Moths Diversity of Ziro in Lower Subansiri District, Arunachal Pradesh India

Mrunalini Sonne[1], Shreyas Gaikwad[2]

[1]Annasaheb Kulkarni Department of Biodiversity, M.E.S. Abasaheb Garware College, Pune-411004, Maharashtra, India.
[2] B3/102 Pride Regency Viman nagar, Pune - 411014, Maharashtra, India.

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Abstract- Moths were researched in the Lower Subansiri district of Arunachal Pradesh, India. A preliminary field opportunistic survey will be conducted in Old Ziro, Lower Subansiri district, Arunachal Pradesh, during September-October 2020 to document the common moth, in total 38 moth species were observed foraging in day-night. With the help of photo documentation listed with taxa and photographs. After the present study, the moth fauna of Ziro comprises a total of 40 species belonging to 12 families. Of these, species richness of family Geometridae was found to be, Noctuidae, Erebidae, Crambidae, Sphingidae, Arctiidae, Uraniidae, Drepanidae, Saturniidae, Bombycidae, Lasiocampidae, Cossidae.

Index Terms- Arunachal Pradesh, Lower Subansiri, Ziro , Moth

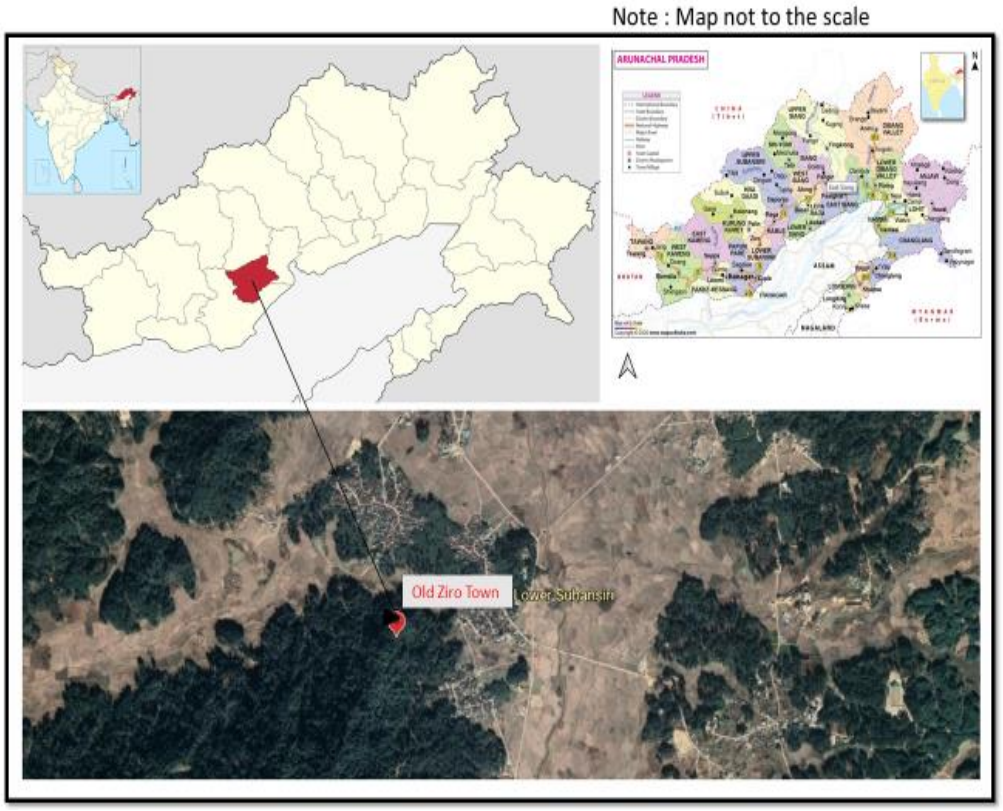
I. Introduction

A total of 1,27,000 moth species have been identified around the world (Alfred et al.). According to a previous study, India has about 12,000 species (Chandra and Nema 2007). Bees and wasps pollinated 56% plant species, butterflies and moths were 11%, flies 10%, beetles 3 %, and birds 12%, while wind pollinated 8% (Wyckhyus, 2019). Therefore, as an initiative before a detailed study, present observation of moths of Arunachal Pradesh was focused to document in certain areas of the state to plan the future study and helpful to global lepidoptera checklist assessments.

