

Diversity of moths (Lepidoptera) with new faunistic records from North East Jharkhand, India

Navneet Singh¹, Jalil Ahmad² and Rahul Joshi^{2*}

¹Zoological Survey of India, Prani Vigyan Bhawan, M-Block, New Alipore, Kolkata – 700053 West Bengal, India; nsgill007@gmail.com

²Zoological Survey of India, Gangetic Plains Regional Centre, Sector-8, BH Colony, Patna – 800026, Bihar, India; jalilahmad23046@gmail.com, joshiarctiidae@gmail.com

Abstract

The information given in this research paper is based on 81 species representing 70 genera of moths collected during the survey conducted from October 05-08, 2016 by the first two authors. As many as 20 species are reported for the first time from Jharkhand as well as from Gangetic plains: *Bastilla joviana* (Stoll), *Erebus ephesperis* (Hubner), *Cretonotos interrupta* (Walker), *Leucania venalba* Moore, *Yepcalphis dilectissima* (Walker), *Ericia inangulata* (Guenee), *Chrysodeixis acuta* (Walker), *Agrotis segetum* D&S, *Entomogramma fautrix* Guenee, *Xanthodes albago* (Fab.), *Miaromima naessigi* (Kobes), *Scopelodes albipalpis* Hering, *Pseudoteleclita* sp., *Armiana longipennis* (Moore), *Tyspanodes linealis* (Moore), *Hyperythra lutea* (Stoll), *Cleora* sp., *Thalassodes veraria* Guenee, *Zeuzera coffeae* Nietner, *Bamra* sp.,. The area was surveyed for the first time to study the diversity of moths.

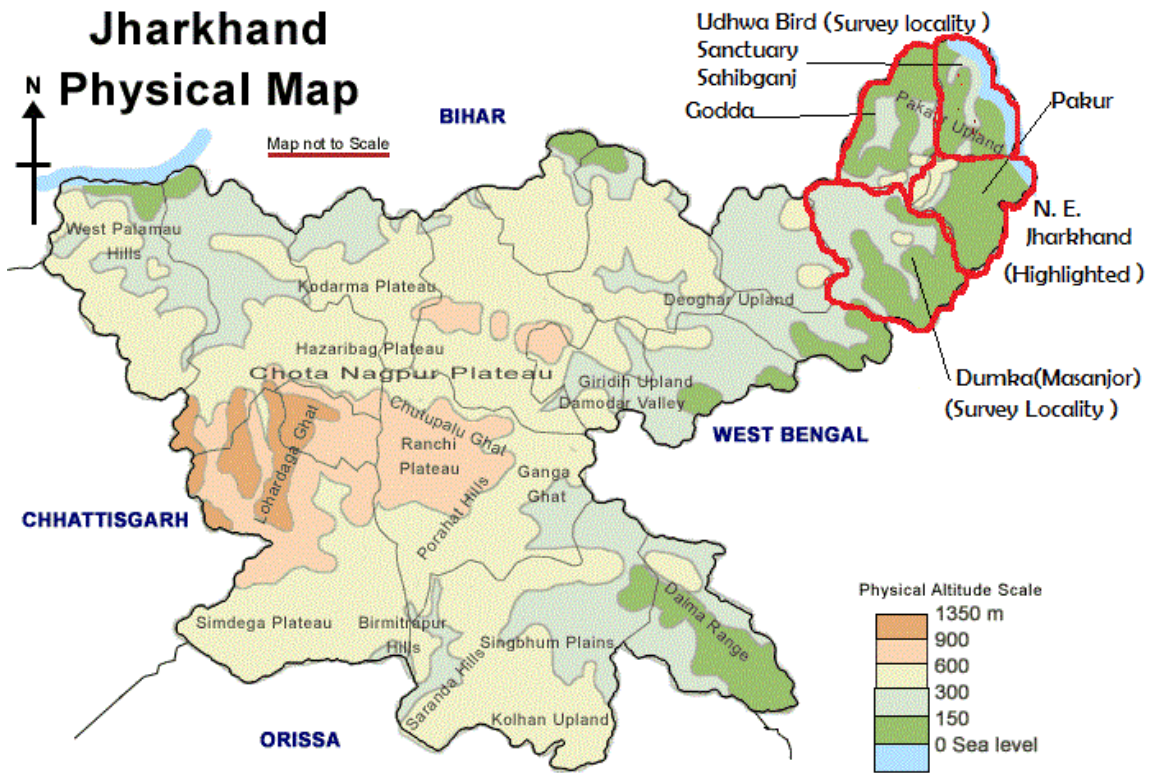
Keywords: Diversity, Lepidoptera, Moths, New records, North-East Jharkhand

Introduction

Jharkhand is a state in eastern India, carved out of the southern part of Bihar on 15 November 2000. The state shares its border with the states of Bihar to the North, Uttar Pradesh and Chhattisgarh to the West, Odisha to the South, and West Bengal to the East. It is divided into 24 districts under five divisions. North-East Jharkhand comes under the Santhal Paragna division (Figure 1). Forest covers of north-east Jharkhand is 1953 km² and the vegetation varies from rich forests to sparsely covered grasslands. The main plants species of forests are Sal (*Shorea robusta*), Asan (*Terminalia tomentosa*), Dhaura (*Anogeissus latifolia*), Gamhar (*Gmelina arborea*) and Mahua (*Madhuca indica*) etc. The only protected area present in North-East Jharkhand is Udhwa Bird Sanctuary (surveyed locality) (24°58'23.02"N & 87°49'20.30"E) which also represents the only Bird

