Original Research Paper Zoology

Moths (Lepidoptera) of A.V.C College and Adjoining Areas, Mannampandal: an Initial Checklist

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ABSTRACT

Moths are diverse group of insects belonging to the order Lepidoptera and regarded as one of the indicators of a healthy environment. This study deals with the first documentation on the moth species of A.V.C. College campus and its adjoining areas of Mannampandal in Mayiladuthurai, Tamil Nadu. The study was carried out from July 2015 to April 2016, surveying areas mostly in the college campus, human settlements and agricultural lands. The survey examined the light illuminated walls of the College campus where moths accumulated during the evening hours. Light trapping equipped with 18w UV-Actinic tube was also used to record moths from nearby agricultural lands. In total, the study identified 134 individuals of moths belonging to 76 species, 55 genera falling under 12 families. The genera Cyana represented the highest number of species, followed by Agathia and Asota with 7, 4 and 4 species each respectively belonging to Erebidae: Lithosiinae, Geometridae: Geometrinae, Erebidae: Aganainae (Family: Subfamily) respectively. The most commonly occurred species was Scirpophaga incertulas, followed by Aegocera venulia, Glyphodes bivatralis, with 20, 14 and 11 individuals respectively.

KEYWORDS : A.V.C College Campus, Lepidoptera, Inventory, Moths

A.V.C College Campus and its adjoining areas of Mannampandal is a agro-based village located in Mayiladuthurai town of the South Indian State of Tamil Nadu. Situated at a distance of 24 km s from the coast of Bay of Bengal. The study area extended from 11° 6'18" N to 79°41'29 "E at an elevation of 14 meters above mean sea level. The average temperature ranges from 32°C to 39°C with an annual rainfall of 1,125 mm. Among the winged insects, the moths belong to the scientific order Lepidoptera including the butterflies. They can be distinguished from all other insects by the two pair of wings and the body that is scale covered. Regarded as indicators of healthy environment, inventory of Lepidoptera specially the overlooked group is the first step to know what are the species present in an area and it is essential to ensure future taxonomical and ecological studies of these taxa and implement conservation perspectives for moth individuals as well as their associated habitats. Global estimates show that there are 1, 27,000 species of moths distributed over the world and of which, 12,000 species are reported from India. Moths are in general are least studied taxa across the globe and in India. Despite a large number of studies been taken up on the documentation of various wildlife taxa found in and around A.V.C. College campus by the biologists, information on Moths of this region remains unknown. The present study is the first documentation on the moth species of A.V.C. College campus and its adjoining areas.

Materials and Methods

The study was carried out from July 2015 to April 2016 surveying areas mostly in the college campus, human settlements and agricultural lands. Light trapping equipped with a 18w UV-Actinic tube attached to a white sheet 6 x 4 feet joined to two poles and then the tube powered by 6v Battery, which was used to record moths from two playgrounds of college, human settlements and agricultural lands. In addition, the survey also examined the three campuses of A.V.C College and in each campus the college building walls, which were with bright electrical lights during late evening hours followed by the next morning to observe the accumulation of moths resting over the light illuminated walls. The moths were photographed and identified and those that were difficult to identify were kept for proper identification. Among the literatures, Fauna of British India: Moths Volume I-V by G.F Hampson were referred for identification along with other journals.

Results

A total of 134 moth individuals was recorded belonging to 76 species within 55 genera falling under 12 families. A checklist of the moth species is tabulated in Table 1.

Discussion

The accumulation of moths in a light source depends on the type of light source, plant communities occurring around the study site, temperature, weather conditions, altitudinal gradient, and the type of methods implemented. The moths recorded by visiting the mentioned localities and sheet light trap method was a valuable source for developing a preliminary data record for moths occurring in this region. The notable species accumulated in the Agro-based habitats were *Parapoynx fuscicostalis* (Hampson, 1896), Aegocera venulia (Cramer, 1777) , Scirpophaga incertulas (Walker, 1863) , Cnaphalocrocis medinalis (Guenée, 1854), Cnaphalocrocis poeyalis (Boisduval, 1833), these species were observed in large number of individuals, and these species are related to the agricultural lands as pests of the rice which is the cultivation crop, along with these Asota caricae (Fabricius, 1775), Spodoptera litura (Fabricius, 1775), Maruca vitrata (Fabricius, 1787), Glyphodes actorionalis (Walker, 1859) were also observed. The moths recorded belonged to 11 families, among them two Lasiocampid Moths (Family: Lasiocampidae) namely, Kunugia species, and Radhica elisabethae (de Lajonquière, 1977), were notable in the A.V.C Campus. The family Sphingidae (Hawkmoths) was represented by Macroglossum species (humming bird hawkmoth) which was found number of times hovering near hibiscus flowers during the dusk hours and one unidentified pupa collected near the Agricultural field was reared to emerge an adult of Cephonodes hylas (Linnaeus, 1771) (Pellucid Hawkmoth). Acherontia lachesis (Fabricius, 1798) (Death's Head Hawk moth) known as bee robber was sighted two times in A.V.C College Campus, Theretra nessus (Drury, 1773), Theretra silhetensis (Boisduval, 1879), Psilogramma menephron (Cramer 1780) and Ambulyx substrigilis (Westwood 1848) were the other hawkmoths recorded. The Geometridae (Geometer/looper moths) represented a few species yet the genus Agathia was found to be one of the speciose genera. The Erebidae had a rich number of species, those species that belonged were mostly renown to be Vegetable and crop pests. Among the family Crambidae (Grass Moths), Scriphophaga, Paraponyx, Cnaphalocrocis medinalis, Glyphodes actinorales are pests of rice plants (Pathak MD, Khan ZR. 1984). The species Antheraea frithi (Moore, 1858), Mustilla species, Phazaca species represented the family Saturniidae, Bombycidae and Uraniidae respectively. These three families appeared to be scarce representing single species.

