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A Preliminary Report on the Moths (Insecta: Lepidoptera: Heterocera) Fauna from Amravati, Maharashtra

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Abstract: ***Moths belong to the order Lepidoptera and this type of fauna are easily affected by a slightest change in environment so keeping in view moths could be used to check the minute change of environment hence can be called as bioindicators of environment. Taking a chance to investigate environmental health all possible efforts were carried out in this work to list and unfold this hidden fauna of city and some surrounding areas. Collection of moths was carried out from August 2012 to January 2013 to determine their diversity and occurance. A total number of 41 moth specimens were collected by using simple light traps operated from dusk to dawn. The moths were identified up to family level. Families Noctuidae, Arctiidae, Geometridae, Sphingdae, Saturniidae, Crambidae, Lasiocampidae and Lymantridae were presented in collection samples.***

Keyword: Abundance, collection, diversity, identification, moth taxonomy.

1. Introduction

Moths are the cousins of butterflies, both of them belonging to the order Lepidoptera. Documenting diversity of moth fauna can help to lead a new evolutionary insights and a first step in developing conservation goals for the lepidopteron insects. Hence, in the present study an attempt has been made to study the diversity of moths from in and around Amravati city, Maharashtra which is still not investigated. The main objective was to study the moth fauna, collect them, identify the moth diversity, and study their occurrence. The study was carried out from August 2012 to January 2013. The city covers vegetation rich in tropical, deciduous, bushy and semi-evergreen plant species of mesophytic nature. Moth collection was carried out from evening onwards till morning on next day by using Light Trap. The identification of moths was carried out in laboratory at Zoological Survey of India, Jabalpur with help of identified specimens and literature Hampson (1892, 1894, 1895 and 1896). Bell and Scott (1937).

The present study reveals a total of 41 species from 12 families have been identified from in and around Amravati city of which, the members of the family Erebidae outnumbered the other moth families. Noctuidae, Crambidae**,** Arctiidae, Sphingdae, Lasiocampidae Lymantridae, Saturniidae Nolidae and Uranidae .

2. Study Area

Moths were collected from in and around Amravati city. The study was carried out from August 2012 to January 2013. The area covers vegetation rich in tropical, deciduous bushy and semi-evergreen plan species of mesophytic nature.

3. Material and Methods

1) **Collection of Moths**
Moth collection was carried out from evening onwards till morning on next day by using Light Trap. The moths collected were killed by ethyl acetate and later pinned in insect stretching board. All specimens were preserved in airtight insect box, having naphthalene balls as fumigant. Each specimen was provided with a label indicating the locality and date of collection.
2) **Identification of Moths**
The identification of moths was carried out in laboratory at Zoological Survey of India, Jabalpur with help of identified specimens and available literature Hampson (1892, 1894, 1895 and 1896), Bell and Scott (1937) and other published literatures.

4. Result

In the present study, a total of twelve families have been identified from Amravati city and its vicinity area. The collection was carried out from different areas like college campus having 160 acre of area under and two flowering gardens, from wadali garden, chatritalab and also around university campus. Among twelve families moths belonging to the family erebidae were common and outnumbered the other moth families viz. Noctuidae, Crambidae**,** Arctiidae, Sphingdae, Lasiocampidae Lymantridae, Saturniidae, Nolidae and Uraniidae :

List of moth species and their occurance:

