

Vol 6 Issue 3 Dec 2016

ISSN No : 2249-894X

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*Monthly Multidisciplinary  
Research Journal*

*Review Of  
Research Journal*

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## BIODIVERSITY OF MOTH IN WASHIM REGION OF MAHARASHTRA, INDIA.

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### ABSTRACT :

**L**epidoptera is the second largest order in the class Insecta which includes moths. It is estimated that there are over 10,000 species of moths in India, with many species still to be described. Present study was an attempt to explore moth diversity from different sites of the washim city. diversity of the moths were investigated from September 2016-January 2017. The total number of 12 moth species were identified up to the family level. Families were recorded, those are Sphingidae, Saturniidae, Erebidae, Uraniidae, Pterophoridae, Geometridae and Pyralidae. The study of moth play important ecological role in forest ecosystem in initiating and promoting the decay process of dead specimens. A large number of moth species are under the risk of extinction is the



indication of environment influence.

**KEY WORDS:** moth, biodiversity, Washim.

### INTRODUCTION:

Diversity is the initial footstep to develop conservation goals for all arthropods (Gillespie 1999). Moths are one of the most diversified animals which are vital form of animals universally acknowledged and related to the butterfly both belonging to the order Lepidoptera. The modern English word "moth" comes from old English "moose" (cf. Northumbrian "moose") from Common Germanic (compare Old Norse "motti", Dutch "mot", and German "motte" all meaning

"moth"). They are worldwide in distribution and have imperative position in global ecosystem. Most of the lepidopterans are moths with approximately 160,000 species .many of which are yet to be described. Most of the species of moths are nocturnal, but there are also crepuscular as well as diurnal species. Moths comprise a group of insects belonging to the order Lepidoptera (Thakur 2013). Globally, there are between 150,000 and 180,000 species of moths, almost 10 times as many as butterflies. It is estimated that there are over 10,000 species of moths in India. A reasonable guess could be that there are 6,000

to 7,000 moth species in the Eastern Himalaya. And other species of moth spread all over in India. Like butterflies moths too are cold-blooded insects. Most moths fly at night, nocturnal innature, as adults not all moths fly at night. (Sivasankaran *et al.*, 2011). There are many day-flying moths as well, many of which mimic distasteful butterflies. which makes them difficult to study but provides them protection from visual predators. Biodiversity indices of noctuid moths in various conifer forests. Lepidoptera is probably one of the most suitable groups for most quantitative comparisons especially their abundance and species richness. Moths were found to be a potentially useful indicator of biodiversity. The main objective of the study was to assess biodiversity health of conifer forests by using moths as indicator species. (Thakur *et al.*,

2016). Moth also studied by, (Chandra *et al.*, 2013) Diversity of Hawk Moths (Lepidoptera: Sphingidae) in Veerangana Durgavati Wildlife Sanctuary, Damoh, Madhya Pradesh. (Gadhikar *et al.*, 2015) A Preliminary checklist of Moths species from Amravati city, Maharashtra (India). moths feed on flowers that bloom at night, getting nectar from the flowers, and in turn, assisting in pollination. (Ramkumar *et al.*, 2010). (Wilson 1992) Fluctuations in abundance of tropical insects, (Benton 1995) Biodiversity and biogeography of Henderson island insects. The study of moth play important ecological role in forest ecosystem in initiating. Many species of moths carry on unrecognized weed control, and flower-visiting adults accomplish much useful pollination. Moths also play a vital role in telling us about the health of our environment. Insect outbreaks may have significant effects on a avian biodiversity, either directly by altering food availability or indirectly by altering habitat suitability. There is need to study biodiversity of moth in Washim region, as there were no previous records their diversity from this region

## MATERIALS AND METHODS

For present study variety of methods used for collection of moth. Five different collection sites were selected for the present work located in Washim city. These sites are R. A. college washim, PDKV, Swami Samarth nagar washim, Ansing taluka Washim and Ekburji dam area of Washim Different methods are used for trapping of moth.those are Flight Intercept Traps,.Sweeping. And Light trapping. Most moths fly at night, because moths are nocturnal in nature. There four Light trapping method is very useful after tuning light and insects are collected by hand on the sheet. At night, arrangement of a light source suspended behind a white sheet hung over rope tied to period of two to four hours is recommended. There are other light trap designs such as free-standing models that can be used where there are no trees, or models that hang from trees. These latter two designs can be left unattended if they are funnelled into a collecting device such as an enclosed base, filled with refuges egg cartons or into a jar filled with preservative. Collected species were identified by using identification key [www.insectidentification.org](http://www.insectidentification.org). also [www.biodevercityexplorer.org](http://www.biodevercityexplorer.org) and some species are identified by using photograph and available slandered literature. There are total 12 species belonging to 7 families

