdel Azim, M. (1985b):** Occurrence and fluctuation of moths in Beni-Suef as indicated by a light-trap. Proc. 6th Arab Pesticide Conf. Tanta Univ., II: 159-167.

**Badr, M.A.; Salem, M.M.; Hussein, H. R.; El Samni, M.A. and Rizk, M.A. (1985a):** Existence and fluctuations of lepidopterous moths as indicated by a light trap at Dakahliya, Egypt. Minia J. Agr. Res. & Dev., 7(2): 641-657.

**Capinera, John L. (2008):** "Variegated Cutworm, *Peridroma saucia* (Hübner) (Lepidoptera: Noctuidae)". In Capinera, John L. (ed.). Encyclopedia of Entomology. Springer Netherlands. pp. 4038–4041.

**El Bassiony, M.N.; Salem, M.M. and Negm, F.H. (1997):** Relative abundance of some lepidopterous moths attracted to a light-trap at Al

Arish city, North Sinai during two successive years. Annals Agric. Sci., Ain Shams Univ., Cairo, 42(2): 643-653.

**El Kady, E.A.; Amin, A.H.; Nazmi, N.H. and Ahmed, A.A. (1980):** Seasonal activity of the moths and survey of host plants of the larvae for seven species of subfamily Plusiinae in Egypt (Lepidoptera: Noctuidae). 1st Conf. of Plant Prot. Res. Inst., Proc., 3: 349-363.

**El Saadany, G.B. and Rizk, G.A. (1973a):** Population dynamics of the lesser cotton leafworm *Spodoptera exigua* (Hubn.) in Upper Egypt. I, Egt. Pest. Cont. Cong., Assiut, 13-19.

**ElSaadany, G.B. and Rizk, G.A. (1973b):** Population dynamics of the cotton leafworm *Spodoptera littoralis* (Boisd.) in Upper Egypt. I, Egt. Pest. Cont. Cong., Assiut, 21-28.

**El Saadany, G.B.; Abdel Fattah, M.I. and Mourad, S. (1978):** Annual generations of the lesser cotton leafworm *Spodoptera exigua* in Lower Egypt. 4th Conf. pest Contr., N.R.C., Cairo: 11-14.

**Etman, A.A.; Badr, M.A. and Salem, M.M. (1990):** Relative abundance of nocturnal lepidopterous moths in the Fayoum district as indicated by light trap catches. Bull. Soc. Ent. Egypte, 70: 98-109.

**Hanna, H.M. (1972):** The flight activity of *Agrotis ipsilon* (Hufn.) at two levels in the vicinity of Assiut (Lepidoptera: Noctuidae). Bull. Soc. Ent. Egypte, 56: 93-102.

**Hanna, H.M. and Atries, I.E. (1968):** On the time of flight of nocturnal Lepidoptera as measured by a light trap. Bull. Soc. Ent. Egypte, 52: 535-545.

**Hanna, H.M. and Atries, I.E. (1969):** On the time of flight of certain nocturnal Lepidoptera as measured by a light trap. Bull. Soc. Ent. Egypte, 53: 535-545.

**Hanna, H.M. and Hamad, N.E.F. (1975):** Time of flight of Lepidoptera as indicated by three light traps. Bull. Soc. Ent. Egypte, 59: 61-71.

**Hanna, H.M.; Hamad, N.E.F. and Nazmi, N.H. (1975):** Seasonal abundance of certain species of nocturnal Lepidoptera at different levels. Bull. Soc. Ent. Egypte, 59: 1-16.

**Hassanein, M.H.; Khalil, F.M. and Abd El Naby, A. (1971):** Abundance and population density of three lepidopterous insects in Upper Egypt. Bull. Soc. Ent. Egypte, 55: 79-83.

**Hussein, H.R.; El Gamal, M.M.; Salem, M.M.; Mofteh E.A. and A.A. Oshaiba (1986):** Existence and fluctuation of lepidopterous pests at

Nubarea area as indicated by a light-trap at Dakahliya, Egypt. Minia J. Agr. Res. &

**Salem, M.M.; A.A. Etman and M.A. Badr (1989):** Abundance of noctuid moths captured by light trap (Noctuidae: Lepidoptera). Agric. Res. Rev., 67(1): 141-148.

**Lafontaine, D.; Schmidt, C. (2010):**Annotated check list of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico. ZooKeys, 40: 1-239.

**Ragab, M.G., El-Sayed, A.A. and Nada, M.A. (2014):**The effect of some biotic and abiotic factors on seasonal fluctuations of *Helicoverpa armigera* (Hub.). *Egyptian Journal of Agricultural Research* **92**: 101-119.

**Shaheen N. (2013):**Biodiversity and faunistic studies of the sub family noctuinae (Lepidoptera: Noctuidae) from Pakistan with cladistic analysis. Doctoral dissertation. Federal Urdu University of Arts Sciences and Technology, Karachi. 2013; 09:24.

**Zahiri, Reza; Holloway, Jeremy D.; Kitching, Ian J.; Lafontaine, J. Donald; Mutanen, Marko; Wahlberg, Niklas (2012):** "Molecular phylogenetics of Erebidae (Lepidoptera, Noctuoidea)". *Systematic Entomology*. 37 (1): 102–124.