S. No.	*Family*	*Subfamily*	*Name of the species*	*Occurrence*
1	LASIOCAMPIDAE	Lasiocampinae	*Estigena pardalis* (Walker)	*R*
		-	*Streblote dorsalis*	*R*
2	ARCTIIDAE	Arctiinae	*Creatonotus gangis* (Linnaeus.)	*R*
		Arctiinae	*Oeonistis entella* (Cramer)	*VR*
3	GEOMETRIDAE	Ennominae	*Zamarada translucida* Moore	*VR*
		Ennominae	*Hyposidra talaca* (Walker)	*C*
		Geometrinae	*Maxates* sp.	*C*
4	SPHINGDAE	Macroglossinae	*Theretra alecto alecto* (Linnaeus)	*C*
		-	*Nephele hespera* Fabricius,	*VR*
		Macroglossinae	*Daphnia nerii* Linnaeus	C
5	CRAMBIDAE	Spilomelinae	*Caprinia conchylalis* Guenee	C
		Spilomelinae	*Diaphania indica* (Saunders)	*C*
			Cirrhochrista brizoalis	*C*
6	NOCTUIDAE	Catocalinae	*Trigonodes hyppasia* (Cramer)	*R*
		Catocalinae	*Spirama retorta* (Clerck)	*VR*
		Calpinae	*Sphingomorpha chlorea* (Cramer)	VR
		Catocalinae	*Ophiusa tirrhaca* (Cramer)	*C*
		Catocalinae	*Ophiusa algira* Linnaeus	*VR*
		Aganainae	*Asota caricae* (Fabricius)	R
7	LYMANTRIDAE	-	*Euproctis lunata* (Walker)	VC
		-	*Euproctis apicalis*	*C*
8	SATURNIIDAE	Saturniinae	*Actias selene* (Hubner)	*C*
		Saturniinae	*Antheraea mylitta* Drury	C
9	NOLIDAE	Chloephorinae	*Aiteta rufoflava*	R
10	URANIIDAE	Microniinae	*Micronia aculeata* Guenée	R
11	EREBIDAE	Erebinae	*Ercheia cyllaria*	C
		-	*Grammodes geometrica* Fabricius	R
		-	*Mocis undata* Fabricius	R
		-	*Bastilla torrida* Guenée	R
		-	*Ophiusa tirhaca* Cramer,	R
		-	*Erebus caprimulgus* Fabricius	VR
		-	*Bastilla conficiens*	R
		Calpinae	*Eudocima materna Linnaeus*	R
		-	*Eudocima phalonia* Linnaeus	VR
		Scoliopteryginae	*Cosmophila fulvida* Guenée,	C
		Arctiinae	*Amerila astrea* Drury	C
		-	*Mangina astrea* Drury	R
		-	*Utetheisa lotrix* Cramer	R
		Aganainae	Asota ficus Fabricius	R
		Eulepidotinae	*Ischyja hemiphaea* Cramer	R
12	HYBLAEIDAE		*Hyblaea puera* Cramer	VR

Abbreviation*
R= Rare
VR= Very rare
C= Common
VC= Very common

5. Discussion

Based on the survey which was carried out in the present study, from Aug 2012 to Feb 2013 from Amravati city and its nearby areas, a total of 41 species belonging to 12 families were found. This study was mainly carried out to elucidate the biodiversity of moth fauna that has not been studied previously. It was observed that number of moth species belonging to family Erebidae, was found more than other families viz., Noctudiae Crambidae, Arctiidae, Geometridae, Sphingdae, Lymantriidae, Saturniidae, and Lasiocampidae. The collection was more mainly in month of August. Similar studies were carried out at 16 sites in southern Korea to determine the patterns of diversity for moths in this area. A total of 975 moth species were recognized in the 6 month collection periods (May to Oct) between 2001 and 2007. Species diversity and seasonal abundance of fruit piercing moth was carried out from different localities in Tamil Nadu. They observed five species of fruit piercing moth belonging to two genra (Ramkumar 2010) Comprehensible surveys of moth diversity have been done in Hawaii (Zimmerman 1948) and on larger continental islands such as Australia (Common 1990) New Zealand (Hudson 1928), and Borneo (Holloway 1976). There have also been a few studies on smaller islands (Holloway 1977), but for most islands in French Polynesia, there is little more than a superficial examination (Paulin 1998) of the moth fauna since the Bishop Museum's entomological expeditions in the 1930's (Adamson 1939). It thus implies that further work undertaken in greater depth and covering large areas may reveal a rich biodiversity of moth fauna. Moths are easily

affected by slightest disturbances in climate and also by pollution. A sudden variance in the abundance or decline in moth population is often a clear indicator of climatic upheavals or increased levels of pollutants in environment. By knowing the structure of moth community in an area we can measure the ecological impact, in terms of biodiversity.

