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Newsletter of the Invertebrate Conservation & Information Network of South Asia (ICINSA)

A partial checklist of moths from Adyar Eco-Park, Chennai, India: a baseline study

A study was conducted at the Adyar Eco-Park at Chennai, a tropical dry evergreen and estuarine habitat, to evaluate the diversity of moths. The duration of the study was from March 2019 to March 2020. The study aimed to shed light on moth biodiversity from the park which could serve as baseline data for future surveys in Chennai. We selected the Adyar Eco-Park due to its rich habitat and good sightings of moths during public walks by the authors. The Adyar Eco-Park (13.019°N, 80.263°W) was established in 2011 by the Government of Tamil Nadu (Chennai Rivers Restoration Trust 2020). During this period, 15 surveys were

conducted at night from 19.30 to 00.00 h. A single diurnal survey was done in November 2020, to observe larval activity and check for day-flying moths. Parameters like temperature, humidity, and lunar phase were also noted. The surveys were conducted at the same time period to maintain uniformity of effort. Two sites were studied to record the moths in the park. A white cloth was used as a light sheet along with a 160W mercury vapour lamp. The lamp was connected to the plug points available in the building and the lamp was placed above the cloth using a lamp holder. No lures or sticky traps were used and no moths were

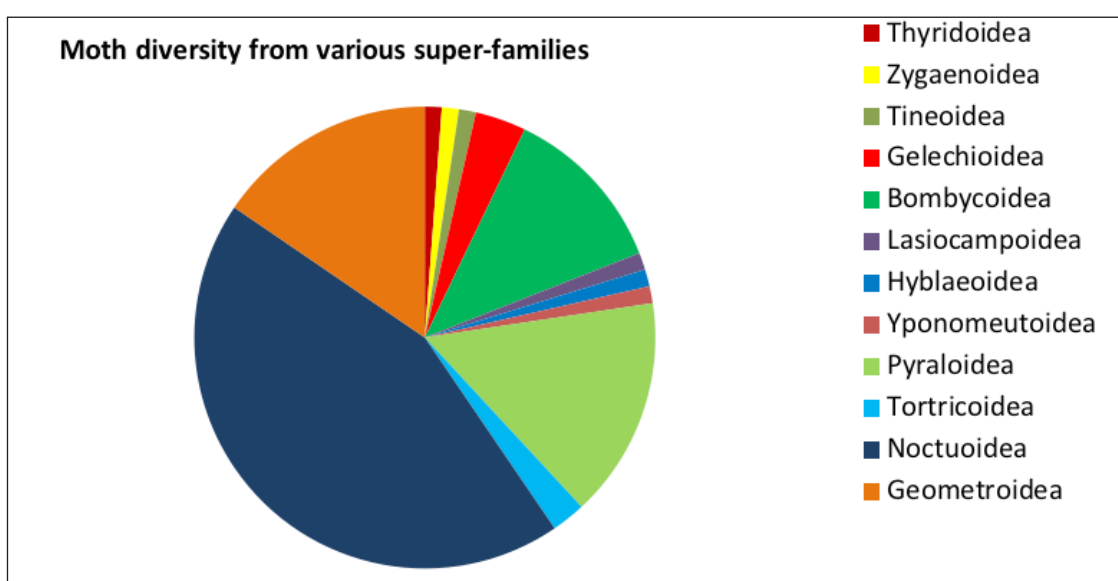


Fig 1. The number of species of moths recorded by super family classification.

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Table 1. Checklist of adult moths seen during the study at Adyar Eco-Park (2019–20).

