International Journal of Ecology and Environmental Sciences
www.ecologyjournal.in
Online ISSN: 2664-7133; Print ISSN: 2664-7125; Impact Factor: RJIF 5.28
Received: 10-10-2020; Accepted: 25-10-2020; Published: 11-11-2020
Volume 2; Issue 4; 2020; Page No. 338-343

Moths (Lepidoptera) of Shri Shivaji Art, commerce & Science College and Adjoining Areas, Akola: An Initial Checklist

Priyanka M Ramteke
Assistant professor, Shri Shivaji Art, Commerce and Science College Akola, Maharashtra, India

Abstract
Moths are diverse group of insects belonging to the order Lepidoptera and regarded as one of the indicators of a healthy environment. This study deals with the first documentation on the moth species of Shivaji Art, commerce & Science College campus and its adjoining areas of Akola, M.S. The study was and Adjoining Areas, Akola carried out from September 2019 to March 2020, surveying areas mostly in the college campus, human settlements and agricultural lands. The survey examined the light illuminated walls of the College campus where moths accumulated during the evening hours. Light trapping equipped with 18w UV-Actinic tube was also used to record moths from nearby agricultural lands. In total, 24 moth individuals were recorded belonging to 24 species Within 24 genera falling under 10 families.. The family Noctuidae -7 represented the highest number of species, followed by Crambidae -4 , Sphingidae -3, and Lymantriidae -3 . the less commonly observed species belonging to families are Geometridae-1, Arctiidae-2, Saturniidae-1, Thyrididae -1 and nolidae-1 individuals respectively.

Keywords: Shivaji Art, commerce & science college campus, moths, lepidoptera, inventory

1. Introduction
Shri Shivaji Art, commerce & Science College Campus and its adjoining areas of Panjabrao Deshmukh Krushi Vidyapeeth, of Akola town of the Vidharbha State of Maharashtra. Situated at latitude 20.7^0 North and longitudinal 77.07 ^{0}East.It is an altitude of 925ft(287m) to 1036.745ft(316m) above sea level. Akola has tropical savanna climate Annual temperature range from a high of 47.6^0c to a low 2.2^0c. Annual rain fall averages 800mm.
Among the winged insects, the moths belong to the scientific order Lepidoptera including the butterflies. They can be distinguished from all other insects by the two pair of wings and the body that is scale covered. Regarded as indicators of healthy environment, inventory of Lepidoptera specially the overlooked group is the first step to know what are the species present in an area and it is essential to ensure future taxonomical and ecological studies of these taxa and implement conservation perspectives for moth individuals as well as their associated habitats.
Global estimates show that there are 1, 27,000 species of moths distributed over the world and of which, 12,000 species are reported from India. Moths are in general are least studied taxa across the globe and in India. Despite a large number of studies been taken up on the Documentation of various wildlife taxa found in and around Shri Shivaji Art, commerce & Science College Campus by the biologists, information on Moths of this region remains unknown. The present study is the first documentation on the moth species of Shri Shivaji Art, commerce & Science College Campus and its adjoining areas.

2. Materials and Methods
The study was carried out from September 2019 to March 2020 surveying areas mostly in the college campus, human settlements and agricultural lands. Light trapping equipped with a 18w UV-Actinic tube attached to a white sheet 6 x 4 feet joined to two poles and then the tube powered by 6v Battery, which was used to record moths from playgrounds of college, human settlements and agricultural lands.
In addition, the survey also examined the campuses of Shri Shivaji Art, commerce & Science College and Panjabrao Deshmukh Krushi Vidyapeeth in each campus the college building walls, which were with bright electrical lights during late evening hours followed by the next morning to observe the accumulation of moths resting over the light illuminated walls.
The moths were photographed and identified and those that were difficult to identify were kept for proper identification. Among the literatures, Fauna of British India: Moths Volume
I-V by G.F Hampson was referred for identification along with other journals.

3. Results & Discussion
A total of 24 moth individuals were recorded belonging to 24 species Within 24 genera falling under 10 families. A checklist of the moth Species is tabulated in Table 1
The accumulation of moths in a light source depends on the type of light source, plant communities occurring around the study site, temperature, weather conditions, altitudinal gradient, and the type of methods implemented. The moths recorded by visiting the mentioned.
Localities and sheet light trap method was a valuable source for developing a preliminary data record for moths occurring in this region. The notable species accumulated in the Agro-based habitats were *Asota caricae* [5], *Remigia undata* [9], *Ophideres maternal* [16] ,*Spirama retorta* [1] ,*Aedia sp Ophiusa tirrhaca* [2] and *Grammodes geometrica* [6] belongs to Noctuidae family on their host plants namely *Mangifera indica* (Mango) , *Musa*