Sanctuary of the state. Udhwa bird sanctuary is situated in Sahibganj district having an area of 5.65 km². Avian fauna of this sanctuary is Gull, Jacana, Teal, Cormorant, Dabchick, Darter, Lapwing, Plover, Wagtail, Egret, Heron, Ibis, Stork, Blue Rock Pigeon, Lark, bee-eater, Sparrow, Myna, Pipit, Brahminy, Kite, Fishing Eagle, Hawk, Vulture, Swallow, Kingfisher, Drongo, Indian Foller and Parakeet (Nigam *et al.*, 2015). Another surveyed locality is Masanjor Dam (Figure 2) which is situated in Dumka district and it is also rich in forest cover. There is hilly forest that surrounded the dam. Invertebrate fauna of this area remained unexplored so far. Therefore, a survey was undertaken to study the moth diversity of this area which reflects the presence of 81 species under 70 genera belonging to 14 different families of moths. A total of 20 species are reported for the first time from Jharkhand as well as from Gangetic plains region.

* Author for correspondence



(Courtesy: http://deoghar.nic.in/jharkhand_physical_map.html)
Figure 1. Physical map of Jharkhand (N.E. Jharkhand Highlighted red).



Figure 2. A view of collection site at Masanjhor Dam (Dumka, Jharkhand).

Material and Methods

- (i) **Study Sites:** Collection-cum-survey tour was conducted during October 05-06, 2016 (Masanjor, Dumka) and October 07-08, 2016 (Udhwa Bird Sanctuary, Sahibganj) by the first two authors. The sites selected for collection was the watching tower along the bank of Masanjor dam in Dumka and near the lake in Udhwa Bird Sanctuary in Sahibganj.
- (ii) **Collection and Preservation:** The collection of moths was made with the help of vertical sheet light trap and the collected specimens were killed with the help of ethyl acetate vapors and processed as per standard techniques in Lepidopterology. Dry preservation is done in fumigated entomological boxes and stored in the insect cabinets in the Zoological Survey of India, GPRC, Patna.
- (iii) **Identification:** The identification was done with the help of relevant literature (Hampson, 1892-1896; Haruta, 1994; Kononenko & Pinratana, 2013; Singh & Ahmad, 2017; Singh & Ranjan, 2016; Singh *et al.*, 2017, Kirti & Singh, 2015; Kirti & Singh, 2016, Singh *et al.*, 2014). The classification followed in this manuscript is based on Nieuwerkerken *et al.* (2011).

Systematic Account

In the systematic account, name of the family, subfamily, genus and species is given. For all the included genera, the first reference is provided whereas, for each of the included species: first reference, Material examined, and photograph of adults is provided.

Family EREBIDAE

Subfamily EREBINAE

Genus *Artena* Walker

Walker, 1858; *List Specimens lepid. Insects Colln Br. Mus.*, 14: 1388.

1. *Artena dotata* (Fabricius, 1794)

Noctua dotata Fabricius, 1794; *Ent. Syst.* III, 2: 55.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

Genus *Thyas* Hubner

Hübner, 1806; *Zuträge Samml. exot. Schmett.*, 2: 4.

2. *Thyas coronata* (Fabricius, 1775)

Noctua coronata Fabricius, 1775; *Syst. Ent.*, 596.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

Genus *Ophiusa* Ochsenheimer

Ochsenheimer, 1816; *Schmett. Eur.*, 4: 93.

3. *Ophiusa tirhaca* (Cramer, [1777])

Phalaena tirhaca Cramer, [1777]; *Uitl. Kapellen* 2(9-16): 116.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

4. *Ophiusa triphaenoides* Walker, 1858

Ophiodes triphaenoides Walker, 1858, *List Spec. lepid. Insects Colln Br. Mus.*, 14: 1358.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

Genus *Parallelia* Hübner

Hübner, 1818; *Zuträge Samml. Exot. Schmett.*, 1: 15.

5. *Parallelia stuposa* (Fabricius, 1794)

Noctua stuposa Fabricius, 1794; *Ent. Syst.*, 3(2): 42.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

6. *Bastilla joviana* (Stoll, 1782)

Noctua joviana Stoll, 1782, *Uitlandsche Kapellen*, 4: 237.

Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

Genus *Grammodes* Guenee

Guenee, 1852; in Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.*, 7: 275.

7. *Grammodes geometrica* (Fabricius, 1775)

Noctua geometrica Fabricius, 1775; *Syst. Ent.*, 599.

Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-02 exp.

Genus *Achaea* Hübner

Hübner, 1823; *Verz. Bekannter Schmett.*, (17): 269.

8. *Achaea janata* (Linnaeus, 1758)

Phalaena janata Linnaeus, 1758; *Syst. Nat. Edn.* 10(1): 527.

Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.

Genus *Chalciope* Hübner

Hübner, 1823; *Verz. bek. Schmett.*, (17): 268.

9. *Chalciope mygdon* (Cramer, 1777, 1779)

Noctua mygdon Cramer, 1777, 1779; *Uitlandsche Kapellen*, 2(9-16): 94.

Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.

