

## Faunal Diversity of Ajmer Aravalis Lepidoptera Moths

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**Abstract:** Ajmer is located in the center of Rajasthan (INDIA) between 25° 38' " and 26° 58' " North 75° 0' 22" East longitude covering a geographical area of about 8481sq .km hemmed in all sides by Aravalli hills . About 7 miles from the city is Pushkar Lake created by the touch of Lord Brahma. The Dargah of khawaja Moinuddin chisti is holiest shrine next to Mecca in the world. Ajmer is abode of certain flora and fauna that are particularly endemic to semi-arid and are specially adapted to survive in the dry waterless region of the state. Lepidoptera integument covered with scales forming colored patterns. Availability of moths were more during the nights and population seemed to be Confined to the light areas. Moths are insects with 2 pair of broad wings covered with microscopic scales drably coloured and held flat when at rest. They do not have clubbed antennae. They are nocturnal. Atlas moth is the biggest moth.

**Keywords:** Ajmer, Faunal diversity, Lepidoptera, Moths, Aravalis.

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### I. Introduction

Ajmer is located in the center of Rajasthan (INDIA) between 25° 38' " and 26° 58' " North Latitude and 73° 0' 54' " and 75° 0' 22" East longitude covering a geographical area of about 8481sq km hemmed in all sides by Aravalli hills . About 7 miles from the city is Pushkar Lake created by the touch of lord Brahma. The Dargah of khawaja Moinuddin chisti is holiest shrine next to Mecca in the world. Ajmer is abode of certain flora and fauna that are particularly endemic to **semi-arid** and are specially adapted to survive in the dry waterless region of the state. Lepidoptera integument covered with scales forming colored patterns. Availability of moths were more during the Rainy season. Nocturnal insectivores feed on moth such as bats, owls, birds, lizards, cats, dogs, rodents, and bears. Baculoviruses (Baculoviridae a family that is restricted to insects) are parasites double stranded DNA insect viruses and are used as biological control agents. Moths use technique of celestial navigation called transverse orientation they maintain a constant angular relationship to a bright celestial light. They can fly in a straight light. The present study reveals that 41 families and 56 Species. Noctuidae were the first to emerge (March) and Sphingidae was the most late arrival emerging in the month April. The peak moth activity was observed in the month of July (Rainy season).

### II. Methodology

Field observations were made during March to April and September to November in different areas of Ajmer East, West, North and South AJMER with varied habitats like gardens, hilly areas parks mountains, vegetable areas, open fields, agricultural areas and other cultivated areas.

### III. Observations and Results

During the course of present field investigations about 56 species of moths distributed under 41 families. The detail of Family, name of species and common name are given below. Noctuidae was found to be most dominant family. Followed by Geometridae. Some species were found in all months except extreme winters i.e. march to October, November, others were restricted in distribution only in September October Some species were quick fliers, others were shy in nature. The present study reveals that 41 families and 56 Species. Noctuidae were the first to emerge (March) and Sphingidae was the most late arrival emerging in the month April. The peak moth activity was observed in the month of July (Rainy season).

1. Alucitidae
2. Arctiidae
3. Bombycidae
4. Brachodidae
5. Brahmaeidae
6. Choreutidae
7. Cosmopterigidae
8. Cossidae

9. Crambidae
10. Drepanidae
11. Eupterotidae
12. Gelechiidae
13. Geometridae
14. Glyphipterigidae
15. Gracillariidae
16. Hepialidae
17. Immidae
18. Lasiocampidae
19. Lecithoceridae
20. Limacodidae
21. Lymantriidae
22. Noctuidae
23. Nolidae
24. Notodontidae
25. Oecophoridae
26. Pantheidae
27. 27.Peleopodidae
28. 28.Phaudidae
29. Psychidae
30. Pterophoridae
31. Pyralidae
32. Saturniidae
33. Sessiidae
34. Sphingidae
35. Thyrididae
36. Tineidae
37. Tortricidae
38. Uranidae
39. Xyloryctidae
40. Yponomeutidae
41. Zygaenidae

**Table 1** Moths of AJMER

S. No.	Family/Scientific name	M	Abundance	Habitat
1	<i>Alucitidae</i>			
2	<i>Arctiidae</i> (Tiger moths): <i>Lithosia luridiola</i> , (Common footman), <i>Spilarctia lutea</i> , <i>S. Oblique</i> . <i>Spilosoma lubricipedia</i> (White Ermine). <i>Utetheisa pulchelloides</i> salt and pepper moth actively feeding on flowers and grass during day time.	Rs	C	T
3	<i>Bombycidae</i> True silk moths, mulberry silkmths(native to China). <i>B. horsfieldi</i> .	Rs	C	T
4	<i>Brachodidae</i>			
5.	<i>Brahmaeidae</i> - <i>Brahmaea wallichii</i> Brahmin moths of India .	Rs	C	T
6	<i>Choreutidae</i> – Metal mark moths. <i>Choriutis cothurnata</i> . <i>Tebenna micalis</i> ,	M	C	T
7.	<i>Cosmopterigidae</i> Cosmet moth, narrow wings, tiny larvae. Native to Australia.			
8	<i>Cossidae</i> native to north America <i>Acosus centerensis</i> .	M	C	T
9	<i>Crambidae</i> <i>Ostrinia nubilalus</i> stem borer.	Rs	F	T
10.	<i>Drepanidae</i> (Thyratirids hook tips ) <i>Drapana falcataria</i> .	M	C	T
11.	<i>Eupterotidae</i> : <i>Eupterote undulate</i> <i>Pectinate antennae</i> lack proboscis and tympanum. Also recorded from India	Rs	C	T
12.	<i>Gelechiidae</i> - <i>Dichomeris heriguronsis</i> , <i>D. summate</i> , <i>D. Resitella</i> , <i>Meteoritis religiosa</i> , <i>Pectinophora gossypiella</i> (pink bullworm). <i>Demopractis tonaea</i> , <i>Carbatima picrocarpa</i> . <i>Phthorimaea operculella</i> (Potato tube moth).	Rs	C	T
13.	<i>Geometridae</i> : <i>Cosymbia punctaria</i> (Maiden’s Blush). <i>Euphyia bilineata</i> ,( Yellow shell), <i>Gonodontis</i>	Rs	C	T