paradisiaca (Banana), *Citrus, Solanum lycopersicum* (Tomatoes). The moths recorded belonged to 10 families, among them *Caprinia conchylasis*, *Diaphania indica* [18], *Pygospila tyres* [3] and *spoladea recurvalis* [10] Moths (Family: Crambidae) observed as a minor pest of potato and cucumber in Panjabrao Deshmukh Krushi Vidyapeeth The family Sphingidae (Hawkmoths) was represented by *Macroglossum* [19] species (humming bird hawkmoth) which was found number of times hovering near hibiscus flowers during the dusk hours. *Acherontia styx* (Death's Head Hawk moth) known as bee robber and *Agrius convolvuli* [15] was sighted two times in Shri Shivaji Art, commerce & Science College Campus.

Euproctis lunata [21], *Euproctis sp*. [20] *and Lymantria* sp. [14] belong to family Lymantiidae species of moths recorded near the agrobased campus.

The Geometridae (Geometer/looper moths) represented a few species of moth which include *Macaria fasciata* [7] observed as a pest on Acacia nilotica (babul) and Nerium indicum (kaner) plant in agrobased campus.

Arctiidae family represents two species of moth Pericallia *ricini* [8] and *Creatonotus gangis* [17] on their host plants namely *Musa paradisiaca* (Banana).

The species *Actias selene* [13], *Banisia myrtaea* [4], *Micronia aculeate* [12] and *Acotia transversa* [11] represented the family Saturniidae, Thyrididae, Uraniidae and nolidae respectively. These four families appeared to be scarce representing single species. Near the host plant namely hibiscus, lantanas, syzygium jambo, almond tree in agro based campus and adjoining area.

Table 1: List of moth species of Shri Shivaji Art, commerce & Science College and adjoining areas.

S. No.	Name of the species	Family	Subfamily	Genus
1.	*Asota caricae* (Fabricius1775)	Noctuidae	Aganainae	*Asota*
2.	*Aedia species (Hubner 1823)*	Noctuidae	-	*Aedia*
3.	*Grammodes geometrica* (Fabricius1775)	Noctuidae	-	*Grammodes*
4.	*Ophiusa tirrhaca (Cramer1777)*	Noctuidae	Catocalinae	*Ophiusa*
5.	*Ophideres materna* (Linnaeus1762)	Noctuidae	Calpinae	*Ophideres*
6.	*Remigia undata* (Fabricius1775)	Noctuidae	Catocalinae	*Remigia*
7.	*Spirama retorta* Clerck (1764)	Noctuidae	Catocalinae	*Spirama*
8.	*Caprinia conchylasis* Guenee	Crambidae	Spilomelinae	*Caprinia*
9.	*Diaphania indica* (Saunders1851)	Crambidae	Spilomelinae	*Diaphania*
10.	*Pygospila tyres* (Cramer1780)	Crambidae	Spilomelinae	*Pygospila*
11.	*spoladea recurvalis* (Fabricius1775)	Crambidae	Spilomelinae	*spoladea*
12.	*Acherontia styx* (Linnaeus1758)	Sphingidae	Sphinginae	*Acherontia*
13.	*Agrius convolvuli* (Linnaeus1758)	Sphingidae	Sphinginae	*Agrius*
14.	*Macroglossum* sp.(Scopoli 1777)	Sphingidae	Macroglossinae	*Macroglossum*
15.	*Euproctis lunata* (Walker1855)	Lymantriidae	-	*Euproctis*
16.	*Euproctis sp.(Walker 1855)*	Lymantriidae	-	*Euproctis*
17.	*Lymantria* sp.*(Hubner 1819)*	Lymantriidae	-	*Lymantria*
18.	*Macaria fasciata*(fabricus1775)	Geometridae	Ennominae	*Macaria*
19.	*Pericallia ricini* (Fabricius 1775)	Arctiidae	Arctiinae	*Pericallia*
20.	*Creatonotus gangis* (Linnaeus1763)	Arctiidae	Arctiinae	*Creatonotus*
21.	*Actias selene* (Hubner 1807)	Saturniidae	Saturniinae	*Actias*
22.	*Banisia myrtaea* (Drury1773)	Thyrididae	Striglininae	*Banisia*
23.	*Micronia aculeata* (Guenee1857)	Uraniidae	Uraniinae	*Micronia*
24.	*Acotia transversa* (Guenee 1852)	nolidae	Chloephorinae	*Acotia*)

Images of some moths of Shri Shivaji art, Commerce & Science College and adjoining area