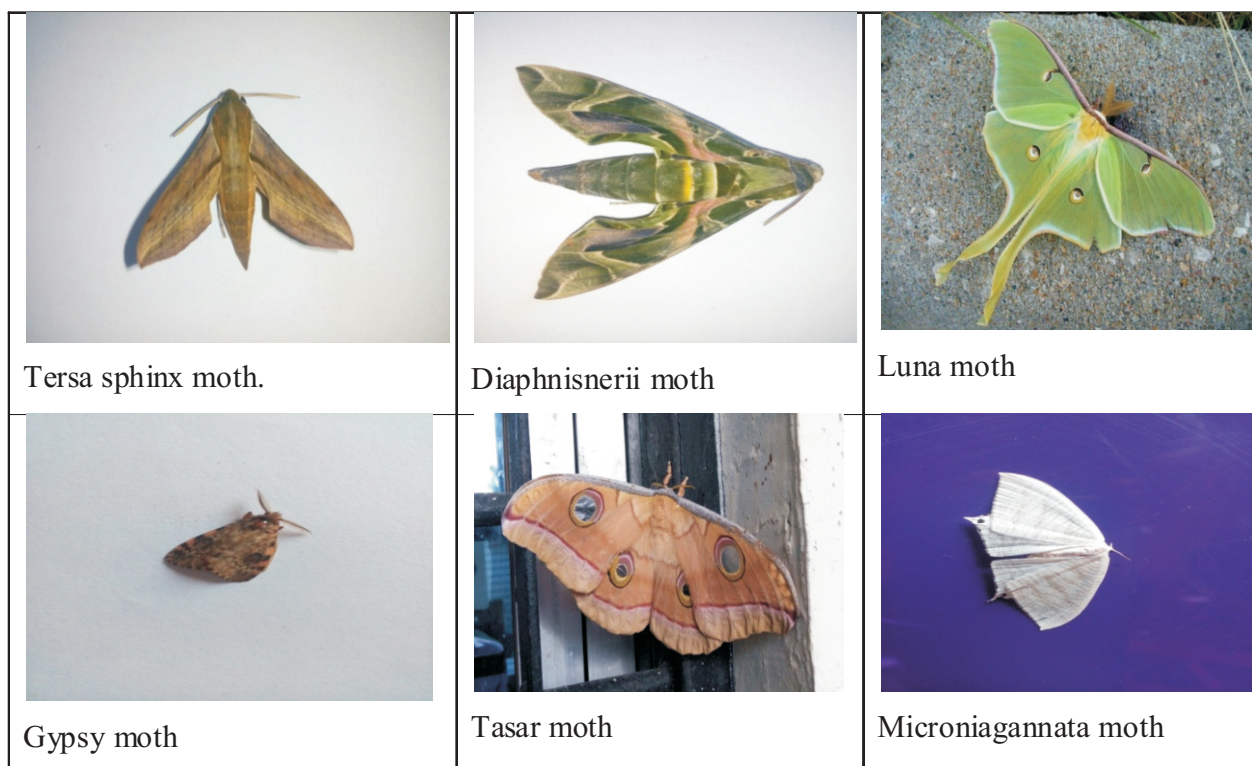
## RESULT AND DISCUSSION

The study of Biodiversity of moth in Washim region was carried for the period of 6 months that is from September 2016 to January 2017. The specimens were collected from R. A. college washim, Swami Samarth nagar washim, Ansing taluka Washim and Ekburji dam area PDKV (Dr. PanjabRao Desmukh krushi Vidyapith) Total 12 species of moth was found all belonging to order Lepidoptera these species including 7 families those are Sphingidae, Saturiniidae, Erebidae, Uraniidae Pterophoridae ,Geometridae and Pyralidae among in which, 3 species belonging to family Sphingidae and 3 to Erebidae and 2 are belonging to family Saturiniidae then one each belonging to family Uraniidae, Pterophoridae ,Geometridae Pyralidae. The total species were observed and collected tabulated in **Table I and Photoplate I**. Lepidopteran play. Important ecological role in forest ecosystem in initiating and promoting the decay process of dead specimens. A large number of moth species are under the risk of extinction is the indication of environment influence.