- Genus *Mocis* Hübner
Hübner, [1823]; *Verz. bek. Schmett.* (17): 267.
10. *Mocis frugalis* (Fabricius, 1775)
Noctua frugalis Fabricius, 1775; *Syst. Ent.*, 601.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
11. *Mocis undata* (Fabricius, 1775)
Noctua undata Fabricius, 1775; *Syst. Ent.*, 600.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Genus *Erebos* Latreille
Latreille, 1810; *Cons. Gen. Anim. Crust. Arach. Ins.*, 365.
12. *Erebos ephesperis* (Hübner, 1827)
Nyctipao ephesperis Hübner, 1827, *Verz. bekannter Schmett.*, 272.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Genus *Hamodes* Guenee
Guenee, 1852; in Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.* 7: 202.
13. *Hamodes propitia* (Guerin-Meneville, 1831)
Ophiusa propitia Guerin-Meneville, 1831; *Voy. de la Coquille*, 1830-1832: 285.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Subfamily ARCTIINAE
Genus *Olepa* Watson
Watson, 1980; *The Generic Names of Moths of the World*, 2: 133.
14. *Olepa koslandana* Orhant, 1986
Olepa koslandana Orhant, 1986; *Bull. Science Nat.*, 50: 12.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Genus *Aloa* Walker
Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, 3: 699.
15. *Aloa lactinea* (Cramer, 1777)
Phalaena lactinea Cramer, 1777; *Uitl. Kapellen*, 2 (9-16): 58, 149.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp, Sahibganj, Udhwa BS, 07.10.2016-01 exp.
Genus *Argina* Hübner
Hübner, 1819; *Verz. bek. Schmett.* (11): 167.
16. *Argina astrea* (Drury, 1773)
Phalaena astrea Drury, 1773; *Illust. Nat. Hist. Exot. Insects*, 2: 11.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-03 exp, Sahibganj, Udhwa BS, 07.10.2016-01 exp.
Genus *Lemyra* Walker
Walker, 1856; *List Spec. Lepid. Insects Colln Br. Mus.*, 7: 1690.
17. *Lemyra* sp.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.10.2016-01 exp.
Genus *Amerila* Walker
Walker, 1855; *List spec. Lep. Ins. Colln. Br. Mus.*, 3: 725.
18. *Amerila astreus* (Drury, 1773)
Spinix astreus Drury, 1773; *III. Nat. Hist. Exot. Insect*, 2: 185.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-03 exp.
Genus *Rajendra* Moore
Moore, 1879; *Descr. Indian lep. Atkinson*, (1): 43.
19. *Rajendra biguttata* (Walker, 1855)
Aloa biguttata Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, 3: 707.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Genus *Creatonotos* Hübner
Hübner, 1819; *Verz. bek. Schmett.*, (11): 170.
20. *Creatonotos transiens* (Walker, 1855)
Spilosoma transiens Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, 3: 675.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp, Sahibganj, Udhwa BS, 07.X.2016-04 exp.
21. *Creatonotos interrupta* (Linnaeus, 1767)
Phalaena (Noctua) interrupta Linnaeus, 1767; *Syst. Nat.*, 1 (2): 840.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-04 exp, 06.X.2016-03 exp, Sahibganj, Udhwa BS, 08.X.2016-04 exp.
Genus *Aemene* Walker
Walker, 1855; *List Spec. Lepid. Insects Colln. Br. Mus.*, 2: 541.
22. *Aemene nilgirica* Hampson, 1891
Aemene nilgirica Hampson, 1891, *Ill. Het.*, 8: 51.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.

- Genus *Syntomoides* Hampson
Hampson, 1893 1892; *Fauna Br. India* (Moths), **1**: 209.
23. *Syntomoides imaon* (Cramer, 1779)
Sphinx imaon Cramer, 1779; *Utl. Kapellen*, **3**: 94.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 05.X.2016-01 exp.
Genus *Nepita* Moore
Moore, 1860; *Cat. lep. Ins. Mus. Nat. Hist.*, **2**: 302.
24. *Nepita conferta* (Walker, 1854)
Pitane conferta Walker, 1854; *List Spec. Lepid. Insects Colln Br. Mus.*, **2**: 533.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp.
Genus *Brunia* Moore
Moore, 1878; *Proc. zool. Soc. Lond.*, 1878: 15.
25. *Brunia antica* (Walker, 1854)
Lithosia antica Walker, 1854; *List Spec. Lepid. Insects Colln Br. Mus.*, **2**: 505.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp.
Subfamily LYMANTRIINAE
Genus *Lymantria* Hübner
Hübner 1819; *Verz. bek. Schmett.*, (**10**): 160.
26. *Lymantria marginata* Walker, 1855
Lymantria marginata Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, **4**: 877.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Genus *Aroa* Walker
Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, **4**: 780.
27. *Aroa* sp.
Material examined: Jharkhand, Dumka, Masanjour, 06.X.2016-01 exp.
Subfamily SCOLIOPTERYGINAE
Genus *Anomis* Hübner
Hübner, 1821; *Verz. bek. Schmett.*, (**16**): 249.
28. *Anomis flava* (Fabricius, 1775)
Noctua flava Fabricius, 1775; *Syst. Ent.*, **1775**: 601.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp.
Genus *Rusicada* (Walker)
Hübner, 1821; *Verz. bek. Schmett.* (**16**): 249.
29. *Rusicada pindraberensis* Singh & Ranjan, 2016
Rusicada pindraberensis Singh & Ranjan, 2016; *Rec. Zool. Surv. India*: **116**(4): 323-336.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp.
Subfamily CALPINAE
Genus *Hypocala* Guenee
Guenee, 1852; in Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.*, **7**: 73.
30. *Hypocala deflorata* Fabricius, 1794
Hypocala deflorata Fabricius, 1794, *Ent. Syst.*, **3**(2): 127.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp.
Subfamily AGANAINAE
Genus *Asota* Hübner
Hübner, 1819; *Verz. bek. Schmett.* (**11**): 164
31. *Asota caricae* (Fabricius, 1775)
Noctua caricae Fabricius, 1775; *Syst. Ent.*, 596.
Material examined: Jharkhand, Dumka, Masanjour, 06.10.2016-01 exp, Udhwa BS, 07.X.2016-01 exp, 08.X.2016-01 exp.
Subfamily PANGRAPTINAE
Genus *Episparis* Walker
Walker, 1857; *List Spec. Lepid. Insects Colln Br. Mus.*, **10**: 475.
32. *Episparis liturata* (Fabricius, 1787)
Phalaena liturata Fabricius, 1787; *Mant. Ins.*, **2**: 197.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-01 exp, 06.X.2016-01 exp.
Subfamily HADENINAE
Genus *Mythimna* Ochsenheimer
Ochsenheimer, 1816; *Schmett. Eur.*, **4**: 78.
33. *Mythimna yu* (Guenee, 1852)
Leucania yu Guenee, 1852; *Hist. nat. Insectes, Spec. gen. Lepid.*, **5**: 78.
Material examined: Jharkhand, Dumka, Masanjour, 05.X.2016-02 exp, Udhwa BS, 08.X.2016-01 exp.
34. *Leucania* sp.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
35. *Leucania venalba* Moore, 1867
Leucania venalba Moore, 1867; *Proc. zool. Soc. Lond.*, **1867**: 48.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
Genus *Spodoptera* Guenee
Guenee 1852; in Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.*, **5**: 153.

