

## Moth (Insecta: Lepidoptera) fauna of Sariska Tiger Reserve, Rajasthan, India

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### Abstract

Survey to assess moth diversity was carried out in Sariska Tiger Reserve of Rajasthan in 2019 from June to November. Total 16 species were recorded under 15 genera, belonging to 5 families for the first time from Sariska Tiger Reserve. Of these, 12 species *viz.* *Eudocima materna* Linnaeus, 1767; *Eudocima phalonia* Linnaeus, 1763; *Dysgonia stuposa* (Fabricius, 1794); *Euproctis divisia* Walker, 1855; *Achaea janata* Linnaeus, 1758; *Acherontia styx* Westwood, 1847; *Daphnis nerii* Linnaeus, 1758; *Hippotion rosetta* (Swinhoe, 1892); *Agrius convolvuli* Linnaeus, 1758; *Nephele hespera* Fabricius, 1775; *Theretra oldenlandiae* (Fabricius, 1775); *Caligula lindia* Moore, 1865 were first time reports from the state. Moth species were collected with the help of a light sheet system operated every night from 9:00 pm to 2:00 am. Ethyl acetate fumes were used to kill collected specimens and processed as per standard strategies in Lepidopterology. The identification of moths was carried out with the help of identification keys, standard reference keys. Family Erebidae and Sphingidae are represented by six species each, followed by Saturniidae represented by two species, Noctuidae and Crambidae represented by one species each. This study will improve our understanding of Sariska's biodiversity and be used to develop strategies for the conservation of moth diversity.

**Keywords:** India; moth; new records; Sariska Tiger Reserve

### Introduction

The order Lepidoptera comprises of skippers, butterflies and moths. According to the recent study, 1, 65,000 species of moths have been reported globally (Khan and Perveen, 2015), among which 12,000 species of moths have been reported from India (Chandra and Nema, 2007). Moths play an important role in natural ecosystem, such as agricultural pests (Sharma and Bisen, 2013), food for various organisms such birds, bats and insects' species, night pollinators (Macgregor *et al.*, 2015). Moths are widely accepted as the most sensitive indicators determining the quality of environment and changes occurring in it (Thomas, 2005). They also serve as research models for studying biodiversity conservation, evolution, genetics, ethology and genetics because of taxonomically well-known and quick identification nature (Samways, 2007). The dramatic decrease of moths is believed to have drastic effects on birds, bats and plants due to key stone role of moths in an ecosystem (Wickramasinghe *et al.*, 2004; Jonasan *et al.*, 2013).

In Indian sub-continent lepidopteran fauna were started by Linnaeus (1758); Cramer (1775); Fabricius (1775); Kollar (1884); Butler (1886); Devonian (1880). Later on, catalogues and lists were published by

Received: 16 Feb 2021. Received in revised form: 18 Mar 2021. Accepted: 07 May 2021. Published online: 19 May 2021.

From Volume 13, Issue 1, 2021, Notulae Scientia Biologicae journal uses article numbers in place of the traditional method of continuous pagination through the volume. The journal will continue to appear quarterly, as before, with four annual numbers.

Walker (1854); Moore (1888); Kirby (1892); Cotes and Swinhoe (1886). Fauna of British India (Vol. I-IV) by Hampson (1892-1896) was one of the finest works on Indian and exotic moths, which was succeeded by Vol V. on Sphingidae by Bell and Scott (1937). Snellen and Elwes (1890) published a catalogue on Pyralidae of Sikkim, collected by Elwes & Moller. Later on, Hampson (1903, 1918, 1919) published supplementary paper on new moths collected by Mons. Sevastopulo (1965) reported moth fauna of Kolkata. Barlow (1982) studied and reported moth fauna of South East Asia. Gupta *et al.* (1984) published detailed description on Lymantridae of India. Mandal and Ghosh (1997); Mandal and Maulik (1997); Ghosh and Choudhury (1997), and Bhattacharya (1997) studied Heteroceran fauna of West Bengal. Arora (1983) reported moth fauna of Andaman & Nicobar Island. Mandal and Ghosh (1991) described some moth species from Tripura.