Conclusion

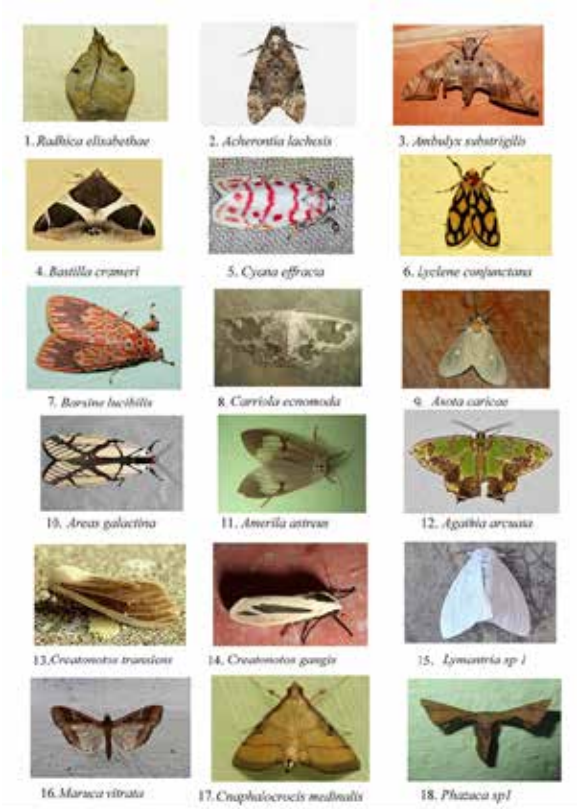
This preliminary survey for inventoring moths in the mentioned study site, showed the moth community chiefly indicated by enormous number of species pertaining to the family Erebidae and Crambidae with least species from the Saturniidae, Bombycidae and Uranidae. This preliminary checklist of may provide a base for conducting further study on moths. Enormous systematic surveys should be undertaken for species richness and abundance estimation, evaluation of ecological parameters effecting their life history, and studies on the larval-host plant must be done to record moth host plants that are endemic to this region, which would also add new records to the host plant databases.