36. ***Spodoptera litura*** (Fabricius, 1775)
Noctua litura Fabricius, 1775; *Syst. Ent.*, 601.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp, Udhwa BS, 07.X.2016-01 exp.
37. ***Spodoptera mauritia*** (Boisduval, 1833)
Hadena mauritia Boisduval, 1833, *Nouv. Annl. Mus. Hist. nat.*, 2: 240.
 Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
 Genus ***Yepcalphis*** Nye
 Nye, 1975; *Gen. Names Moths World*, 1: 508.
38. ***Yepcalphis dilectissima*** (Walker, 1858)
Ariola dilectissima Walker, 1858; *List Spec. Lepid. Insects Colln Br. Mus.*, 15: 1751.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Family LASIOCAMPIDAE
 Subfamily GASTROPACHINAE
 Genus ***Gastropacha*** Ochseneheimer
 Ochseneheimer, 1810; *schmett. Eur.*, 3: 239.
39. ***Gastropacha pardale*** (Walker, 1855)
Megasoma pardale Walker, 1855; *List Spec. Lep. Insec. Br. Mus.*, 6: 1453.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
 Family NOCTUIDAE
 Subfamily HELIOTHINAE
 Genus ***Helicoverpa*** Hardwick
 Hardwick, 1965; *Mem. ent. Soc. Canada*, 40: 9.
40. ***Helicoverpa assulta*** (Guenee, 1852)
Heliiothis assulta Guenee, 1852; *Hist. nat. Ins., Spec. gen. Lepid.*, 6(2): 178.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
 Subfamily BAGISARINAE
 Genus ***Chasmina*** Walker
 Walker, 1856; *List Spec. Lepid. Insects Colln Br. Mus.*, 9: 69.
41. ***Chasmina* sp.**
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp, 06.X.2016-01 exp.
 Subfamily CALPINAE
 Genus ***Ericeia*** Walker
 Walker, 1858; *List Spec. Lepid. Insects Colln Br. Mus.*, 13: 1078.
42. ***Ericeia inangulata*** (Guenee, 1852)
Hulodes inangulata Guenee, 1852, *Hist. Nat. Insectes, Spec. gen. Lepid.*, 7: 210.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-02 exp.
 Subfamily PLUSIINAE
 Genus ***Chrysodeixis*** Hübner
 Hübner, 1821; *Verz. bek. Schmett.*, (16): 252.
43. ***Chrysodeixis acuta*** (Walker, 1858)
Plusia acuta Walker, 1858; *List Spec. Lepid. Insects Colln Br. Mus.*, 12: 922.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
 Genus ***Thysanoplusia*** Ichinose
 Ichinose, 1973; *Kontyu*, 41 (2): 137.
44. ***Thysanoplusia (Daubeiplusia) lectula*** (Walker, 1858)
Prodenia lectula Walker, 1858; *List Spec. Lepid. Insects Colln Br. Mus.*, 15: 1679.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
 Subfamily NOCTUINAE
 Genus ***Agrotis*** Ochseneheimer
 Ochseneheimer, 1816; *Schmett. Eur.*, 4: 66.
45. ***Agrotis segetum*** (Denis & Schiffermüller, 1775)
Noctua segetum Denis & Schiffermüller, 1775; *Ank. syst. Schmett. Wienergegend*, 81.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Subfamily CATOCALINAE
 Genus ***Entomogramma*** Guenee
 Guenee, 1852; *Hist. nat. Ins., Spec. gen. Lepid.*, 7(3): 203.
46. ***Entomogramma faurix*** Guenee, 1852
Entomogramma faurix Guenee, 1852; *Hist. nat. Ins., Spec. gen. Lepid.*, 7(3): 204.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
 Genus ***Bamra*** Moore
 Moore, 1882; *Descr. Indian lep. Atkinson*, (2): 159.
47. ***Bamra* sp.**
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
 Family NOLIDAE
 Subfamily EARIADINAE
 Genus ***Earias*** Hübner
 Hübner, 1825; *Verz. Bekannt. Schmett*, 395.
48. ***Earias luteolaria*** Hampson, 1891
Earias luteolaria Hampson, 1891; *Illust. typical Spec. Lepid. Het. Br. Mus.*, 8:46.