	Super-family	Family	Sub-family	Name of the Species
1	Geometroidea	Geometridae	Ennominae	<i>Chiasmia nora</i> Walker, 1861
2	Geometroidea	Geometridae	Ennominae	<i>Chiasmia eleonora</i> Hubner, 1818
3	Geometroidea	Geometridae	Ennominae	<i>Cleora</i> sp.
4	Geometroidea	Geometridae	Ennominae	<i>Alcis</i> sp.
5	Geometroidea	Geometridae	Ennominae	<i>Isturgia</i> sp.
6	Geometroidea	Geometridae	Sterrhinae	<i>Traminda mundissima</i> Walker, 1861
7	Geometroidea	Geometridae	Sterrhinae	<i>Idaea macroscipla</i> Prout, 1926
8	Geometroidea	Geometridae	Sterrhinae	<i>Idaea</i> sp.
9	Geometroidea	Geometridae	Sterrhinae	<i>Idaea gemmerica</i> Hampson, 1866
10	Geometroidea	Geometridae	Geometrinae	<i>Comostola pyrrhogona</i> Walker, 1866
11	Geometroidea	Geometridae	Geometrinae	<i>Pelagodes</i> sp.
12	Geometroidea	Geometridae	Geometrinae	<i>Microloxia</i> sp.
13	Geometroidea	Geometridae	Sterrhinae	<i>Scopulini</i> sp.
14	Geometroidea	Uraniidae	Epipleminae	<i>Phazaca theclata</i> Guenée, 1857
15	Geometroidea	Uraniidae	Epipleminae	<i>Phazaca leucocera</i> Hampson, 1891
16	Noctuoidea	Erebidae	Erebinae	<i>Achaea serva</i> Fabricius, 1775
17	Noctuoidea	Erebidae	Erebinae	<i>Achaea janata</i> Linnaeus, 1758
18	Noctuoidea	Erebidae	Erebinae	<i>Acantholipes</i> cf. <i>similis</i> Moore, 1879
19	Noctuoidea	Erebidae	Erebinae	<i>Attatha ino</i> Drury, 1782
20	Noctuoidea	Erebidae	Erebinae	<i>Bastilla joviana</i> Stoll, 1782
21	Noctuoidea	Erebidae	Erebinae	<i>Dysgonia</i> sp.
22	Noctuoidea	Erebidae	Erebinae	<i>Ericeia inangulata</i> Guenée, 1852
23	Noctuoidea	Erebidae	Erebinae	<i>Grammodes geometrica</i> Fabricius, 1775
24	Noctuoidea	Erebidae	Erebinae	<i>Hypocala deflorata</i> Fabricius, 1794
25	Noctuoidea	Erebidae	Erebinae	<i>Mocis undata</i> Fabricius, 1775
26	Noctuoidea	Erebidae	Erebinae	<i>Thyas coronata</i> Fabricius, 1775
27	Noctuoidea	Erebidae	Erebinae	<i>Thyas honesta</i> Hübner, 1824
28	Noctuoidea	Erebidae	Erebinae	<i>Trigonodes hyppasia</i> Cramer, 1779
29	Noctuoidea	Erebidae	Erebinae	<i>Pericyma</i> sp.
30	Noctuoidea	Erebidae	Erebinae	<i>Ophiura mejanesi/triphaenoides</i> Guenée, 1852/Walker, 1858
31	Noctuoidea	Erebidae	Erebinae	<i>Spirama retorta</i> Clerck, 1764
32	Noctuoidea	Erebidae	Erebinae	<i>Pandesma</i> sp.
33	Noctuoidea	Erebidae	Hermiinae	<i>Naarda</i> sp.
34	Noctuoidea	Erebidae	Boletobiinae	<i>Eublemma baccalix</i> Swinhoe, 1886
35	Noctuoidea	Erebidae	Boletobiinae	<i>Eublemma rivula</i> Moore, 1882
36	Noctuoidea	Erebidae	Arctiinae	<i>Amata passalis</i> Fabricius, 1781
37	Noctuoidea	Erebidae	Aganainae	<i>Asota caricae</i> Fabricius, 1775
38	Noctuoidea	Erebidae	Aganainae	<i>Asota ficus</i> Fabricius, 1775