Table 1. List of moth species of A.V.C college and adjoining areas

Family	Genus	Species
1. Lasiocampidae	1. Kunugia Nagano, 1917	1. Kunugia species
	2. Radhica Moore, 1879	2. Radhica elisabethae de Lajonquière, 1977
2. Saturniidae	3. Antheraea Hübner, 1819	3. Antheraea frithi Moore, 1858
3. Eupterotidae	4. Eupterote Hübner, 1820	4. Eupterote species
	5. Ganisa Walker, 1855	5. Ganisa sp1
4. Bombycidae	6. Mustilia Walker, 1865	6. Mustilia sp1
5. Sphingidae	7. Cephonodes Hübner, 1819	7. Cephonodes hylas Linnaeus 1771
	8. Theretra Hübner, 1819	8. Theretra nessus Drury, 1773
		9. Theretra silhetensis Boisduval, 1879
	9. Acherontia Laspeyres, 1809	10. Acherontia lachesis Fabricius 1798
	10. Psilogramma Rothschild & Jordan, 1903	11. Psilogramma menephron Cramer 1780
	11. Ambulyx Westwood, 1847	12. Ambulyx substrigilis Westwood 1848
	12. Macroglossum Scopoli, 1777	13. Macroglossum sp1
6. Cossidae	13. Xyleutes Hübner, 1820	14. Xyleutes mineus Cramer, 1777
7. Thyrididae	14. Striglina Guenée, 1877	15. Striglina sp 1
	15. Herdonia Walker, 1859	16. Herdonia thaiensis Inoue, 1993
8. Noctuidae	16. Aegocera Latreille, 1809	17. Aegocera venulia Cramer, 1777
	17. Spodoptera Guenée, 1852	18. Spodoptera litura Fabricius, 1775
9. Erebidae	18. Thyas Hübner, 1824	19. Thyas coronata Fabricius, 1775
	19. Bastilla Swinhoe, 1918	20. Bastilla crameri Moore, 1885
	20. Grammodes Guenée, 1852	21. Grammodes geometrica Fabricius, 1775
	21. Serrodes Guenée, 1852	22. Serrodes campana Guenée, 1852
	22. Hulodes Guenée, 1852	23.Hulodes caranea Cramer, 1780
	23. Chalciope Hübner	24. Chalciope mygdon Cramer, 1777
	24. Sympis Guenée, 1852	Sympis rufibasis Guenée, 1852
	25. Calyptra Ochsenheimer, 1816	26. Calyptra minuticornis Guenée, 1852
	26. Cyana Walker, 1854	27. Cyana effracta Walker, 1854
		28. Cyana hamata Walker, 1854
		29. Cyana coccinea Moore, 1878
		30. Cyana bianca Walker, 1856
		31. Cyana obliquilineata Hampson, 1900
		32. Cyana perornata Walker, 1854
		33. Cyana sp 1
	1. Lyclene Moore, 1860	1. *Lyclene conjunctana* Walker, 1866
	2. Barsine Walker, 1854	2. *Barsine lucibilis* Swinhoe, 1892
	3. Lymantria Hübner, 1819	3. Lymantria sp 1
		4. Lymantria sp 2
	4. Amata Fabricius, 1807	5. *Amata passalis* Fabricius, 1781
	5. Nyctemera Hübner, 1820	6. *Nyctemera adversata* Schaller, 1788
	6. Neochera Hübner, 1819	7. *Neochera dominie* Cramer, 1780
	7. Asota Hübner, 1819	8. *Asota caricae* Fabricius, 1775
		9. *Asota ficus* Fabricius, 1775
		10. *Asota plana* Walker, 1854
		11. *Asota heliconia* Linnaeus, 1758
	8. Creatonotos Hübner, 1819	12. *Creatonotos gangis* Linnaeus, 1763
		13. *Creatonotos transiens* Walker, 1855
	9. Carriola Swinhoe, 1922	14. *Carriola ecnomoda* Swinhoe, 1907
	10.Calliteara Butler, 1881	15. Calliteara sp 1
	11. Areas Walker, 1855	16. *Areas galactina* Hoeven, 1840
	12. Argina Hübner, 1819	17. *Argina astrea* Drury, 1773
	13. Amerila Walker, 1855	18. *Amerila astreus* Drury, 1773
	14. Amerila Walker, 1855	19. Amerila sp1
	15. Utetheisa Hübner, 1819	20. *Utetheisa lotrix* Cramer, 1777
1. Geometridae	*16.Fascellina* Walker, 1860	21. *Fascellina chromataria* Walker, 1860
		22. *Fascellina plagiata* Walker, 1866
	17. Plutodes Guenée, 1857	23. *Plutodes costatus* Butler, 1886
		24. *Plutodes flavescens* Butler, 1880
	18. Biston Leach, 1815	25. *Biston bengaliaria* Guenée, 1857
		26. *Biston suppressaria* Guenée, 1857
	19.Agathia Guenée, 1858	27. *Agathia arcuata* Moore, 1868
		28. *Agathia laetata* Fabricius, 1794
		29. *Agathia hemithearia* Guenée, 1857
		30. Agathia sp 1
	20.Traminda Saalmüller, 1891	31. Traminda sp1

2. Crambidae	*21. Palpita* Hübner, 1808	32. *Palpita quadristigmalis* Guenée, 1854
	22. Pygospila Guenée, 1854	33. *Pygospila tyres* Cramer, 1780
	23. Cnaphalocrocis Lederer, 1863	34. *Cnaphalocrocis medinalis* Guenée, 1854
		35. *Cnaphalocrocis poeyalis* Boisduval, 1833
	24. Parapoynx Hübner, 1825	36. *Parapoynx fuscicostalis* Hampson, 1896
		37. *Parapoynx stagnalis* Zeller, 1852
	25. Spoladea Guenée, 1854	38. *Spoladea recurvalis* Fabricius, 1775
	26. Filodes Guenee 1854	39. *Filodes fulvidorsalis* Geyer 1832
	27. Cirrhochrista Lederer, 1863	40. *Cirrhochrista kosemponialis* Strand, 1919
	28. Glyphodes Guenée, 1854	41. *Glyphodes actorionalis* Walker, 1859
	29. Maruca Walker, 1859	42. *Maruca vitrata* Fabricius, 1787
3. Uraniidae	*30. Phazaca* Walker, 1863	43. Phazaca sp1

Images of some moths of A.V.C college and adjoining areas



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