- Material examined:* Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
Subfamily CHLOEPHORINAE
Genus *Xanthodes* Guenee
Guenee, 1852; in Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.*, **6**: 209.
49. *Xanthodes transversa* Guenee, 1852
Xanthodes transversa Guenee, 1852; Boisduval & Guenee, *Hist. nat. Ins., Spec. gen. Lepid.*, **6**: 209.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
50. *Xanthodes albago* (Fabricius, 1794)
Noctua albago Fabricius, 1794; *Ento. Syst.*, **3**(2): 74.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Genus *Carea* Walker
Walker, 1857; *List Spec. Lepid. Insects Colln. Br. Mus.*, **10**: 474.
51. *Carea angulata* (Fabricius, 1793)
Bombyx angulata Fabricius, 1793; *Ent. Syst.*, **3**(1): 481.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Subfamily WESTERMANNIINAE
Genus *Miaromima* Meyrick
Meyrick, 1889; *Trans. R. ent. Soc. Lond.*, **1889**: 471.
52. *Miaromima naessigi* (Kobes, 1989)
Westermannia naessigi Kobes, 1989; *Heterocera Sumatrana*, **2**(7): 156.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Family SPHINGIDAE
Subfamily MACROGLOSSINAE
Genus *Theretra* Hübner
Hübner, 1819; *Verz. Bek. Schmett.*, (9): 135.
53. *Theretra nessus* (Drury, 1773)
Sphinx nessus Drury, 1773; *Illustr. Ex. Ins.*, **2**: 46.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
54. *Theretra oldenlandiae* (Fabricius, 1775)
Sphinx oldenlandiae Fabricius, 1775; *Syst. Ent.*, 542.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-02 exp, Dumka, Masanjor, 05.X.2016-01 exp.
55. *Theretra alecto* (Linnaeus, 1758)
Sphinx alecto Linnaeus, 1758, *Syst. Nat.*, **10**: 492.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp, Sahibganj, Udhwa BS, 05.X.2016-01 exp.
56. *Theretra clotho* (Drury, 1773)
Sphinx clotho Drury, 1773, *Illustr. Ex. Ins.*, **2**: 48.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp, Dumka, Masanjor, 05.X.2016-02 exp.
Genus *Acosmeryx* Boisduval
Boisduval, [1875]; *Hist. nat. Ins., Spec. gen. Lepid. Het.*, **1**: 214.
57. *Acomeryx* sp.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Genus *Pergesa* Walker
Walker, 1856; *List Spec. Lepid. Insects Colln. Br. Mus.*, **8**: 149.
58. *Pergesa acteus* (Cramer, 1779)
Sphinx acteus Cramer, 1779; *Uitl. Kapellen*, **3** (17-21): 93.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Subfamily SPHINGINAE
Genus *Agrius* Hubner
Hübner, 1819; *Verz. bek. Schmett.*, (9): 140.
59. *Agrius convolvuli* (Linnaeus, 1758)
Sphinx convolvuli Linnaeus, 1758; *Syst. Nat.*, **1**: 435.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Family LIMACODIDAE
Subfamily LIMACODINAE
Genus *Cheromettia* Moore
Moore, 1883; *Lepid. Ceylon*, **2**: 133.
60. *Cheromettia laleana* (Moore, 1859)
Parasa laleana Moore, 1859; *Ann. Mag. Nat. Hist.*, **20**(4):417.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Genus *Scopelodes* Westwood
Westwood, 1841; in Jardine, *Naturalist's Libr.*, **33**(7): 222.
61. *Scopelodes albipalpalis* Hering 1931
Scopelodes albipalpalis Hering, 1931; In A. Seitz (ed.), *Die Gross-Sch.der Erde.*, **10**: 689.
Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
Family EUPTEROTIDAE
Subfamily EUPTEROTINAE
Genus *Eupterote* Hübner
Hübner 1820; *Verz. bek. Schmett.* (12): 187.