**Zanaty, E. M.; Shenishen, M. A.; Badr, M. A. and Salem, M. M. (1985):** Survey and seasonal activity of lepidopterous moths at kafr El Sheikh region as indicated by a Light trap. *Bull. Soc. Ent. Egypt*, 65: 351 - 357.

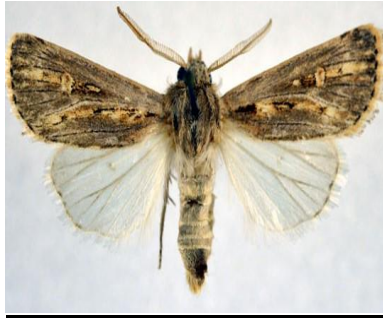
**Zhang, Z.-Q.(2011):**"Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness". *Zootaxa*. Magnolia Press. 3148: 217.

**Zahiri, R.D.; Lafontaine, C. Schmidt, J. D. Holloway, I. J. Kitching, M. Mutanen, and N. Wahlberg. (2013):**Relationships among the basal lineages of Noctuidae (Lepidoptera, Noctuoidea) based on eight gene regions. *Zool. Scr.* 42: 488–507.

Plate (1)



*Agrotis ipsilon* (Hufnagel)



*Agrotis pictifascia* (Hampson)



*Agrotis pierretti* (Bugnion)



*Agrotis puta* (Hubner)



*Agrotis ripae* Baker



*Hadula trifolii* (Hufnagel)



*Agrotis spinifera* (Hubner)



*Agrotis trux* (Hubner)



*Athetis atriluna* Guenee



*Athetis clavipalpis* Scopoli



*Autographa gamma* (Linnaeus)



*Chrysodeixis chalcitis* (Esper)

Plate (2)



*Heliiothis armigera* H.



*Heliiothis nubigera* Herrich-Schaffer



*Heliiothis peltigera* Schiffermuller



*Leucania loreyi* (Duponchel)



*Noctua pronuba* L.



*Sesamia cretica* (Lederer)



*Sesamia nonagrioides*



*Sesamia wiltshirei*



*Soctia segetum*



*Spodoptera exigua*



*Spodoptera frugiperda*



*Spodoptera ciliium*

Plate (3)



*Spodoptera littoralis*



*Cornutiplusia circumflexa*



*Tarache lucida*



*Thysanoplusia orichalcea* F.



*Trichoplusia circumscripta*



*Trichoplusia daubei*



*Trichoplusia ni* (Hubner)

## المخلص العربي

دراسة الكثافة العددية والتذبذب وتحديث الأسماء للفراشات من عائلة نوكتويدى لرتبة حرشفية  
الأجنحة باستخدام المصيدة الضوئية بمحافظة أسوان - مصر

محمود يوسف حسن حنيش

قسم بحوث الحصر والتصنيف - معهد بحوث وقاية النباتات-مركز البحوث الزراعية - الدقي - الجيزة

تم دراسة الكثافة العددية وتذبذب التعداد للفراشات من فصيلة نوكتويدى التابعة لرتبة حرشفية الأجنحة باستخدام المصيدة الضوئية في محافظة أسوان وذلك خلال الفترة من اغسطس 2019 حتى يوليو 2021 وقد اسفرت الدراسة عن وجود 31 نوع تحت 16 جنس تنتمى لفصيلة نوكتويدى وكان تعداد الحشرات 19367 فى السنة الأولى 2019-2020 وكان 23867 حشرة فى السنة الثانية 2020-2021 كانت الفراشات أكثر انجذابا للمصيدة خلال الشهور من مايو إلى سبتمبر ووصلت الى قمة نشاطها ووفرتها خلال شهر مايو خلال العامين وبلغت 3167 , 3803 على التوالي وكانت دودة الحشد الخريفية أكثر انجذابا خلال العامين بعدد 1225 فى السنة الأولى و عدد 2804 فى السنة الثانية وتليها فى السنة الأولى *Noctua pronuba* بعدد 1209 ثم- *Spodoptera littoralis* بعدد 1182 وتليها فى السنة الثانية *Spodoptera littoralis* بعدد 1747 وتليها *Noctua pronuba* بعدد 1433. تم تحديث اسماء 9 انواع هي:

النوع *Athetis atriluna* إلى النوع *Caradrina atriluna*النوع *Athetis clavipalpis* إلى النوع *Caradrina clavipalpis*النوع *Scotogramma trifolii* إلى النوع *Hadula trifolii*النوع *Heliothis armigera* إلى النوع *Helicoverpa armigera*النوع *Mythimna loreyi* إلى النوع *Leucania loreyi*النوع *Agrotis segetum* إلى النوع *Soctia segetum*النوع *Spodoptera latebrosa* إلى النوع *Spodoptera cilium*النوع *Syngrapha circumflexa* إلى النوع *Cornutiplusia circumflexa*النوع *Tarache lucida* إلى النوع *Acontia lucida*