	<i>bidentata</i> (Scalloped Hazel).			
15.	<i>Gracillariidae</i> - <i>Acrocercops allactopa</i> , <i>Barboryctis triplaca</i> , <i>Caloptilla acinata</i> , <i>Calybites phasianipennella</i> .	Rs	C	T
16.	<i>Hepialidae</i> (Swifts) <i>Hepialus lupulina</i> Common swift.	Rs	C	T
17.	<i>Immidae</i>	M	C	T
18.	<i>Lasiocampidae</i> (Eggars) <i>Lasiocampa quercus</i> ).	Rs	C	T
19.	<i>Lecithoceridae</i>	M	C	T
20.	<i>Limacodidae</i>			
21.	<i>Lymantriidae</i> (Tussocks) <i>Vapourer (Orgyia antique)</i> .	Rs	C	T
22.	Noctuidae (Noctuas). - <i>Agrotis segetum</i> (Turnip moth), <i>A. Exclamationis</i> (Heart and Dart). <i>Araeopteron fasciale</i> , <i>A. Griseata</i> . <i>Acronicta pruinosa</i> . <i>Naenia typica</i> (The Goliath). <i>Mamestra brassicae</i> (Cabbage moth). <i>Hadena rivularis</i> (The Champion). <i>Malacosoma Neustria</i> .	M	C	T
23.	<i>Nolidae</i>			
24.	<i>Notodontidae</i> (Prominents) - <i>Antheua liparidioides</i> . <i>A. servula</i> . <i>Pterostoma palpina</i> (pale prominent). <i>Lophopteryx capucina</i> (Coxcomb Prominent).	Rs	C	T
25.	<i>Oecophoridae</i>			
26.	<i>Pantheidae</i>			
27.	<i>Peleopodidae</i>			
28.	<i>Phaudidae</i>			
29.	<i>Psychidae</i> - <i>Eumeta crameri</i>	Rs	C	T
30.	<i>Pterophoridae</i> - <i>Calyciphora sesamitis</i> <i>Amblyptilia forcipata</i> . <i>Adela viridella</i> .	Rs	C	T
31.	<i>Pyralidae</i> (Pyralids) <i>Nomophila noctuella</i> <i>Pleuroptya ruralis</i> .	Rs	C	T
32.	<i>Saturniidae</i> - <i>Saturnia albofasciata</i> .	Rs	C	T
33.	<i>Sessiidae</i> - <i>Sesia apiformis</i> , <i>Trilochana scolioides</i> , <i>Melittia astarte</i> .	Rs	C	T
34.	<i>Sphingidae</i> - <i>Theretra nesus</i> , <i>Acherontia atropos</i> (Death's head hawk moth.)	Rs	C	T
35.	<i>Thyrididae</i> - <i>Strigina strigosa</i> , <i>S. scitaria</i> .	Rs	C	T
36.	<i>Tineidae</i> - Fungus moth.			
37.	<i>Tortricidae</i>			
38.	<i>Uraniidae</i> - not present.	-	-	-
39.	<i>Xyloryctidae</i>	-	-	-
40.	<i>Yponomeutidae</i>	-	-	-
41.	<i>Zygaenidae</i> <i>Zygena filipendulae</i> (Burnet).	Rs	C	T

Rs - Resident, M- Monsoon, T -Terrestrial, C - common , F- Frequent

#### IV. Discussion

During the course of present field investigation , 56 species of moths under 41 families main are viz. Arctidae, Gelechidae, Geometridae, Noctuidae, Pyralidae. The detail list of family, name of species habitat, status, abundance is provided. Noctuidae, was found to be the most dominant family represented by 19 species, followed by Gelechidae and Geometridae. The present study revealed 41 and members of family Noctuidae were first to emerge (from march) and members of family Sphingidae were most late in emerging. The peak moth activities were observed during the months of march april july august September October incorporating all 8 families covering 41 species.

The highest Moth diversity was during Rainy season. There was no moth activity during peak summer (May, June) and peak winter (December January February). The overall moth activity was observed March April from and July august September night. Depending upon weather, month, season, host plant temperature and type of species concerned. The species of Noctuidae were found in all months and were most dominant.

#### V. Conclusion

The present field investigation revealed that district Ajmer is rich in floral and faunal Wealth. Specially in moth diversity. However its biological diversity not been documented till date. We cannot conclude that moth fauna of the area is increasing or decreasing. The area needs to be continuously monitored and efforts be made to document its unknown floral and faunal wealth and there is need to have a vision document on the sustainable development of the district care and focus on documentation and conservation of its rich biodiversity. The Aravallis are being continuously cut for house construction and urbanization. There should be a check on the activity.

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during the months of March, April, July, August, September, October incorporating all 41 families covering 56 species. The highest Moth diversity was during Rainy season. There was no moth activity during peak summer (May, June) and peak winter (December, January, February). The overall moth activity was observed March, April, July, August, September, October. Depending upon weather, month, season, host plant temperature and type of species concerned. The species of Noctuidae were found in all months and were most dominant. Depending upon weather, month, season, host plant temperature and type of species concerned.

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