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	Super-family	Family	Sub-family	Name of the Species
39	Noctuoidea	Erebidae	Calpinae	<i>Calyptra</i> sp.
40	Noctuoidea	Erebidae	Calpinae	<i>Eudocima materna</i> Linnaeus, 1767
41	Noctuoidea	Erebidae	Calpinae	<i>Eudocima phalonia</i> Linnaeus, 1763
42	Noctuoidea	Erebidae	Calpinae	<i>Oraesia emarginata</i> Fabricius, 1794
43	Noctuoidea	Erebidae	Aganainae	<i>Sommeria hearseyana</i> Moore, 1859
44	Noctuoidea	Noctuidae		<i>Crithote</i> sp. (<i>horridipes</i> ?)
45	Noctuoidea	Noctuidae	Noctuinae	<i>Spodoptera litura</i> Fabricius, 1775
46	Noctuoidea	Noctuidae	Noctuinae	<i>Spodoptera exigua</i> Hubner, 1808
47	Noctuoidea	Noctuidae	Acontiinae	<i>Acontia marmoralis</i> Fabricius, 1794
48	Noctuoidea	Noctuidae	-	<i>Adisura marginalis</i> Walker, 1858
49	Noctuoidea	Nolidae	Nolinae	<i>Nola</i> sp.
50	Noctuoidea	Nolidae	Chloephorinae	<i>Maurilia iconica</i> Walker 1858
51	Noctuoidea	Nolidae	Chloephorinae	<i>Maurilia undaira</i> Swinhoe, 1918
52	Noctuoidea	Euteliidae	Euteliinae	<i>Penicillaria jocosatrix</i> Guenée, 1852
53	Noctuoidea	Noctuidae	Bagisarinae	<i>Amyra</i> sp.
54	Noctuoidea	Noctuidae	Heliothinae	<i>Helicoverpa armigera</i> Hübner, 1809
55	Tortricoidea	Tortricidae	Olethreutinae	<i>Loboschiza koenigiana</i> Fabricius, 1775
56	Tortricoidea	Tortricidae	Olethreutinae	<i>Grapholita tristrigana</i> Clemens, 1865
57	Pyraloidea	Crambidae	Schoenobiinae	<i>Scirpophaga incertulas</i> Walker, 1863
58	Pyraloidea	Crambidae	Spilomelinae	<i>Cnaphalocrocis rutilalis</i> Walker, 1859
59	Pyraloidea	Crambidae	Spilomelinae	<i>Parotis marginata</i> Hampson, 1893
60	Pyraloidea	Crambidae	Spilomelinae	<i>Diaphania indica</i> Saunders, 1851
61	Pyraloidea	Crambidae	Spilomelinae	<i>Pygospila tyres</i> Cramer, 1780
62	Pyraloidea	Crambidae	Spilomelinae	<i>Spoladea recurvalis</i> Fabricius, 1775
63	Pyraloidea	Crambidae	Spilomelinae	<i>Sameodes cancellalis</i> Zeller, 1852
64	Pyraloidea	Crambidae	Spilomelinae	<i>Poliobotys ablactalis</i> Walker, 1859
65	Pyraloidea	Crambidae	Pyraustinae	<i>Isocentris filalis</i> Guenée, 1854
66	Pyraloidea	Crambidae	Acentropinae	<i>Parapoynx stagnalis</i> Zeller, 1852
67	Pyraloidea	Crambidae	Cybalomiinae	<i>Ptychopseustis plumbeolinealis</i> Hampson, 1896
68	Pyraloidea	Pyalidae	Phycitinae	<i>Plodia interpunctella</i> Hübner, 1813
69	Pyraloidea	Pyalidae	Pyalinae	<i>Endotricha repandalis</i> Fabricius, 1794
70	Yponomeutoidea	Plutellidae		<i>Plutella xylostella</i> Linnaeus, 1758
71	Bombycoidea	Sphingidae	Macroglossinae	<i>Cephonodes picus</i> Crammer, 1777
72	Bombycoidea	Sphingidae	Macroglossinae	<i>Cephonodes hylas</i> Linnaeus, 1771
73	Bombycoidea	Sphingidae	Macroglossinae	<i>Hippotion celerio</i> Linnaeus, 1758
74	Bombycoidea	Sphingidae	Macroglossinae	<i>Macroglossum assimilis</i> Swainson, 1821
75	Bombycoidea	Sphingidae	Macroglossinae	<i>Macroglossum gyrans</i> Walker, 1856
76	Bombycoidea	Sphingidae	Macroglossinae	<i>Nephele hespera</i> Fabricius, 1775
77	Bombycoidea	Sphingidae	Macroglossinae	<i>Hippotion</i> sp.
78	Bombycoidea	Sphingidae	Sphinginae	<i>Psilogramma vates</i> Butler, 1875