- 62. *Eupterote geminata*** (Walker, 1855)
Dreata geminata Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, **4**: 907.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Family NOTODONTIDAE
 Subfamily Unassigned
 Genus *Pseudoteleclita* Kiriakoff
 Kiriakoff, 1968; in Wytzman, *Genera Insectorum*, **217** (C): 219.
- 63. *Pseudoteleclita* sp.**
 Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
 Subfamily PYGAERINAE
 Genus *Allata*
 Walker, 1862, *J. Linn. Soc. Lond. Zool.* **6**: 140.
- 64. *Allata argentifera*** Walker, 1862
Allata argentifera Walker, 1862; *J. Proc. Linn. Soc. Zool.*, **6**: 140.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Subfamily BIRETINAE
 Genus *Armiana* Walker
 Walker, 1862; *J. Proc. Linn. Soc. Zool.*, **6**: 141.
- 65. *Armiana longipennis*** (Moore, 1881)
Norraca longipennis Moore, 1881; *Proc. Zool. Soc. Lond.*, **1881**: 340.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
 Subfamily CERURINAE
 Genus *Paracerura* Schintlmeister
 Schintlmeister, 2002; *Nachr. Ent. Ver. Apollo*, **23** (3).
- 66. *Paracerura* sp.**
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-02 exp, 06.X.2016-01 exp.
 Subfamily PHALERINAE
 Genus *Antheua* Walker
 Walker, 1855; *List Spec. Lepid. Insects Colln Br. Mus.*, **3**: 687.
- 67. *Antheua servula*** (Drury, 1773)
Noctua servula Drury, 1773; *Illust. Exot. Ento.*, **2**: 23.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Subfamily PTILODONINAE
 Genus *Hexafrenum* Matsumura
 Matsumura, 1925; *Zool. Mag. Tokyo*, **37**: 400.
- 68. *Hexafrenum* sp.**
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
 Family SATURNIIDAE
 Subfamily SATURNIINAE
 Genus *Antheraea* Hübner
 Hübner, 1819; *Verz. bek. Schmett.*, **10**: 152.
- 69. *Antheraea mylitta*** (Drury, 1773)
Phalaena mylitta Drury, 1773; *Illust. Nat. Hist. Exot. Insects*, **2**: 8.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Family BOMBYCIDAE
 Subfamily BOMBYCINAE
 Genus *Bombyx* Linnaeus
 Linnaeus, 1758; *Syst. Nat.*, **1**: 495.
- 70. *Bombyx incomposita*** (van Eecke, 1929)
Theophila incomposita van Eecke, 1929, *Zool. Meded. Leiden*, **12**: 65.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
 Family CRAMBIDAE
 Subfamily PYRAUSTINAE
 Genus *Botyodes* Guenee
 Guenee, 1854; in Boisduval & Guenee, *Hist. Nat. Ins. Spec. Gen. Lepid.*, **8**: 320.
- 71. *Botyodes caldusalis*** (Walker, 1859)
Botys caldusalis Walker, 1859; *List Spec. Lepid. Insects Colln Br. Mus.*, **18**: 650.
 Material examined: Jharkhand, Dumka, Masanjor, 05.X.2016-01 exp.
 Genus *Cydalima* Lederer
 Lederer, 1863; *Beitr. Kenn. Der Pyral.*, 397.
- 72. *Cydalima laticostalis*** (Guenee, 1854)
Margarodes laticostalis Guenee, 1854; in Boisd. & Guenee, *Hist. Nat. Ins. Sp. Gen. Lep.*, **8**: 303.
 Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
 Genus *Tyspanodes* Warren
 Warren, 1891; *Ann. Mag. Nat. Hist.*, **7**: 425.
- 73. *Tyspanodes linealis*** (Moore, 1868)
Propachys linealis Moore, [1868]; *Proc. zool. Soc. Lond.*, **1867**: 665.
 Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
 Family GEOMETRIDAE
 Subfamily ENNOMINAE

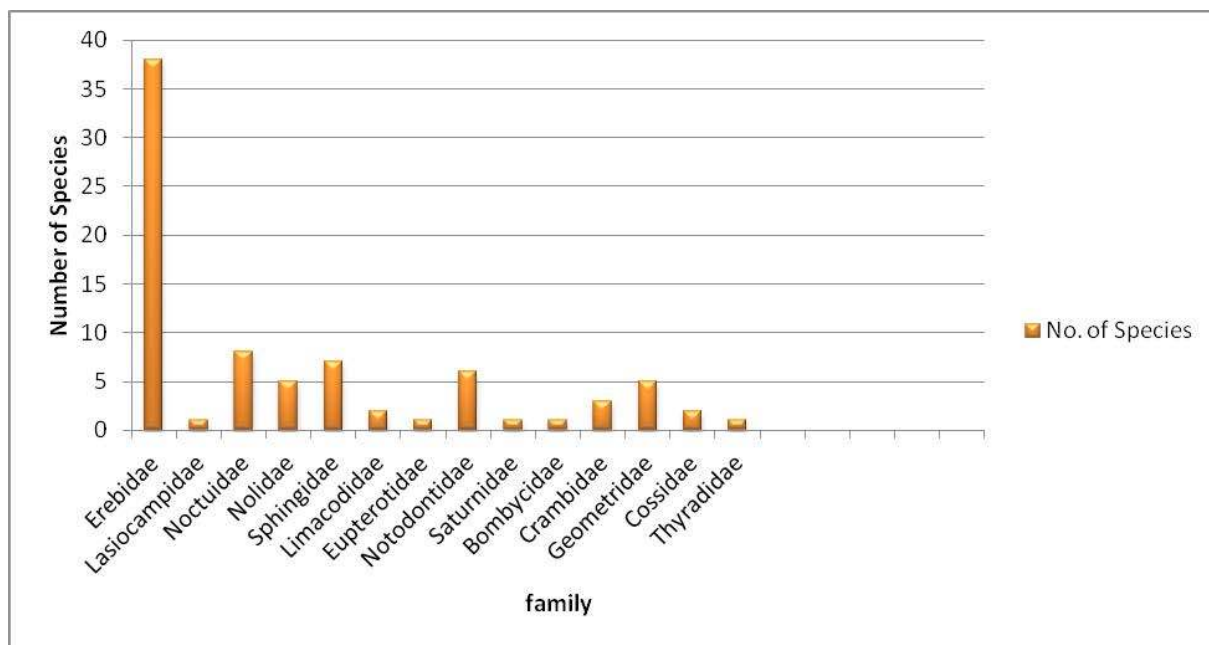
- Genus *Hyperythra* Guenee
Guenee, 1857; *Hist. nat. Ins., Spec. gen. Lepid.*, **9**: 99.
74. *Hyperythra lutea* (Stoll, [1781])
Phalaena lutea Stoll, 1781; in Cramer, *Uitl. Kapellen*, **4** (29-31): 157.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Genus *Hyposidra* Guenee
Guenee, 1857; *Hist. nat. Ins., Spec. gen. Lepid.*, **10**: 150.
75. *Hyposidra talaca* (Walker, 1860)
Lagyrta talaca Walker, 1860; *List Spec. Lepid. Insects Colln Br. Mus.*, **20**: 59.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Genus *Chiasmia* Hübner
Hübner 1823; *Verz. Bek. Schmett.*, **19**: 295.
76. *Chiasmia xanthonora* (Walker, 1861)
Macaria xanthonora Walker, 1861; *List Spec. Lepid. Insects Colln Br. Mus.*, **23**: 935.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Genus *Cleora* Curtis
Curtis, 1825; *British Entomology*, **2**: 88.
77. *Cleora* sp.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp.
Subfamily GEOMETRINAE
Genus *Thalassodes* Guenee, 1857
Guenee, 1857; in Boisduval & Guenee, *Hist. nat. Ins.*, **9**: 359.
78. *Thalassodes veraria* Guenee, 1857
Thalassodes veraria Guenee, 1857; *Hist. Nat. Ins.*, **9** (9): 360-361.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Family COSSIDAE
Subfamily ZEUZERINAE
Genus *Xyleutes* Hübner
Hübner, 1820; *Verz. bek. Schmett.*, (13): 195.
79. *Xyleutes persona* (Le Guillou, 1841)
Cossus persona le Guillou, 1841, *Rev. Zool.*, **4**: 257.
Material examined: Jharkhand, Dumka, Masanjor, 06.X.2016-01 exp.
Genus *Zeuzera* Latreille
Latreille, 1804; *Nouv. Dict. Hist. Nat.*, **24**: 186.
80. *Zeuzera coffeae* Nietner, 1861
Zeuzera coffeae Nietner, 1861, *Enemies of Coffee Tree*, 21.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 07.X.2016-01 exp.
Family THYRADIDAE
Subfamily STRIGLININAE
Genus *Striglina* Guenee
Guenee, 1877, *Ann. Soc. Ent. Fr.*, **1877**: 283.
81. *Striglina scitaria* (Walker, 1862)
Drepanodes scitaria Walker, 1862; *List Spec. Lepid. Insects Colln Br. Mus.*, **26**: 1488-1489.
Material examined: Jharkhand, Sahibganj, Udhwa BS, 08.X.2016-01 exp. (Photograph of adult not provided here)