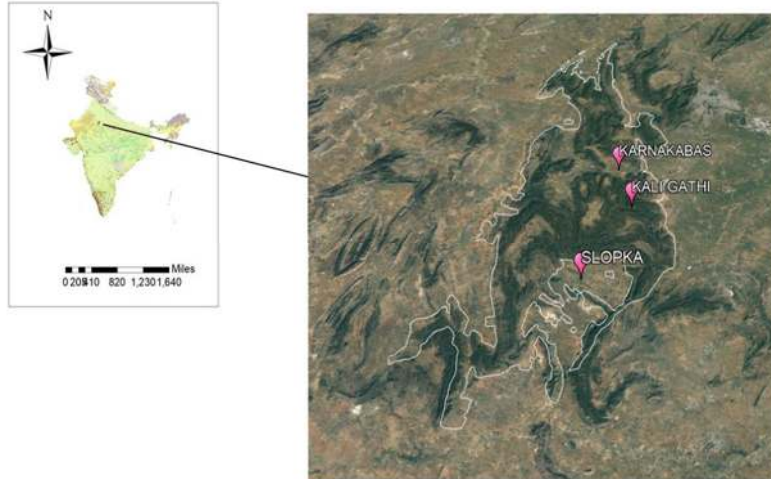
Kirti and Sodhi, (2001) reported 113 species of Pyralidae moths from North-East part of India. Ghosh, (2003) reported 525 species of moths from Sikkim. Chandra (2007) reported 142 species of moths from Madhya Pradesh and Chhattisgarh belonging to 11 families. Gurule *et al.* (2010; 2011; 2013a) reported moth fauna from North Maharashtra. In further studies Gurule (2013b) reported 405 species from North Maharashtra. Chandra and Sambath (2013) reported 102 species of moths from Tawang district of Arunachal Pradesh. Gogoi *et al.* (2014) reported 104 species of moths from Arunachal Pradesh. Uniyal *et al.* (2016) reported 169 species of Geometrid moths from different protected areas of Uttarakhand. Sondhi and Sondhi (2016) reported 248 species of moths from Dehradun and Mussoorie and Devalsari in Tehri Garhwal District in Uttarakhand. Most recently, Chandra *et al.* (2019) reported 1274 species of moths belonging to 704 genera under 25 families from various regions of Indian Himalayan Region. Of them, 88 species of moths were novel to the Indian fauna.

India exhibits high diversity of moth fauna. Several studies have been carried out to explore moth fauna of Rajasthan. However, large area of Rajasthan is yet to be unexplored. To date, no comparable studies on moth diversity have been conducted in Rajasthan, India. In this study, we investigated the moth diversity in the tiger reserve of Rajasthan. Due to our study, a preliminary checklist of moth species was generated, which will probably serve as baseline for other researchers.

## Materials and Methods

### *Study area*

The study was conducted during 2019 from March to November in Sariska Tiger Reserve of Alwar District, Rajasthan. Sariska Tiger Reserve is located at 27°23'30"N, 76°22'32"E, having total area of 881 km<sup>2</sup>. It forms a part of the Alwar district of Rajasthan and is nestled amidst the picturesque Aravalli Hill Range of Rajasthan. The Reserve is immensely rich in flora and fauna, and is famous for Royal Bengal Tiger. Sariska was declared wildlife sanctuary in year 1955 and became the Tiger reserve later in the year 1978, making it a part of India's Project Tiger. According to Champion and Seth (1968) forest type reserve is tropical dry deciduous with dominant plant species *Anogeissus pendula*. Rajasthan is globally known for diverse flora and fauna (Shahabuddin and Kumar, 2006; Dashahre *et al.*, 2014). Three sites were chosen for sampling *viz.* Kalighati, Karnakabas and Slopka inside the reserve based on different habitats and GPS coordinates of each site were noted (Figures 1 and 2).