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	Super-family	Family	Sub-family	Name of the Species
79	Bombycoidea	Saturniidae	Saturniinae	<i>Antheraea paphia</i> Linnaeus, 1758
80	Bombycoidea	Bombycidae	Bombycinae	<i>Trilocho varians</i> Walker, 1855
81	Lasiocampoidea	Lasiocampidae	Lasiocampinae	<i>Metanastria hyrtaca</i> Cramer, 1779
82	Hyblaeoidea	Hyblaeidae		<i>Hyblaea puera</i> Cramer, 1777
83	Gelechioidea	Oecophoridae	Stathmopodinae	<i>Stathmopoda</i> sp.
84	Gelechioidea	Cosmopterigidae		<i>Ramphis</i> sp.
85	Gelechioidea	Depressariidae	Ethmiinae	<i>Ethmia</i> sp.
86	Gelechioidea	Scythrididae	Scythridinae	<i>Erethmocera impactella</i> Walker, 1864
87	Gelechioidea	Scythrididae	Scythridinae	<i>Erethmocera</i> sp.
88	Tineoidea	Tineidae	Perissomasticinae	<i>Edosa varians</i> walker, 1886
89	Zygaenoidea	Limacodidae	Limacodinae	<i>Miresa</i> sp. (?)
90	Thyridoidea	Thyrididae	Striglininae	<i>Banisia</i> sp.

collected. Identification was done using Hampson's Volumes on Moths (Hampson 1892), Moths of India website (Sondhi et al. 2020), Field Guide to Indian Moths by V. Shubhalaxmi (2018), and comparing our images with other published articles from southern India.

During the study, notable host plants recorded in the Park include *Syzygium cumini*, *Ficus racemosa*, *Terminalia arjuna*, *Alangium salvifolium*, *Vitex negundo*, and *Barringtonia acutangula*. The ripe syconia of *Ficus religiosa* attracted moths such as *Pericyma* spp., *Cnaphalocrocis medinalis*, *Eudocima materna*, *Hybleca puera*, *Polioboytes ablactalis*, *Dysgonia* sp., *Amyna* sp., *Parotis* sp., and *Eudocima* sp. in the last weeks of September at night. Hawkmoth pollination was observed on *Sansevieria zeylanica*.

Ninety species from 75 genera and 23 families were recorded in our study. The

maximum number of genera was recorded from the Noctuoidea superfamily. Only a single species was recorded from Tineidae, Saturniidae, Thyrididae, Hyblaeoidea, Lasiocampidae, and Bombycidae families. Among the species we recorded, several are known to be endemic to the Indian subcontinent or to sub-regions within it. *Macroglossum assimilis*, described as endemic to southern India and Sri Lanka (Iyer & Kitching 2019) was also recorded during the study. *Loboschiza keonigiana*, *Dysgonia* sp., *Eudocima materna*, *Spodoptera litura*, *Spoladea recurvalis*, *Idaea* sp., *Traminda mundissima*, *Alcis* spp., and *Plutella xylostella* were the most commonly seen species during the study. Among the sphingid moths, *Nephele hespera* and *Macroglossum gyrans* were recorded in multiple surveys. A pictorial representation of the moth diversity recorded has been shown in Fig 1. The species recorded in the study have been tabulated in Table 1. The only literature available from Chennai is from historical work by Hampson

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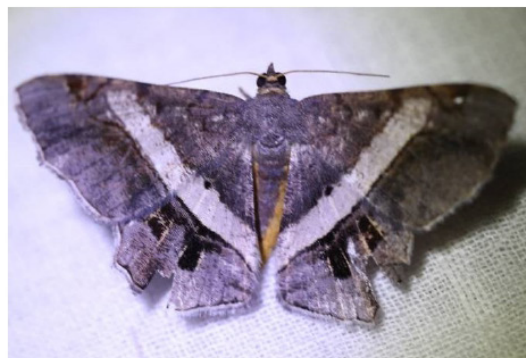
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Gallery of a selected species of moths recorded in the study.