II. Materials and Methods

Study area: Old Ziro is a town in Arunachal Pradesh. It is the district headquarters of the Lower Subansiri district and one of the state's oldest cities. At an elevation of 1688 meters, the settlement is located at 27.63'N 93.83'E. The moth checklist offered in this paper is based on an opportunistic survey that we conducted primarily in old Ziro during nights over a period of two month in 2020, during the months of September and October. Moths were not collected but were primarily identified using digital colour photographs. Old Ziro were surveyed primarily at night using a 160W mercury vapour bulb, although there are several records from random sampling during the day from the same locations. The study sites are shown in Fig. 1.

Figure 1: Study Area

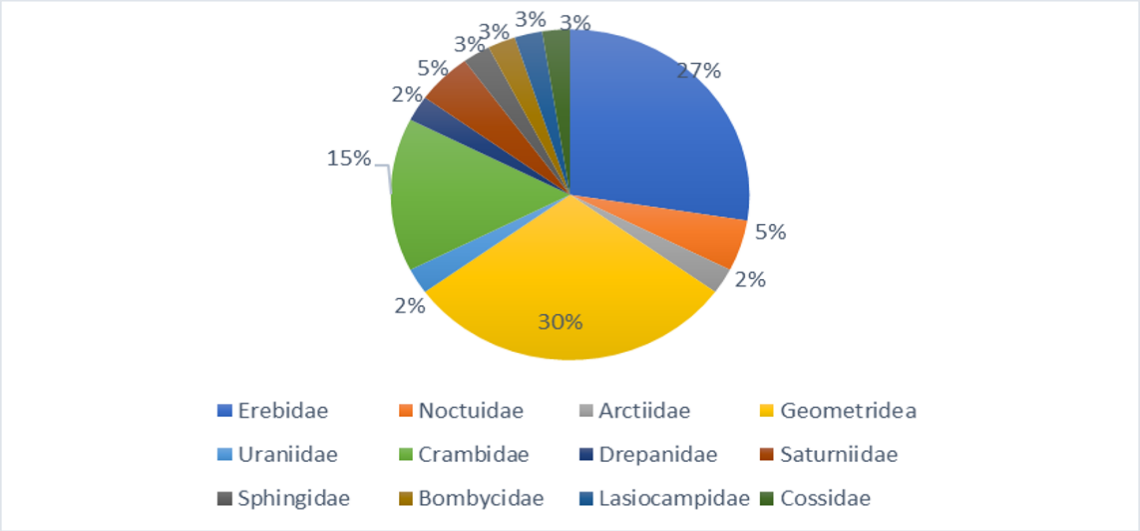


A Canon EOS 700D with a 55-200mm f/4-5.6 VR DX lens was used to shoot moths in the field. The Arunachal Pradesh Forest Department issued permission for photographing naturally dead or alive moths. On (https://www.gbif.org), (https://www.indiabiodiversity.org), (https://www.britannica.com), the available information was used to identify and classify the moths, literature Moore (1840-80), Hampson (1891-96), Bell and Scott (1937), Holloway (1983-2011), Pinratana (1990-2007), Kirti and Singh (2002-2006), Chandra, K and Sam bath (2013).

III. Results and Discussion

The study revealed that a total of 102 species belong to 81 genera, 24 subfamilies, 12 families under seven super families. Arora and Chaudhury researched the moth fauna of Arunachal Pradesh's Arctiidae family (1982) Kirti et al. (2005) inventoried 105 species of the family Arctiidae from north-eastern India. Chandra, K and Sam bath (2013) inventoried 102 species Moth diversity of Tawang District, Arunachal Pradesh, India. But, the information on moth fauna of Tawang District has not been fully studied and District wise Moth diversity of Lower Subansiri, Arunachal Pradesh, India species are reported.