Asota caricae | ***Aedia species.***

	
Grammodes geometrica	***Ophiusa tirrhaca***
	
Ophideres materna	***Remigia undata***

	
Spirama retorta	***Caprinia conchylasis***
	
Diaphania indica	***Pygospila tyres***

	
spoladea recurvalis	***Acherontia styx***

	
Agrius convolvuli	***Macroglossum* sp**
	
Euproctis lunata	***Euproctis sp***
	
***Lymantria* sp.**	***Macaria fasciata***

Pericallia ricini | ***Creatonotus gangis***

Actias selene | ***Banisia myrtaea***

Micronia aculeata | ***Acotia transversa***

4. Conclusion

Some moths are farmed for their economic value. The most notable of this is the silk worms the larva of domesticated moth *Bombyx mori.* It is farmed for the silk with which it builds its cocoon. Not all silk is produced by *Bobyx mori*. There are several species of Saturniidae,that also are farmed for their silk, such as the Ailanthus moth (*Samia Cynthia* group of species), the Chinese oak silkmoth (*Antheraea pernyi*), the Assam silkmoth (*Antheraea assamesnsis*), and the Japanese silk moth (*Antheraea yamamai*).

The larvae of many species are used as food, particularly in Africa, where they are an important source of nutrition. The mopane worms, the caterpillar of Gonimbrasia belina,from the family Saturniidae, is a significant food resource in Southern Africa .Another Saturniidae used as food is the cavorting emperor (UstaTerpsichore).

Moths also play a vital role in telling us about the health of our environment, like the canary in the coalmine .since they are so widespread and found in so many different habitats, and are so sensitive to changes; moths are particularly useful as indicator species. Monitoring their number and ranges can give us vital clues to changes in our own environment, such as the effect of new farming practices, pesticides, air pollution and climate change.

5. References

1. Clerk 1764: Spirama retorta Icon.Insect. rariorum2: pl. [54].
2. Cramer 1777: Ophiusa tirrhaca Lepidoptera & some other life forms retrieved December 2, 2019.
3. Cramer. Pygospila tyres Cramer P. De uitlandsche Kapellen voorkomende in de drie waereld-deelen Asia, Africa en America, by een verzameld en beschreeven door den heer Pieter Cramer (etc.). — [1779]–[1780]
4. Drury1773: Banisia myrtaea Ilustration of exotic entomology. Retrieved august 23, 2016.
5. Fabricius1775: Asota caricae ICAR national bureau of agricultural insect resources. Retrieved 22 july, 2016.

6. Fabricius 1775: Grammodes geometrica Australian caterpillars & their Butterflies & Moths. retrievedJanuary 15 ,2019.
7. Fabricius1775: Macaria fasciata Fabricius, 1775 in GBIF Secretariat (2019). GBIF Backbone Taxonomy. Checklist dataset https://doi.org/10.15468/39omei accessed via GBIF.org on 2020-10-08.
8. Fabricius 1775: Pericallia ricini "Lepidoptera & some other life forms retrievedJanuary 21, 2019.
9. Fabricius1775: Remigia undata Hampson,G.F.1895. The Fauna of British India including Ceylon and Burma, Moths-3. Taylor and Francis Ltd., London : 1-546.
10. Fabricius1775: Spoladea recurvalis Fabricius J. C. Systema Entomologiae sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus. — 1775
11. Guenee in Boisduval & Guenee 1852; Acotia transversa Histoire Naturelle des Insectes. Species General des Lepidopteres. 1-443.
12. Guenee in Boisduval & Guenee 1857; Micronia aculeate Histoire Naturelle des Insectes. Species General des Lepidopteres. Volume 10.
13. Hubner 1807:.Actias Selene Arora and Gupta. Mem. Zoo. Sur. India, 16 (1):12.
14. Hubner 1819: Lymantria sp: (Lepidoptera:Lymantriidae) from subtropical & temperate region of Asia, including the description of three new species,some potentially invasive to north America.
15. Linnaeus 1758: Agricus convovuli "Convovulus hawkmoth"Sphingidae of Eastern palaeartic retrieved December 13, 2018.
16. Linnaeus1762: Ophideres maternal Catalogue of lepidoptera of the French Antilles Retrieved september 12, 2019.
17. Linnaeus1763: Creatonotus gangis Lepidoptera larva of Australia. Retrieved February 19, 2011.
18. Saunder 1851: Diaphania indica Peter,C and David, B; 'Insect –host plant interaction in relation to development of Daphnia indica .The journal of Bombay Natural History Society.,89, 1992.
19. Scopoli 1777: Lepidoptera: Sphingidae, Macroglossinae in Hong Kong Roger Kendrick C & R Wildlife, 129 San Tsuen Lam Tsuen, Tai Po , New Territories, Hong Kong.
20. Walker 1855: Euproctis sp "Lepidoptera & some other life forms retrieved April 8, 2019.
21. Walker1855: Euproctis lunata "Lepidoptera & some other life forms retrieved october 8, 2018.