**Figure 1.** Map of sampling stations inside survey area



**Figure 2.** Light sheet used for collection of moths

**Table 1.** Overview of selected survey sites

Survey sites	Forest type	GPS coordinates
Kalighati	Mixed riparian forest	27°21'29.95"N, 76°29'29.34"E
Karnakabas	Slope forest	27°25'23.17"N, 76°28'28.87"E
Slopka	Scrub forest	27°14'40.28"N, 76°25'30.29"E

#### *Collection and preservation of moths*

Legal permits required were obtained from Rajasthan Forest Department. The selected sites inside the reserve were surveyed with light sheet to assess moth species. A white cloth sheet (4×3 m) was illuminated using Mercury Vapour lamp (250 watt) used as light sheet. Light sheet was operated each night from 9:00 pm to 2:00 am. The collected specimen was killed by ethyl acetate fumes and brought to laboratory for further processing. The killed specimens were pinned and spread using spreading board and preserved dry. Dry preservation was done in fumigated entomological boxes and stored in the insect boxes at Zoology Department of Aligarh Muslim University.

### *Identification*

The identification of moths was carried out with the help of identification keys, standard reference keys, available literature *viz.* Hampson (1892-1896); Bell and Scott (1937); Holloway (1987, 1999, 2005) and Kirti and Singh (2015). The classification system adapted as per van Nieukerken *et al.* (2011). In addition, a number of web resources including were used including [www.jpmoths.org](http://www.jpmoths.org); Moths of India (<http://mothsofindia.org/>; Sondhi *et al.*, 2020), <http://www.flicker.com/groups/mothsofindia/> and iNaturalist (<https://inaturalist.org>) were used for identification.

### **Results**

During the study 104 specimens of moths pertaining to 05 families were collected from the study area. From collected specimens total 16 species were identified *viz.* *Eudocima materna* Linnaeus, 1767; *Eudocima phalonia* Linnaeus, 1763; *Dysgonia stuposa* Fabricius, 1794; *Achaea janata* Linnaeus, 1758; *Euproctis divisia* Walker, 1855; *Cretonotos interrupta* (Linnaeus, 1767); *Archerontia styx* Westwood, 1847; *Agrius convolvuli* Linnaeus, 1758; *Nephele hespera* Fabricius, 1775; *Hippotion rosetta* Swinhoe, 1892; *Daphnis nerii* Linnaeus, 1758; *Theretra oldenlandiae* (Fabricius, 1775); *Caligula lindia* Moore, 1865; *Actias selene* Hubner, 1807; *Spodoptera litura* Walker, 1857 and *Diaphania indica* Saunders, 1851.

Family Erebidae and Sphingidae dominate the fauna (6 species each), followed by Saturniidae (2 species) and Family Noctuidae and Crambidae with single species each. The present study is very first record of moth fauna from Sariska Tiger Reserve of Rajasthan.

### Taxonomic illustrations

#### 1. *Eudocima materna* (Linnaeus, 1767)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 12♂, 9♀, 24.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: ♂, 87-88 mm; ♀, 104-106 mm. Male: Head and thorax are greenish-grey; abdomen orange. Forewings greenish grey with very numerous faint striated reddish lines; three rufous spots at the end of cell; a dark oblique line from near apex to center of inner margin.

Female: Forewings more prominently striated with rufous; the silvery patches below and beyond cell very large and conjoined, crossed by white streaks above vein 2 and beyond the cell.

Global distribution: India; Srilanka; Myanmar; Australia; Java; Burma

#### 2. *Eudocima phalonia* (Linnaeus, 1763)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 6♂, 10♀, 27.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: ♂, 90-103 mm; ♀, 94-110 mm. Male: Head and thorax are red-brown suffused with plum color; abdomen orange. Forewings red-brown usually with a greenish tinge and irrorated with dark specks. Hindwings are orange with a large black lunule beyond the lower angle of cell.

Female: Forewings much more variegated and striated with dark red-brown; the reniform dark and sending a spur along median nervure to below the orbicular speck; a triangular white mark usually present on the post medial line below vein 3. Hind wings are similar to male.