**Table No. Diversity of Moth species in Washim Region**

Sr no	Common name	Class	order	Family	Genus	Species
1	Tersa sphinx moth.	Insecta	Lepidoptera	Sphingidae	<i>xylophanes</i>	<i>tersa</i>
2	Oleander hawk moth.	Insecta	Lepidoptera	Sphingidae	<i>Diaphnis</i>	<i>nerii</i>
3	Luna moth	Insecta	Lepidoptera	Saturiniidae	<i>Actias</i>	<i>luna</i>
4	Gypsy moth	Insecta	Lepidoptera	Erebidae	<i>Lymantria</i>	<i>dispar</i>
5	Tasar moth	Insecta	Lepidoptera	Saturiniidae	<i>Antheraea</i>	<i>pernyi</i>
6	Microniagannata moth	Insecta	Lepidoptera	Uraniidae	<i>Micronia</i>	<i>aculeate</i>
7	Plume moth	Insecta	Lepidoptera	Pterophoridae	<i>Hellinsia</i>	<i>homodactyla</i>
8	Brown-shaded Gray moth	Insecta	Lepidoptera	Geometridae	<i>Iridopsis</i>	<i>defectaria</i>
9	Indian meal moth	Insecta	Lepidoptera	Pyralidae	<i>Plodia</i>	<i>interpunctella</i>
10	Trigonodesdisjuncta moth	Insecta	Lepidoptera	Erebidae	<i>Trigonodes</i>	<i>disjuncta</i>
11	Phalaenamater nal moth	Insecta	Lepidoptera	Erebidae	<i>Eudocima</i>	<i>maternal</i>
12	Dull swirled hawkmoth.	Insecta	Lepidoptera	Sphingidae	<i>Marumba</i>	<i>dyras</i>

**Photo Plate No. 1. Diversity of Moth species in Washim Region**





## CONCLUSION

This work was an attempt to describe some aspects of biodiversity of moth fauna. This study is a preliminary step to explore the moth diversity from Washim city. A lot of further work is necessary in the regard and further collections are essential for getting a detailed periodic estimate of the faunal diversity of moths in this area. Finally it is hoped that such work may lead to the development of standard monitoring procedure which could be of value in assessing the environmental stability of areas under cultivation of plants and the prediction of the effect on the structure of moth populations of tropical forest destruction (Barlow and Woiwod, 1989).

## ACKNOWLEDGEMENT

The authors are grateful to the Principal Dr. M. M. Sancheti R. A. College Washim and Dr. D. S. Dabhade Professor & Head P. G. and Research Department of Zoology, R. A. College Washim for providing necessary facilities and Guide line for this Research Project.

## REFERENCE:

- Barlow H. S. and I. P. Woiwod (1989):** Moth diversity of tropical forest in Penninsular Malaysia. *J. Trop. Ecol*, Vol. 5, pp. 37-50.
- Benton T. G. (1995):** Biodiversity and biogeography of Henderson island insects. *Bio. J. Linn. Soc*, Vol. 56(1-2), pp. 245-259.
- Chandra K., Pandey R., Bhandari R. and S. Sambath (2013):** Diversity of Hawk Moths (Lepidoptera: Sphingidae) in Veerangana Durgavati Wildlife Sanctuary, Damoh, Madhya Pradesh. *J. Biological Forum – An International Journal*, Vol. 5(1), pp. 73-77.
- Gadhikar Y. A., Chirde S. G., Raut N., Deshmukh U. S., and S. Sampat (2015):** A Preliminary checklist of Moths species from Amravati city, Maharashtra (India). *J. Golbal Journal Biology, Agriculture and Health Science*, Vol. 4(1), pp. 48-51.
- Gillespie R. G. (1999):** Naivete and novel perturbations: Conservation of native spiders on an oceanic island system. *Journal of Insect Conservation*, Vol. 3, pp. 263-272.
- Ramkumar J., Swamiappan M., Raguraman S. and A. Sadasakthi (2010):** Species diversity and seasonal

abundance of fruit piercing moth complex in Tamil Nadu. J. Journal of Biopesticides, Vol. 3(1), pp. 011–015.

**7.Sivasankaran K., Gnanasekaran S., Parandhaman D., and S. Ignacimuthu (2011):** Diversity of Noctuid moths (Lepidoptera: noctuidae) in Tamil Nadu part of Western Ghats (Nilgiris biosphere and Kodaikanal hills), India. J. Elixir International Journal, Vol. 3(8), pp. 4131-4134.

**8.Thakur A. K. (2013):** Study on The Heteroceran Lepidoptera (Moth) Biodiversity Of Some Species Of Family Tortricidae, Sphingidae And Noctuidae From Bariyatu, Ranchi, Jharkhand. International Quarterly Journal of Biology and Life Sciences, Vol. 1(1), pp. 32-38.

**9.Thakur S., Mattu V. K., and P. Kumar (2016):** Biodiversity indices of noctuid moths in various conifer forests of Himachal Pradesh. J. Journal of Biodiversity and Environmental Sciences (JBES), Vol. 8 (2), pp. 98-103.

**10.Wilson E. O. (1992):** Fluctuations in abundance of tropical insects, Amer. Nat. J. Biolife, Vol. 112, pp. 1017-1045.



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