Figure 2: Family compositions of moth



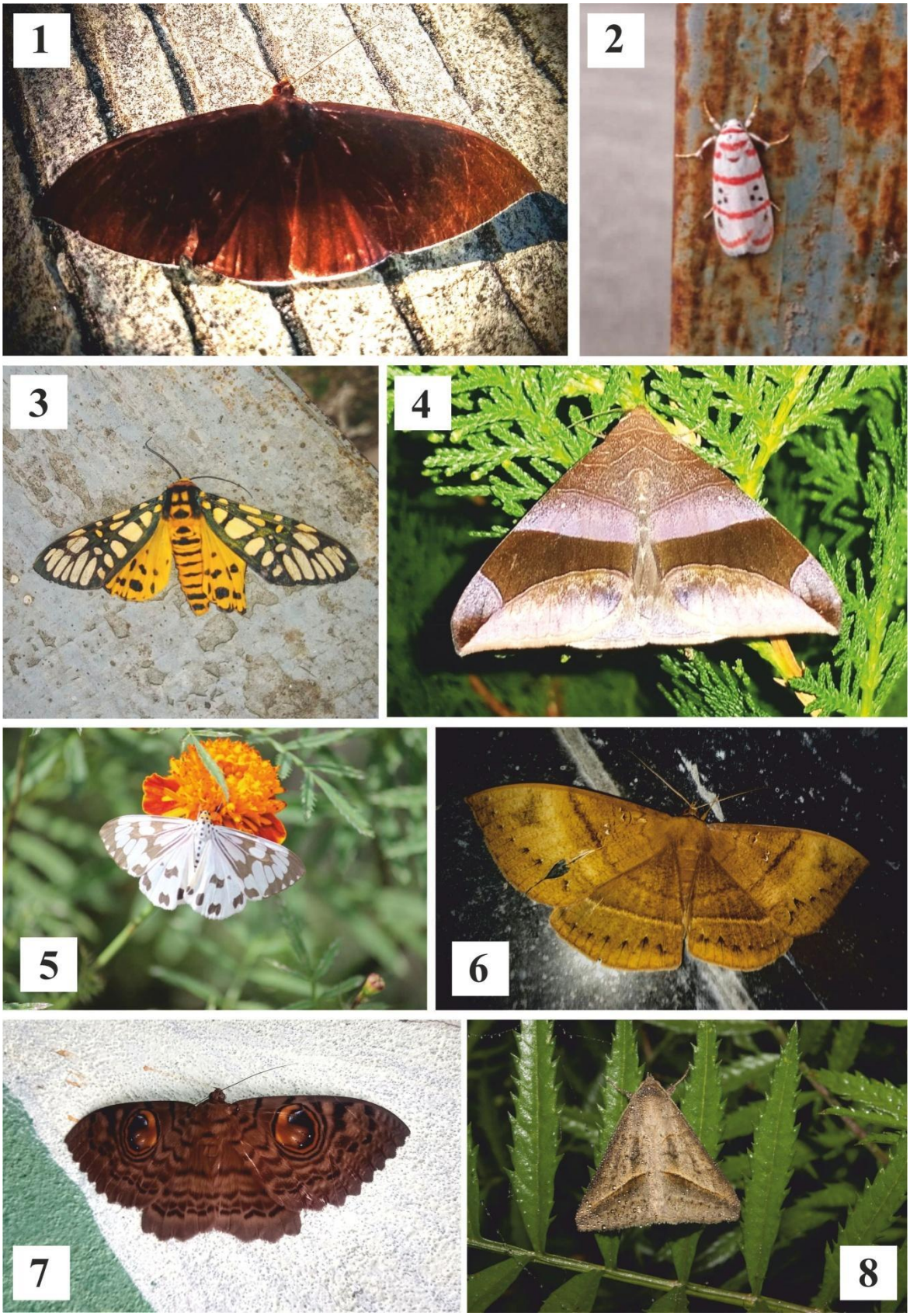
In this investigation, we photographed 40 species and recognised 39 genera under 12 families (Table 1). A The Geometridae family dominated with 30% of the total species observed, followed by the families, Erebidae (27%), Crambidae (16%), Noctuidae (5%), Saturniidae (5%), Sphingidae (3%), Drepanidae (3%), Bombycidae (3%), Lasiocampidae (3%), Cossidae (3%) Arctiidae (2%), Uraniidae (2%).

Table 1: The recorded Moths in the study area.