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Images 1–6. 1—*Chiasmia eleonora* | 2—*Chiasmia nora* | 3—*Cleora* sp. | 4—*Alcis* sp. | 5—*Idaea gemmerica* | 6—*Idaea macrosciola* | © Vikas Madhav Nagarajan.

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Images 7–12. 7—*Idaea* sp. | 8—*Traminda mundissima* | 9—*Microloxia* sp. | 10—*Pelagodes* sp. | 11—*Phazaca leucocera* | 12—*Phazaca theclata* | © Vikas Madhav Nagarajan.

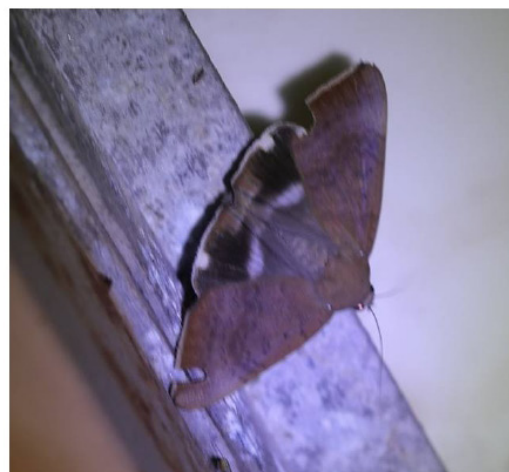
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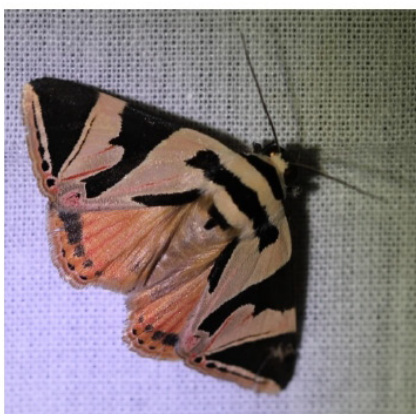
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Images 13–18. 13—*Achaea janata* | 14—*Achaea serva* | 15—*Attatha ino* | 16—*Bastilla joviana* | 17—*Dysgonia* sp. | 18—*Ericeia inangulata* | © Vikas Madhav Nagarajan.

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Images 19–24. 19—*Thyas coronata* | 20—*Trigonodes hyppasia* | 21—*Pericyma* sp. | 22—*Ophiusa mejanesi/triphaenoides* | 23—*Spirama* cf. *retorta* | 24—*Hypocala deflorata* | © Vikas Madhav Nagarajan and M Yuvan.

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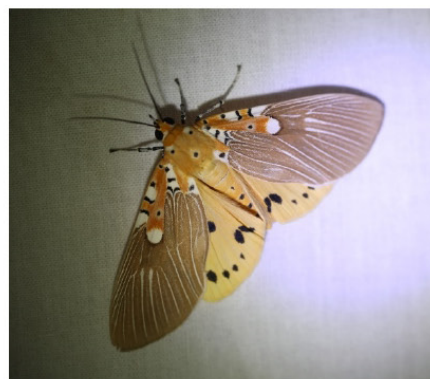
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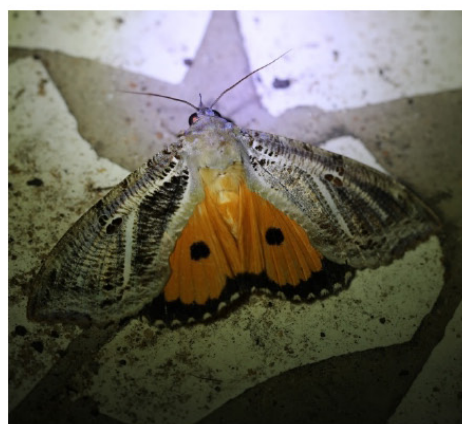
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Images 25–30. | 25—*Eublemma baccalix* | 26—*Eublemma rivula* | 27—*Asota caricae* | 28—*Asota ficus* | 29—*Eudocima maternal* | 30—*Eudocima phalonia* | © Rohith Srinivasan, Vikas Madhav Nagarajan, and M Yuwan.