Global distribution: India; Thailand; Australia; Japan; Nepal; New Guinea; Indonesia

#### 3. *Dysgonia stuposa* (Fabricius, 1794)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 03, 28.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 45-49 mm. Head, thorax, and wings are dark-brown. Forewings are with a short basal line; the antemedial line erect and having a broad, white, slightly suffused band beyond it, which varies in width. Hindwings are with a white medial band; the outer margin grey at centre. The typical form *stuposa* has

the medial band of the fore wing broad and outwardly diffused; the postmedial line usually with only a slight angle at vein 4.

Global distribution: India; Philippines; Indonesia; Burma; Africa; Europe; Mauritius

4. *Achaea janata* (Linnaeus, 1758)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 05, 28.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 58-60 mm. Head and thorax pale reddish-brown; mid tibia spined; the tibia fringed with long hair in male; abdomen is fuscous tinged with grey. Forewings are pale reddish brown; the markings usually prominent, but sometimes almost obsolete. Hindwings black, with medial white band; three large white spots on outer margin; the cilia whitish.

Global distribution: India; Pakistan; Mozambique; South Africa

5. *Euproctis divisia* (Walker, 1855)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 03, 03.vii.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 21-26 mm. Head, thorax pure white, and abdomen deep black with orange hair tuft at the tip. Both wings are pure white with shining black scales at the base of fore wings.

Global distribution: India; Pakistan; Mozambique; South Africa

6. *Cretonotos interrupta* (Linnaeus, 1767)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 05, 07.ix.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 40-42 mm. Head and thorax pale pinkish ochreous, abdomen crimson above with dorsal and lateral series of black spots. Forewings are pale pinkish ochreous with a broad black fascia below median nervure; two black spots at end of the cell. Hindwings are pale or dark fuscous.

Global distribution: India; Burma; Srilanka; Hong Kong; Pakistan; Thailand; Malaysia; Nepal; China; Bhutan

7. *Archerontia styx* (Westwood, 1847)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 07, 01.vii.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 90-120 mm. Head brown; thorax dark blue-grey and abdomen yellow. Forewings are mottled with various shades of brown, fulvous, and grey; three indistinct antemedial lines. Hindwings are yellow with a postmedial black band not reaching the costa or anal angle; a similar submarginal maculate band.

Global distribution: India; Japan; Borneo; Malaysia; Philippines; Sri Lanka; China; Hong Kong

8. *Agrius convolvuli* (Linnaeus, 1758)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 06, 07.vii.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 80-120 mm. Head, thorax, and a streak down the vertex of abdomen grey; abdomen with lateral transverse bands of pink and black to each segment. Forewings grey, with black streaks below veins 2 and 3; a highly dentate dark postmedial line met by an irregular black streak from the apex. Hind wings are grey; antemedial, medial, and postmedial piceous bands, the two-former meeting at anal angle, the two latter lunulate.

Global distribution: India; Hong Kong; China; Thailand; Nepal; Java; Africa; Europe; Sri Lanka Borneo

9. *Nephele hespera* (Fabricius, 1775)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 05, 12.viii.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 60-70 mm. Head, thorax and abdomen are olive-brown or green; abdomen with lateral black segmental bands. Wings rather short and broad; Forewings are slightly acute; olive-brown or green

coloured; with six faint waved lines and an angled sub marginal line. Hindwings are red-brown; cilia ochreous. Underside is paler; each wing with 2 transverse lines

Global distribution: India; Australia; Burma; Vietnam; Malaysia; Sumatra; Hong Kong; Thailand; Java; Sri Lanka; Nepal; China

10. *Hippotion rosetta* (Swinhoe, 1892)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 04, 13.ix.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 55-65 mm. Head, thorax, and abdomen pale brown. Forewings pale brown, with a dark speck at end of cell; six oblique lines from near apex to inner margin. Hindwings pink; the black patch at base of hind wing small or completely lacking; outer margin black.

Global distribution: India; China; Thailand; Hong Kong; Vietnam

11. *Daphnis nerii* (Linnaeus, 1758)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 05, 04.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 90-110 mm. Head and thorax are green, abdomen paler green. Forewings dark green; a white patch with a black spot on it at base; some medial whitish conjoined bands, rosy towards hind margin; an outwardly oblique band from costa to vein 4. Hindwings fuscous, with a pale curved submarginal line, beyond which the area is olive.