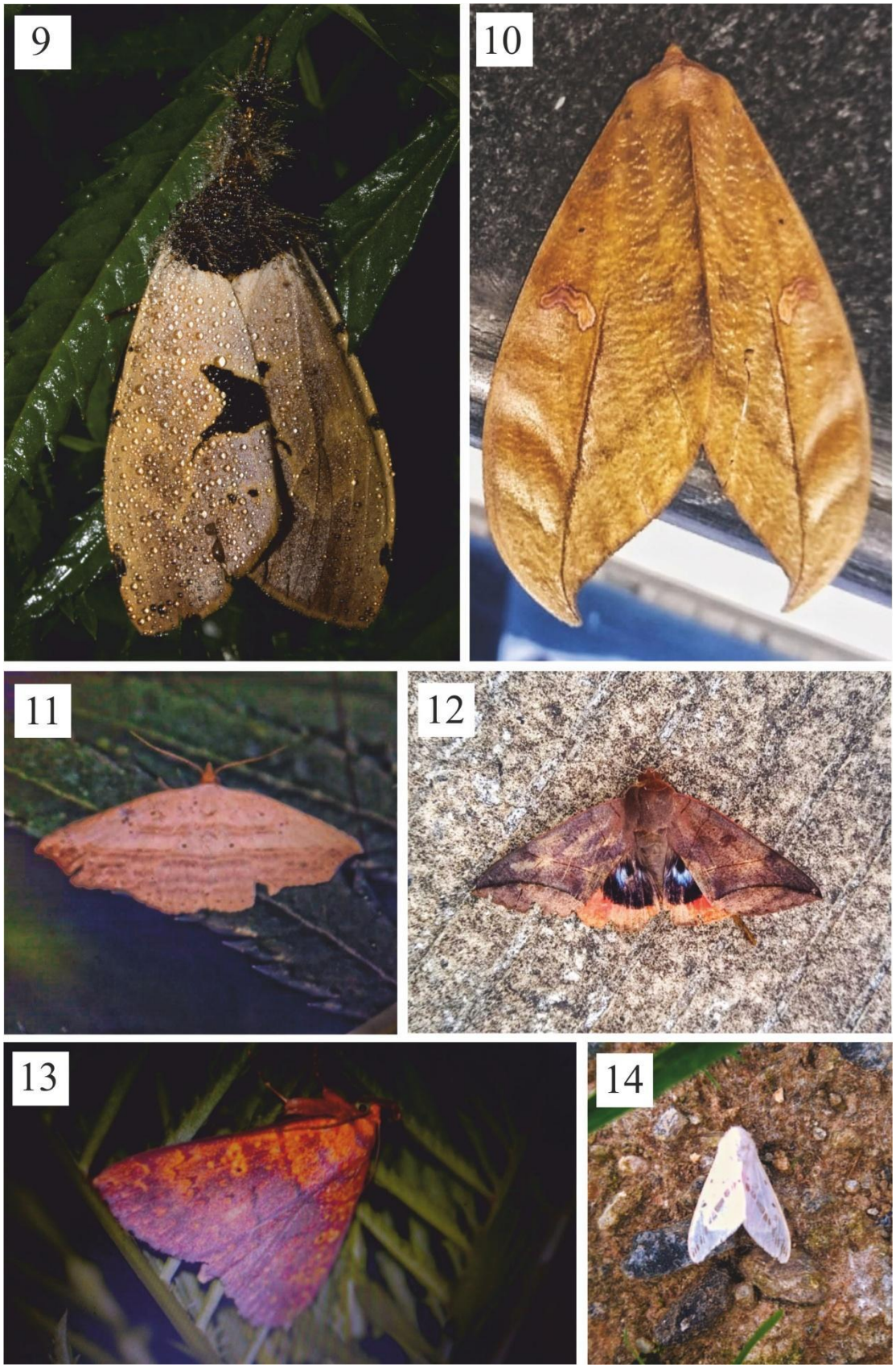
Sr.No	Family	Sub-family	Scientific Name	Autor/Year	Common Name
1	Erebidae	Erebinae	*Lygniodes hypoleuca*	Guenée, 1852	_
2	Erebidae	Arctiinae	*Cyana sp.*	Walker ,1854	_
3	Erebidae	Erebinae	*Aglaomorpha plagiata*	Walker 1855	Yellow-banded Tiger
4	Erebidae	Erebinae	*Bastilla joviana*	Cramer, 1782	_
5	Erebidae	Arctiinae	*Nyctemera adversata*	Schaller, 1788	Marbled White Moth
6	Erebidae	Erebinae	Lygniodes schoenbergi	Pagenstecher, 1890	_
7	Erebidae	Erebinae	*Erebus macrops*	Linnaeus, 1768	Common Owl Moth
8	Erebidae	Erebinae	*Mocis proverai*	Zilli, 2000	Sugarcane Looper
9	Erebidae	Lymantriinae	*Pida patrana*	Moore, 1859	_
10	Erebidae	_	*Phyllodes sp.*	Philippi, 1841	_
11	Erebidae	_	*Hemeroplanis sp.*	Smith, 1893	_
12	Noctuidae	_	*Thyas juno*	Dalman, 1823	Fruit-piercing moth
13	Noctuidae	_	*Singara diversalis*	Walker ,1865	_
14	Arctiidae	Arctiinae	*Lemyra rhodophilodes*	Hampson, 1909	_
15	Crambidae	Pyraustinae	*Udea rubigalis*	Guenee, 1854	Celery Leaftier moth
16	Crambidae	Spilomelinae	*Conogethes punctiferalis*	Guenee, 1854	Castor capsule borer
17	Crambidae	Spilomelinae	*Meroctena tullalis*	Walker, 1859	_
18	Crambidae	Spilomelinae	*Palpita vitrealis*	Rossi, 1794	Jasmine moth
19	Crambidae	Spilomelinae	*Hymenia perspectalis*	Hubner ,1796	Beet webworm
20	Crambidae	Spilomelinae	*Nevrina procopia*	Stoll, 1781	Wheel Moth
21	Geometridea	Geometridae	*Eumelea rosalia*	Stoll, 1781	_
22	Geometridae	Larentiinae	*Entephria flavicinctata*	Hübner, 1813	Yellow-banded Tiger
23	Geometridae	Sterrbinae	*Pleuroprucha insulsaria*	Guenée, 1858	Common tan wave
24	Geometridae	Ennominae	*Cleora alienaria*	Walker, 1860	_
25	Geometridae	_	*Chiasmia emersaria*	Walker 1861	Chiasmia emersaria