6. Conclusion

While studying the Biodiversity of moth fauna form Amravati city and its surrounding area, a total of 41 species belonging to 12 families were recorded in the present work. Among these, members of the Erebidae family were predominant in the collection. Regarding their seasonal abundance the activity of moths was found higher in month of August. The present study has been carried out to elucidate a fauna which was previously unknown, and it is a small step towards a complete taxonomic understanding of moth species from the Amravati city. There were several species which were recorded in the present findings, but abundant were the Erebidae moths which were frequent visitors to the light during the collections.

7. Acknowledgement

The list of moths presented here is preliminary step; a more comprehensive study is required to document the entire biodiversity present in this area. This study was carried out with kind guidance and help of ZSI Jabalpur. Identification of moths was carried at ZSI laboratory of Jabalpur MP.

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Family - Eribidae


Mangina astrea

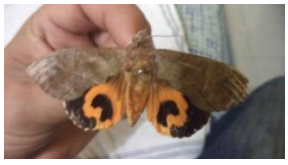

Ischyja hemiphaea


Utetheisa lotrix


Cosmophila fulvida

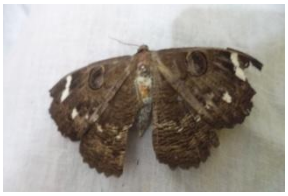

Amerila astrea

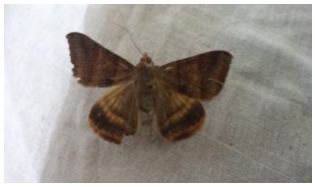

Asota ficus


Eudocima phalonia


Eudocima materna


Bastilla conficiens


Mocis undata


Erebus caprimulgus


Bastilla torrid


Ophiusa tirhaca

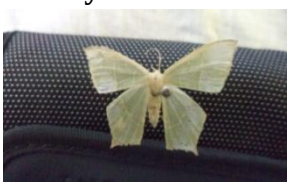

Ercheia cyllaria


Grammodes geometrica

Family-Crambid


Cirrhochrista brizoalis

Family-Geometridae


Maxates sp.

Family-Nolidae


Aiteta rufoflav

Family-Lasiocampida


Streblote dorsalis

Family: Arctiidae


Creatonotus gangis


Oeonistis tirrhaca

Family: Geometridae

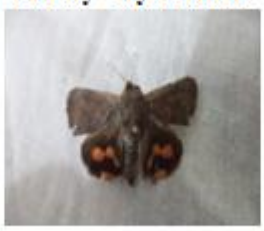

Zamarada translucida


Hyposidra talaca

Family: Lasiocampidae

Estigena pardalis

Family –Hyblaeidae



Hyblaea puera

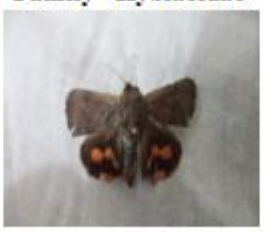
Family-Uraniidae

Micronia aculeate

Family: Lasiocampidae

Estigena pardalis

Family –Hyblaeidae



Hyblaea puera

Family-Uraniidae

Micronia aculeate

Family: Sphingdiae

Therata alecto alecto (linn.)

Diaphnis nerii

Nephele hespera

Family: Noctuidae

Asota caricae

Ophiusa algira

Sphingomorpha chlorea

Spirama retorta

Trigonodes hyppasia

Opiusa tirhaca(cramer)

Family: Crambidae

Caprinia conchylasis Guenee

Diaphnia indica