Global distribution: India; Sri Lanka; Europe; Burma; South Africa; China; Japan; Hong Kong; Thailand Arabia; Nepal; Sumatra

12. *Theretra oldenlandiae* (Fabricius, 1775)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Karnakabas), 27°25'23.17"N, 76°28'28.87"E, 08, 07.vii.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 60-70 mm. Head, thorax & abdomen greyish brown. Forewings greyish brown without pink suffusion; the two dorsal lines on abdomen silvery white, as also the oblique stripes on forewing; the sides of abdomen ochreous, not golden. Hindwings with the submarginal band ochreous and narrow

Global distribution: India; Sri Lanka; East Australia; Vanuatu Islands; Australia; New Guinea; Papua

13. *Caligula lindia* (Moore, 1865)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Slopka), 27°14'40.28"N, 76°25'30.29"E, 02, 01.vi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 90-96 mm. Head, thorax, and abdomen are grey; with little dark bands on the abdomen. Forewings have ocellus with no crimson; postmedial lines waved, not highly dentate, no yellow spots. Hindwings have ocellus with crimson only on inner side; two waved post medial lines.

Global distribution: India; Afghanistan; Bhutan; Tibet; China

14. *Actias selene* (Hubner, 1807)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Slopka), 27°14'40.28"N, 76°25'30.29"E, 04, 07.ix.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 140-182 mm. Head, thorax, and abdomen white. Forewings very pale green, white at base; a dark pink costal fascia, darkest along subcostal nervure; an outwardly-oblique pale yellow antemedial line; dark red-brown lunule at end of a cell, with a grey line on it, bounding around ochreous spot inwardly with the pinkish center. Hindwings are similar to the fore wing; the central portion of the tail pinkish.

Global distribution: India; Nepal; Borneo; Japan; Sri Lanka; China; Taiwan; Pakistan; Afghanistan

15. *Spodoptera litura* (Walker, 1857)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Slopka), 27°14'40.28"N, 76°25'30.29"E, 04, 03.x.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 30-40 mm. Head and thorax pale ochreous suffused with dark brown; abdomen

paler with tufts slight. Fore wings are pale ochreous much suffused with dark brown; Forewings with some ochreous streaks at base; an angled and oblique subbasal line; a waved and curved antemedial line; the orbicular oblique. Hindwings are opalescent and semi hyaline white, with a dark marginal line.

Global distribution: India; China; Sarawak; Tasmania; Java; Hong Kong; Australia; Sri Lanka

16. *Diaphania indica* (Saunders, 1851)

Material Examined: Rajasthan: Alwar, Sariska Tiger Reserve (Kalighati), 27°21'29.95"N, 76°29'29.34"E, 04, 07.xi.2019, Afaq Ahmad Dar, Light sheet.

Diagnosis. Expanse: 25-30 mm. Head and thorax black-brown; abdomen white with the 7th and 8th segments black; the anal tuft brown and black. Forewings with the costal and inner areas broadly black, leaving a triangular pearly hyaline white patch. Hindwings pearly hyaline white, with a marginal black band broad at costa.

Global distribution: India; Caribbean; USA; China; Indonesia; Taiwan; Mauritius; Fiji.

**Table 2.** Summary of moths recorded during the survey

S. No	Family	Sub-family	Species	Author, Year
01	Erebidae	Calpinae	<i>Eudocima materna</i> *	Linnaeus, 1767
02	Erebidae	Calpinae	<i>Eudocima phalonia</i> *	Linnaeus, 1763
03	Erebidae	Erebinae	<i>Dysgonia stuposa</i> *	(Fabricius, 1794)
04	Erebidae	Erebinae	<i>Achaea janata</i> *	Linnaeus, 1758
05	Erebidae	Lymantriinae	<i>Euproctis divisia</i> *	Walker, 1855
06	Erebidae	Arctiinae	<i>Cretonotos interrupta</i>	(Linnaeus, 1767)
07	Sphingidae	Sphinginae	<i>Archerontia styx</i> *	Westwood, 1847
08	Sphingidae	Sphinginae	<i>Agrius convolvuli</i> *	Linnaeus, 1758
09	Sphingidae	Sphinginae	<i>Nephele hespera</i> *	Fabricius, 1775
10	Sphingidae	Macroglossinae	<i>Hippotion rosetta</i> *	(Swinhoe, 1892)
11	Sphingidae	Macroglossinae	<i>Daphnis nerii</i> *	Linnaeus, 1758
12	Sphingidae	Macroglossinae	<i>Theretra oldenlandiae</i> *	(Fabricius, 1775)
13	Saturniidae	Saturniinae	<i>Caligula lindia</i> *	Moore, 1865
14	Saturniidae	Saturniinae	<i>Actias selene</i>	Hubner, 1807
15	Noctuidae	Noctuinae	<i>Spodoptera litura</i>	Walker, 1857
16	Crambidae	Spilomelinae	<i>Diaphania indica</i>	(Saunders, 1851)