26	Geometridae	Geometrinae	*Maxates sp.*	Moore, 1887	Geometrid moth
27	Geometridae	Ennominae	*Antipercnia cordiforma*	Noue, 1978	_
28	Geometridea	_	*Thinopteryx crocoptera assamensis*	Swinhoe, 1916	Yellow Butterfly Moth
29	Geometridae	_	*Cyclophora obstataria*	Walker, 1861	_
30	Geometridae	Ennominae	*Erebomorpha fulgurita*	Walker, 1860	_
31	Geometridae	_	*Ourapteryx pallidula*	Inoue, 1985	_
32	Geometridae	Ennominae	*Abraxas sp.*	Leach, 1815	common magpie moth
33	Uraniidae	Uraniinae	*Lyssa zampa,*	Butler, 1869.	_
34	Drepanidae	Drepaninae	*Teldenia specca*	Wilkinson, 1967	Hooktip moth
35	Saturniidae	Saturniinae	*Actias selene*	Hübner, 1806	Indian moon moth
36	Saturniidae	Antheraea	*Antheraea pernyi*	Guerin-Meneville, 1855	Chinese oak silk moth
37	Sphingidae	Spilomelinae	*Theretra latreillii lucasii*	Walker, 1856	Pale brown hawk mouth
38	Bombycidae	Sphingidae	*Theretra nessus*	Drury, 1773	Yam Hawk moth
39	Lasiocampidae	_	*Argonestis flammans*	George Hampson 1893	_
40	Cossidae	_	*Zeuzera pyrina*	Linnaeus, 1761).	Wood leopard moth