Results and Discussion

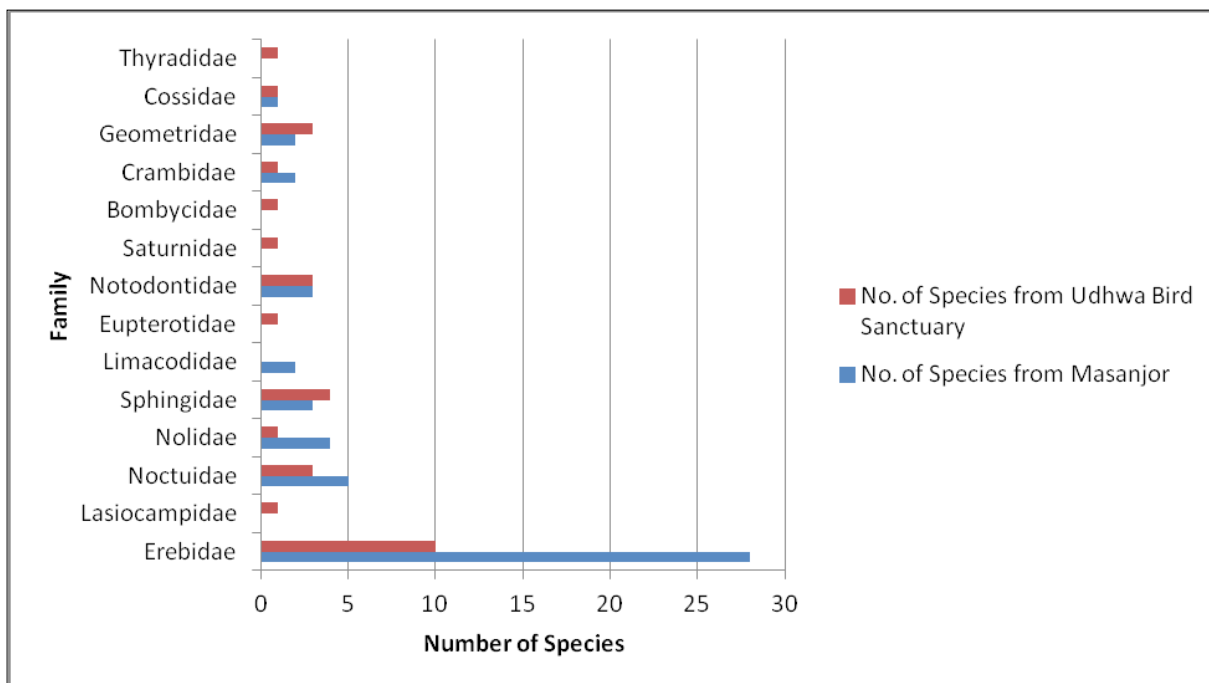
In the present study, an Inventory of moths from North-East Jharkhand is given on the basis of data collected during the survey tour conducted in this region. A total number of 119 examples of adult moths were collected and identified under 81 different species and 70 genera representing 14 families. Maximum diversity of species within the area is of family Erebidae which accounts for about 46% of the total collected species whereas family Lasiocampidae, Eupterotidae, Bombycidae, Saturniidae and Thyradidae are represented by single species and represents the least diversity from the study area (Graph 1). Moreover, out of the two collection sites, Masanjor has more diversity than Udhwa bird sanctuary (Graph 2). The major outcome of this work is the reporting of 20 species: *Bastilla joviana* (Stoll), *Erebus ephesperis* (Hubner), *Cretonotos interrupta* (Walker), *Leucania venalba* Moore, *Yepcalphis dilectissima* (Walker), *Ericeia inangulata* (Guenee), *Chrysodeixis acuta* (Walker), *Agrotis segetum* D&S, *Entomogramma faultrix* Guenee, *Xanthodes albago* (Fab.), *Miaromima naessigi* (Kobes), *Scopelodes albipalpis* Hering, *Pseudoteleclita* sp., *Armiana longipennis* (Moore), *Tyspanodes linealis* (Moore), *Hyperythra lutea* (Stoll), *Cleora* sp., *Thalassodes veraria* Guenee, *Zeuzera coffeae* Nietner, *Bamra* sp., for the first time from Jharkhand state as well as from the Gangetic Plains. Out of the six districts, only two were covered in this survey. More faunistic surveys are needed in the area so that a complete moth fauna from North-East Jharkhand can be compiled. The present data will provide a baseline to study diversity of moths from North-East Jharkhand. These new records as well as the reporting of other moth species will help to plan