\* First time records from Rajasthan

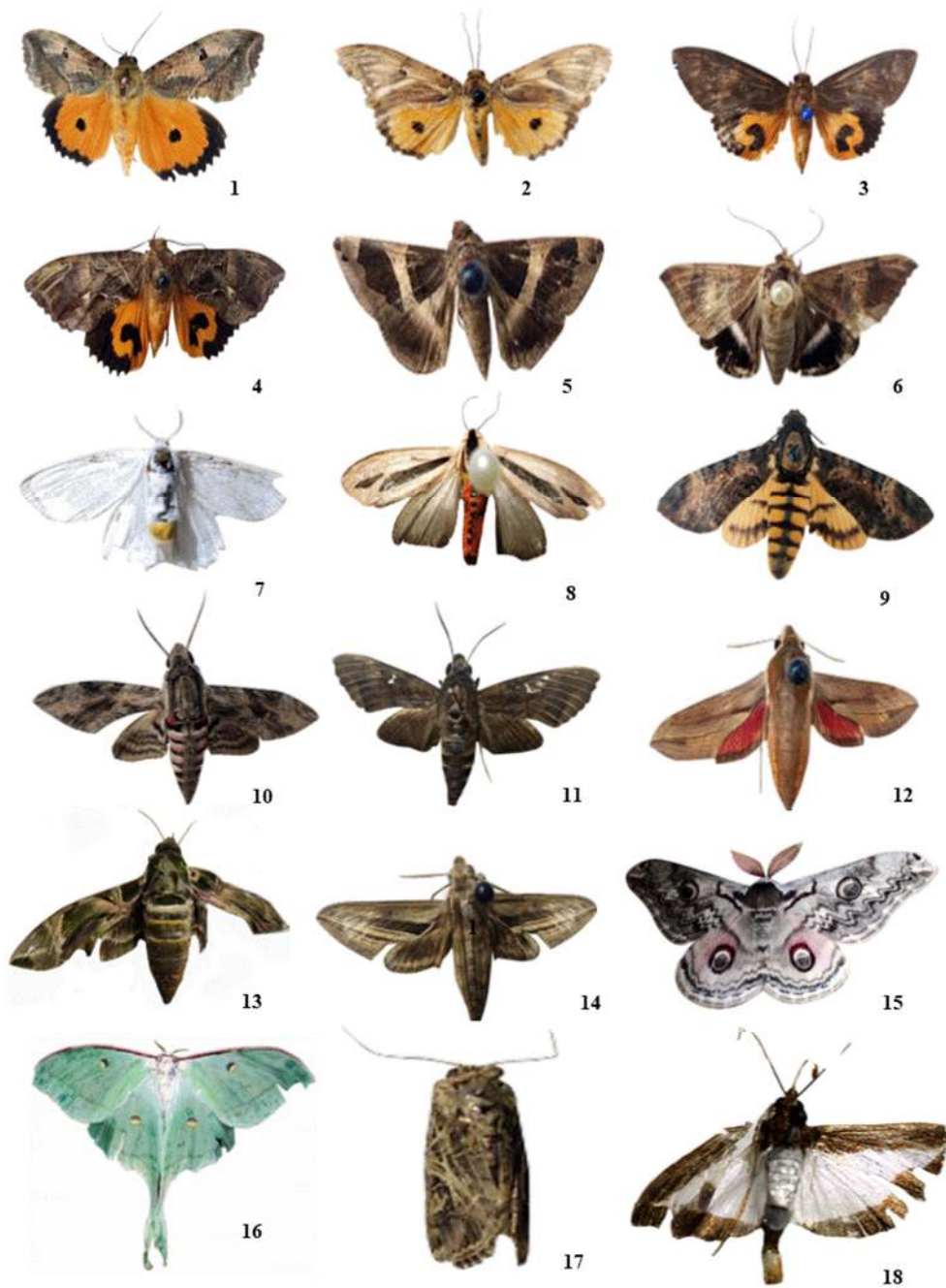
## Discussion

In the present study of tiger reserve, different habitats were accessed for moth diversity. During the field investigations, mixed riparian forest was highly diverse represented by 8 species, slope forest with moderately diverse represented by 5 species and scrub forest represented by 3 species. The most species rich families were Family Erebidae (05 genera; 06 species) and Sphingidae (06 genera; 06 species), Saturniidae (02 genera; 02 species), Noctuidae (01 genera; 01 species), and Crambidae (01 genera; 01 species). The high species richness of the family Erebidae and Sphingidae can be attributed due to the presence of a large number of grasslands and forests throughout the reserve. Lower species richness of the other families could be improved by comprehensive periodical surveys.

Moths constitute majority of Lepidoptera, and play a pivotal role in maintaining ecological balance of an ecosystem. Due to the anthropogenic activities, there is a loss of biodiversity at an alarming rate. Therefore, our prime priority should be to explore the undiscovered moth fauna, and to report floral and faunal

components from biodiverse rich pockets at regional and national level, which will ultimately add up to the biodiversity of our Nation. Moths contemplate have been advancing at a moderate pace in our nation because of lack of literature and expertise. The moths, which constitute majority of the Lepidoptera species, don't enjoy the same enthusiasm as butterflies (Scoble, 1992). Most of the moth species are yet to be described, and if described, information present on them in terms of distribution and host plants are poor (Janzen, 1998). Moth Fauna of Rajasthan is very poorly known. Prior to this study, only two studies have been carried out in different parts of Rajasthan for exploring