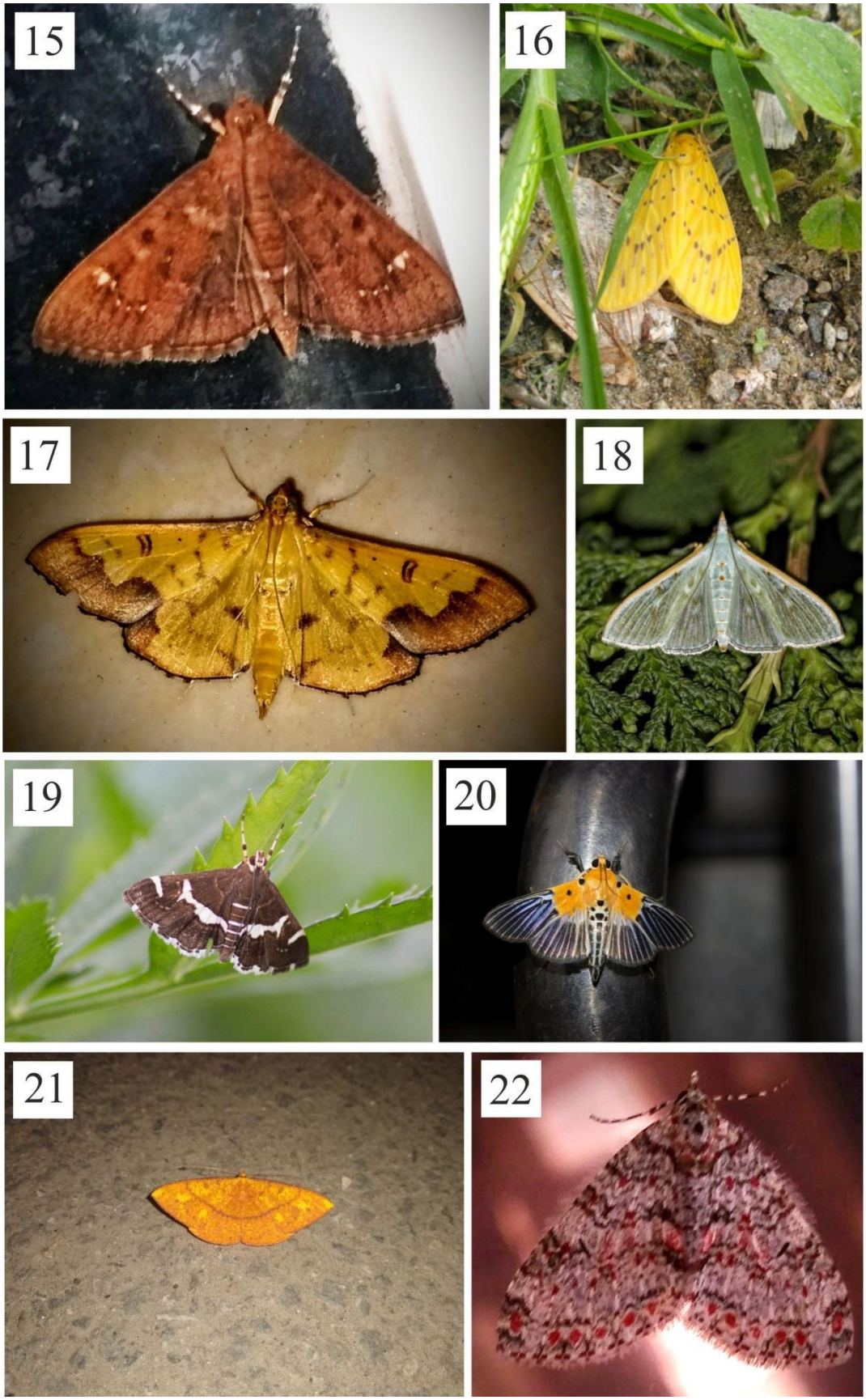
Arunachal Pradesh is full of flora and fauna which has to strike a balance between natural biodiversity and climatic changes which is challenging. This paper is providing a row sketch regarding the species diversity of moth in Ziro valley; it may be helpful for finding out moth pollination networks in the nearest places along with their native host plant relationship. In India few or not a signal study addressing ecological questions behind the diversity and distribution pattern of moth assemblages. The diversity of moth fauna as recorded by the earlier studies from different parts of Arunachal Pradesh showed a wide variation. All the work has been addressing the taxonomy of moth with or without photograph; still the inventory of these taxa for a single town, district and state wise is not complete.