conservation strategies and management plans for the North-East Jharkhand. Many of the species documented above act as severe pests of different crops and these

findings will help the agricultural scientist to suggest suitable pest control measures for associated crops of this region.



Graph 1. Diversity of families from NE Jharkhand.



Graph 2. Comparative distribution of Species from both collection sites.

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Photographs of Adults



Artena dotata (Fabricius, 1794)



Thyas coronata (Fabricius, 1775)



Ophiusa tirhaca (Cramer, [1777])



Ophiusa triphaenoides Walker, 1858



Parallelia stupeosa (Fabricius, 1794)



Bastilla joviana (Stoll, 1782)



Grammodes geometrica
(Fabricius, 1775)



Achaea janata (Linnaeus, 1758)



Chalcioppe mygdon
(Cramer, [1777] 1779)



Mocis frugalis (Fabricius, 1775)



Mocis undata
(Fabricius, 1775)



Erebus ephesperis
(Hübner, 1827)



Hamodes propitia
(Guérin-Méneville, [1831])



Olepa koslandana
Orhant, 1986



Aloa lactinea
(Cramer, [1777])



Argina astrea
(Drury, 1773)



Lemyra sp.



Amerila astreus
(Drury, 1773)



Rajendra biguttata
(Walker, 1855)



Creatonotos transiens
(Walker, 1855)



Creatonotos interrupta
(Linnaeus, 1767)



Aemene nilgrica
Hampson, 1891



Syntomoides imaon
(Cramer, 1779)



Nepita conferta
(Walker, 1854)



Brunia antica
(Walker, 1854)



Lymantria marginata
Walker, 1855



Aroa sp.



Anomis flava
(Fabricius, 1775)



Rusicada pindraberensis
Singh & Ranjan, 2016



Hypocala deflorata
Fabricius, 1794



Asota caricae
(Fabricius, 1775)



Episparis liturata
(Fabricius, 1787)



Mythimna yu (Guenee, 1852)



Leucania sp.



Leucania venalba,
Moore, 1867



Spodoptera litura
(Fabricius, 1775)



Spodoptera mauritia
(Boisduval, 1833)



Yecalphis dilectissima
(Walker, 1858)



Gastropacha pardale
(Walker, 1855)



Helicoverpa assulta
(Guenée, 1852)



Chasmina sp.



Ericeia inangulata
(Guenée, 1852)



Chrysodeixis acuta
(Walker, [1858])



Thysanoplusia lectula
(Walker, 1858)



Agrotis segetum
(Denis & Schiffermüller, 1775)



Entomogramma fauatrix
Guenée, 1852



Bamra sp.



Earias luteolaria
Hampson, 1891



Xanthodes transversa
Guenée, 1852



Xanthodes albago
(Fabricius, 1794)



Carea angulata
(Fabricius, 1793)



Miromima naessigi
(Kobes, 1989)



Theretra nessus
(Drury, 1773)



Theretra oldenlandiae
(Fabricius, 1775)



Theretra alecto
(Linnaeus)



Theretra clotho
(Drury)



Acomeryx sp.



Pergesa acteus
(Cramer, 1779)



Agrius convolvuli
(Linnaeus, 1758)



Cheromettia laleana
(Moore, 1859)



Scopelodes albipalpalis
Hering 1931



Eupterote geminata
(Walker, 1855)



Pseudoteleclita sp.



Allata argentifera
Walker, 1862



Armiana longipennis
(Moore, 1881)



Paracerura sp.



Antheua servula
(Drury, 1773)



Hexafremum sp.



Antheraea mylitta
Drury, 1773



Bombyx incomposita
(van Eecke, 1929)



Botyodes caldusalis
(Walker, 1859)



Cydalima laticostalis
(Guenée, 1854)



Tyspanodes linealis
(Moore, [1868])



Hyperythra lutea
(Stoll, [1781])



Hyposidra talaca
(Walker, 1860)



Chiasmia xanthonora
(Walker, 1861)



Cleora sp.



Thalassodes veraria
Guenee, 1857



Xyleutes persona
(Le Guillou, 1841)



Zeuzera coffeae
Nietner