moth diversity. In addition, no study till yet has been carried out in Sariska Tiger Reserve. Sharma (2011) explored the Aravalli Hills of Rajasthan and the lepidopterous insects associated with vegetables and reported 35 species of moths belonging to 11 families from different regions of Aravalli ranges of Rajasthan from September, 2008 to February 2011. Most of the moths belong to the family Crambidae followed by Noctuidae. Sharma (2014) reported 54 species of moths belonging to 10 families from different areas of Aravalli Hill Ranges of Rajasthan, with families Noctuidae and Crambidae dominant in the area.





**Plate 1.** 1-*Eudocima materna* (Male); 2-*Eudocima materna* (Female); 3-*Eudocima phalonia* (Male); 4-*Eudocima phalonia* (Female); 5-*Dysgonia stuposa*; 6-*Achaea janata*; 7-*Euproctis divisia*; 8-*Cretonotos interrupta*; 9-*Archerontia styx*; 10-*Agrius convolvuli*; 11- *Nephele hespera*; 12-*Hippotion rosetta*; 13-*Daphnis nerii*; 14- *Theretra oldenlandiae*; 15-*Caligula lindia*; 16-*Actias selene*; 17-*Spodoptera litura*; 18-*Diaphania indica*

## Conclusions

The present study reported 16 species of moths belonging to 05 families for the first time in the study area. Yet more investigation and detailed long-term survey is needed to yield significant result of faunal diversity of moth. Sincere efforts towards faunistic survey for moth diversity will enrich the moth fauna of the Rajasthan.

## Authors' Contributions

Both authors read and approved the final manuscript.

## Acknowledgements

Authors are grateful to Chairperson, Department of Zoology, for providing necessary facilities during the course of study and Forest Department Rajasthan for providing permission to work in forest area.

## Conflict of Interests

The authors declare that there are no conflicts of interest related to this article.

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