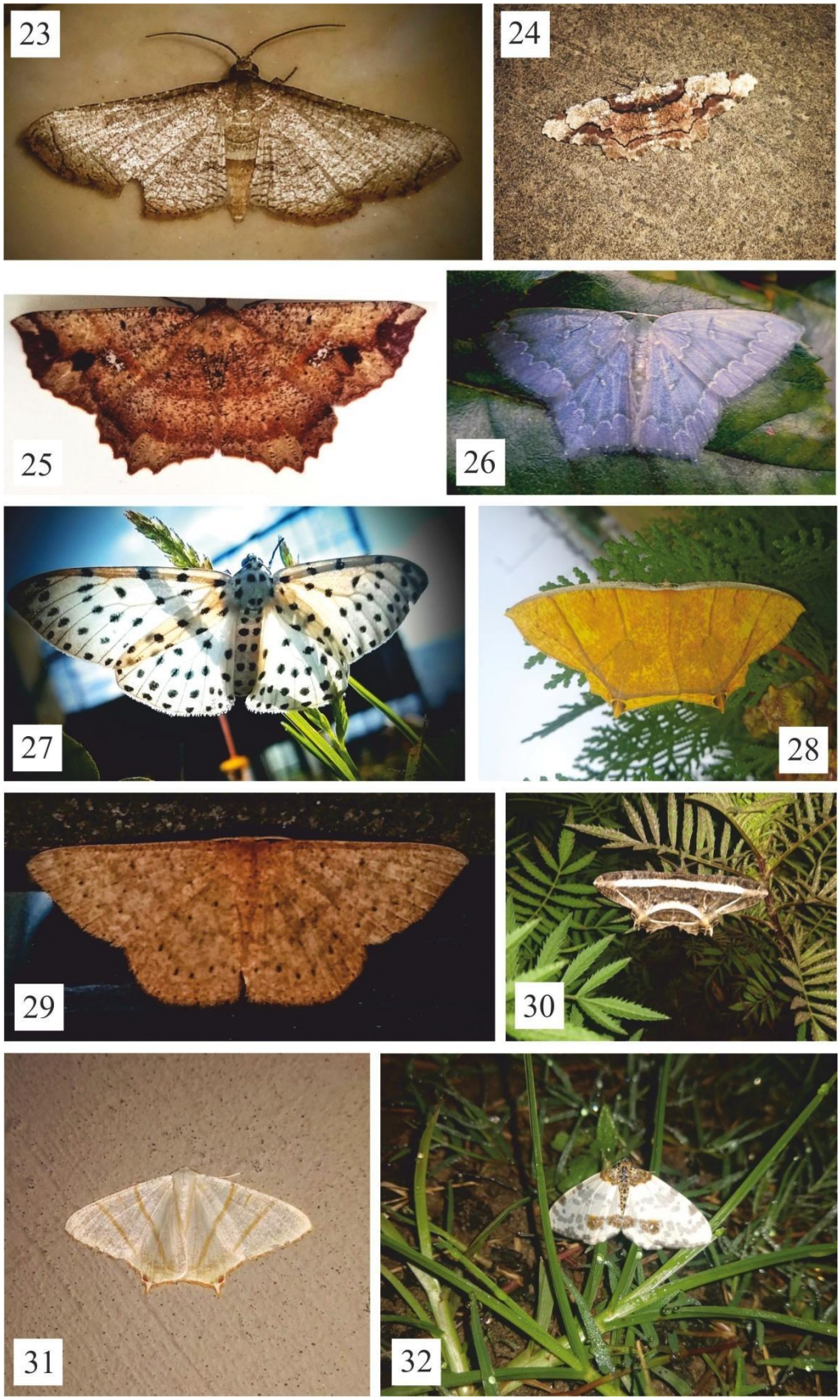
(1) ***Lygniodes hypoleuca,*** **(2)** ***Cyana sp.,*** **(3)** ***Aglaomorpha plagiata,*** **(4)** ***Bastilla joviana,***
(5) ***Nyctemera adversata,*** **(6)** ***Lygniodes schoenbergi,*** **(7)** ***Erebus macrops,*** **(8)** ***Mocis proverai***