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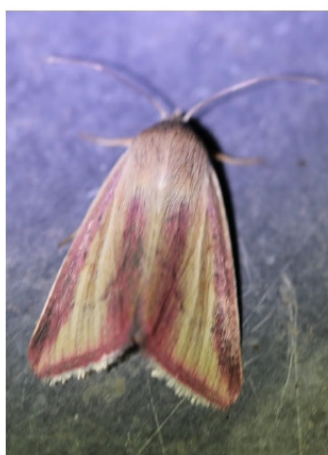
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Images 31–36. 31—*Sommeria hearseyana* | 32—*Acontia marmoralis* | 33—*Spodoptera litura* | 34—*Spodoptera exigua* | 35—*Adisura marginalis* | 36—*Nola* sp. | © Vikas Madhav Nagarajan.

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Images 37–42. 37—*Maurilia undaira* | 38—*Penicillaria jocosatrix* | 39—*Naarda* sp. | 40—*Helicoverpa armigera* | 41—*Crithote* sp. | 42—*Ramphis* sp. | © Vikas Madhav Nagarajan.

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Images 43–48. 43—*Stathmopoda* sp. | 44—*Grapholita* Sp. (?) | 45—*Loboschiza koenigiana* | 46—*Sameodes cancellalis* | 47—*Scirpophaga incertulas* | 48—*Parotis marginata* | © Vikas Madhav Nagarajan.

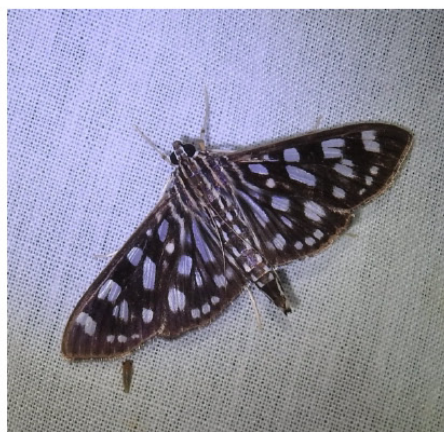
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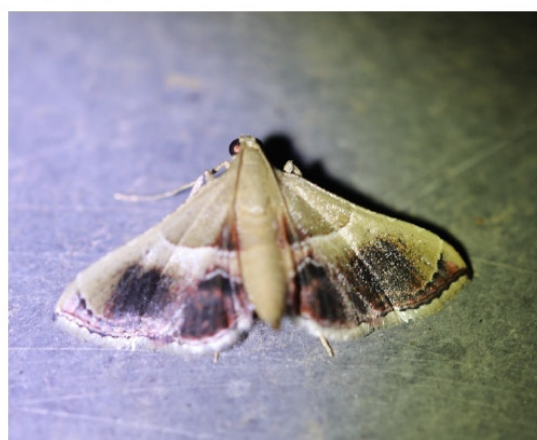
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Images 49–54. 49—*Diaphania indica* | 50—*Pygospila tyres* | 51—*Poliobotys ablactalis* | 52—*Isocentris filalis* | 53—*Parapoynx stagnalis* | 54—*Endotricha cf. repandalis* | © Vikas Madhav Nagarajan.

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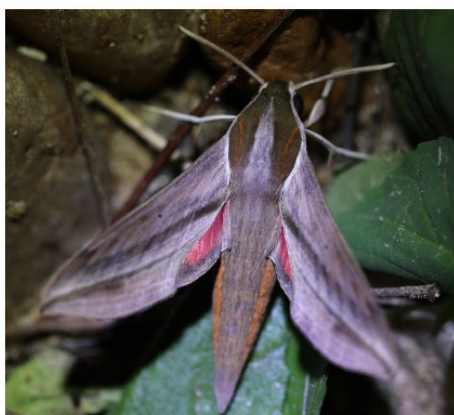
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Images 55–60. 55—*Plutella xylostella* | 56—*Cephonodes picus* | 57—*Macroglossum assimilis* | 58—*Macroglossum assimilis* | 59—*Hippotion* sp. | 60—*Nephele hespera* | © Vikas Madhav Nagarajan.

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Images 61–66. 61 – *Psilogramma vates* | 62 – *Trilocha varians* | 63 – *Metanastria hyrtaca* | 64 – *Banisia* sp.(?) | 65 – *Erethmocera cf impactella* | 66 – *Miresa* sp.(?) | © Vikas Madhav Nagarajan and M Yuvan.

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and Dru Drury, who collected samples from Madras (the former name of Chennai). Study on moths have been conducted from the state of Tamil Nadu (Kathirvelu et al. 2019), especially along the Western Ghats (Sivasankaran & Ignacimuthu 2014; Sivasankaran et al. 2015).

A peak in diversity was seen from July–September 2019, during the pre-monsoon season. The next highest diversity was seen from March–June 2019. Following this, during the period of October–December 2019 we recorded 18 species. The lowest number of species was seen during January–March 2020. Most number of species was observed during the survey on the 27 July 2019 when 44 species were recorded, while the lowest activity was recorded on the 20 February 2020, when no moths came to the screen. However, further studies have to be conducted to observe the trends in moth diversity and to understand the status, ecology, and diversity of moths found here.

References

Chennai Rivers Restoration Trust (2020). Adyar Poonga. <http://www.chennai-rivers.gov.in>. Electronic version accessed on 14 April 2020.

Hampson, G. (1892). *The Fauna of British India, Moth Volumes 1-5*. <https://archive.org/details/mothsbritind02hamprich>. Internet Archive.

Iyer, G. & I.J. Kitching (2019). A preliminary study of the hawkmoth diversity (Lepidoptera: Sphingidae) of Kanyakumari District, Tamil Nadu, India. *Journal of Threatened Taxa* 11(5): 13592–13604. <https://doi.org/10.11609/jott.4694.11.5.13592-13604>

Kathirvelu, C., R. Ayyasamy & M. Karthikeyan (2019). Preliminary checklist of moths (Lepidoptera: Glossata) of Annamalai Nagar, Tamil Nadu. *Journal of Applied and*

Natural Science 11(2): 404–409. <https://doi.org/10.31018/jans.v11i2.2063>

Shubalaxmi, V. (2018). *Birdwing Field Guide to Indian Moths*. Birdwing Publishers, Navi Mumbai, India, 460pp.

Sivasankaran, K., S. Gnanasekaran, D. Parandhaman & S. Ignacimuthu (2015). Diversity of noctuid moths (Lepidoptera: Noctuidae) in Tamil Nadu part of Western Ghats (Nilgiris Biosphere and Kodaikanal Hills), India. Electronic version accessed on 14 April 2020. https://www.researchgate.net/publication/257890640_Diversity_of_Noctuid_moths_Lepidoptera_noctuidae_in_TamilNadu_part_of_Western_Ghats_Nilgiris_biosphere_and_Kodaikanal_hills_India

Sivasankaran, K. & S. Ignacimuthu (2014). A report of Erebidae (Lepidoptera: Noctuoidea) from the Tamil Nadu part of the Western Ghats, India. *Journal of the Bombay Natural History Society* 111(3): 193–209. <https://doi.org/10.17087/jbnhs/2014/v11i3/82380>

Sondhi, S., Y. Sondhi, P. Roy & K. Kunte (2020). Moths of India. Electronic version accessed 14 April 2020. Available from <https://www.ifoundbutterflies.org>

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