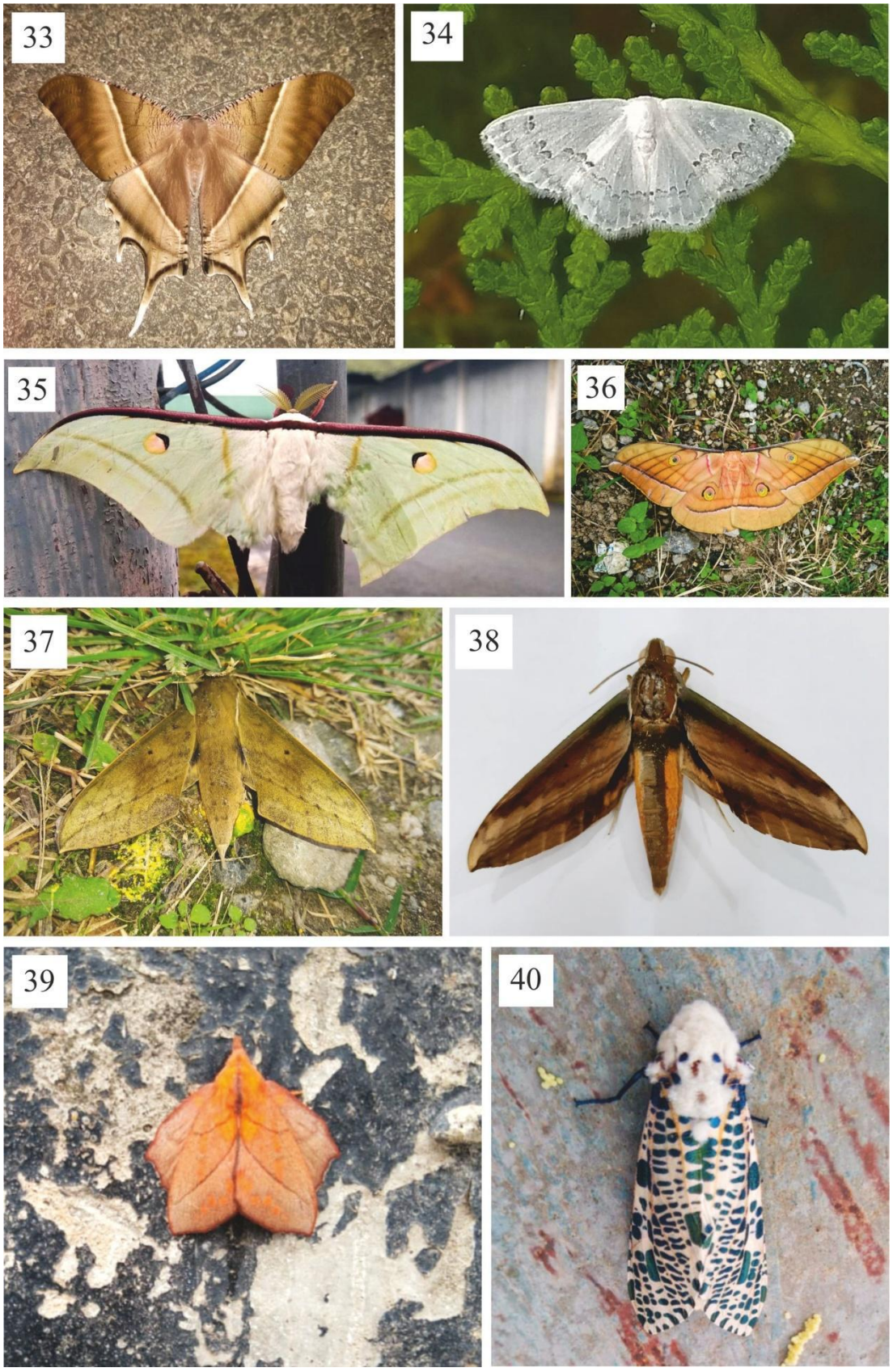
(9) ***Pida patrana*****, (10)** ***Phyllodes sp.*****, (11)** ***Hemeroplanis sp.*****, (12)** ***Thyas juno*****, (13)** ***Singara diversalis*****, (14)** ***Lemyra rhodophilodes***



(15) ***Udea rubigalis*****, (16)** ***Conogethes punctiferalis*****, (17)** ***Meroctena tullalis*****, (18)** ***Palpita vitrealis*****, (19)** ***Hymenia perspectalis*****, (20)** ***Nevrina procopia*****, (21)** ***Eumelea rosalia*****, (22)** ***Entephria flavicinctata***



(23) *Pleuroprucha insulsaria*, (24) *Cleora alienaria*, (25) *Chiasmia emersaria*, (26) *Maxates sp.*, (27) *Antipercnia cordiform*, (28) *Thinopteryx crocoptera assamensis*, (29) *Cyclophora obstataria*, (30) *Erebomorpha fulgurita*, (31) *Ourapteryx pallidula*, (32) *Abraxas sp.*



(33) ***Lyssa zampa*****, (34)** ***Teldenia specca*****, (35)** ***Actias selene*****, (36)** ***Antheraea pernyi*****, (37)** ***Theretra latreillii lucasii*****, (38)** ***Theretra Nessus*****, (39)** ***Argonestis flammans*****, (40)** ***Zeuzera pyrina.***

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AUTHORS

First Author – Mrunalini Sonne, Annasaheb Kulkarni Department of Biodiversity, M.E.S. Abasaheb Garware College, Pune-411004, Maharashtra, India.
Second Author – Shreyas Gaikwad, B3/102 Pride Regency Viman nagar, Pune - 411014, Maharashtra, India., Corresponding author email: ssonne929@gmail.com