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Research Article

FAUNAL DIVERSITY OF TERRESTRIAL HEMIPTERA IN PALKOT WILDLIFE SANCTUARY, JHARKHAND

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ABSTRACT

Palkot Wildlife Sanctuary is a unique ecosystem situated in Gumla and Simdega districts of Jharkhand state. With the aim of assessment of faunal diversity of terrestrial hemiptera, faunistic survey was undertaken and collected over 1000 specimens from Palkot, Raidih and Kochedega beats of Palkot Wildlife Sanctuary. In the present study, 65 species of Terrestrial bugs under 56 genera belonging to 23 families were recorded from the Sanctuary for the first time. Maximum diversity of Hemiptera was reported from Palkot Beat with 41 species followed by 16 species from Kochedega Beat and 13 species from Raidih Beat.

Keywords: Hemiptera, Auchenorrhyncha, Heteroptera, Palkot Wildlife Sanctuary, Jharkhand, Distribution.

INTRODUCTION

Order Hemiptera include 4 suborders *viz.* Sternorrhyncha, Auchenorrhyncha, Colleorrhyncha and Heteroptera. It comprises about 1,02,183 species worldwide, of which about 6,058 species under 92 families have been reported from India (Distant, 1902, 1904, 1906, 1908, 1910, 1916, 1918, Chandra, 2012, 2013, Metcalf,1960). Suborder Auchenorrhyncha includes short-horned bugs, having antennae usually small and inconspicuous; when long, they appear slender and filamentous or two segmented (Chandra *et al*., 2012). Pruthi (1936) studied on Indian Jassidae (Homoptera) and erected some new genera and species, with first records of some known species from India. About 42,347 species of Heteroptera are known all over the world (Henry, 2009, Mitra et al., 2016, Distant, 1902, 1904, 1908, Lis, 1999, Schuh, and Slater, 1995). Palkot Wildlife Sanctuary is located in Gumla and Simdega district of Jharkhand. It was established in 1990. It covers an area around 760 km^2 of which 182.83 km^2 is forest area. It has dry deciduous forest consist of sal, asan, gamhar, amla, kusum, jackfruit, mahua and ma ngo tree. A study of Coreoidea from Dalma Wildlife Sanctuary, Jharkhand, India (Saha et al., 2024); Assessment of Pentatomoidea in Dalma Wildlife Sanctuary,Jharkhand, India (Dash et al.,2025); New States Records of Pyrrhocoridae from Dalma Wildlife Sanctuary, Jharkhand, India (Das *et al*., 2025); First report on the occurrence and outbreak of the pentatomid bug, Degonetus serratus (Hemiptera: Heteroptera), on teak in Bariatu, Ranchi, Jharkhand (Thakur, 2024); Aquatic Hemipteran biodiversity of the Ranchi region of Jharkhand (Lakra et al., 2021); Some new records and a complete checklist of hemipteran insects on shisham (*Dalbergia sissoo* Roxb.) from Jharkhand (Chattopadhyay, 2024); New record of leaf-footed bugs of the genus Homoeocerus (Hemiptera: Coreidae) on *Dalbergia sissoo* from Jharkhand, India (Chattopadhyay, 2020); and LAC- A good source of livelihood in Jharkhand (Kerketta, 2023) represent a few scattered contributions on Hemiptera. However, information on terrestrial Hemiptera from the Palkot Wildlife Sanctuary is still lacking. Present study is an effort to record the hemipteran from the Palkot Wildlife Sanctuary, Jharkhand. Based on the specimens, 65 species under 56 genera belonging to 23 families have been recorded for the first time from the Wildlife Sanctuary.

MATERIALS AND METHODS

Terrestrial bugs were collected by the various extensive surveys undertaken by the scientific teams of Zoological

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Survey of India in the year 2021 in the various parts of Palkot Wildlife Sanctuary, Jharkhand. All three beats (Palkot, Raidih and Kochedega) of the sanctuary area is full of small hill and undulating land with intermittent plane land in which habitation and agricultural land exist. Some of the hills are barren and covered with hard rocks. There are several caves, cavities and crevices, which form suitable habitat for some wild animals especially sloth bear. The soil in plane land is clay to sandy and sandy loam. The lower lands forming "DON" are quite fertile and very suitable for paddy cultivation. Specimens were also collected by using the light trap, net-sweep and handpicking methods. Collected bugs were sorted out, pinned and preserved as per Kumar (2020), Jonathan and Kulkarni (1986). Images of specimens less than 5 mm were taken by using Leica M205-A stereo zoom microscope and specimens more than 5 mm by Sony DSC-W55 Camera. Taxonomic studies were carried out, and specimens were identified through comparison with voucher specimens housed in the National Zoological Collection and by consulting relevant literature, including Distant (1902, 1904, 1906, 1908, 1910, 1916a & b), Rider et al. (2002), and Schuh and Slater (1995). Specimens examined were deposited to National Zoological Collections, Zoological Survey of India, Kolkata.

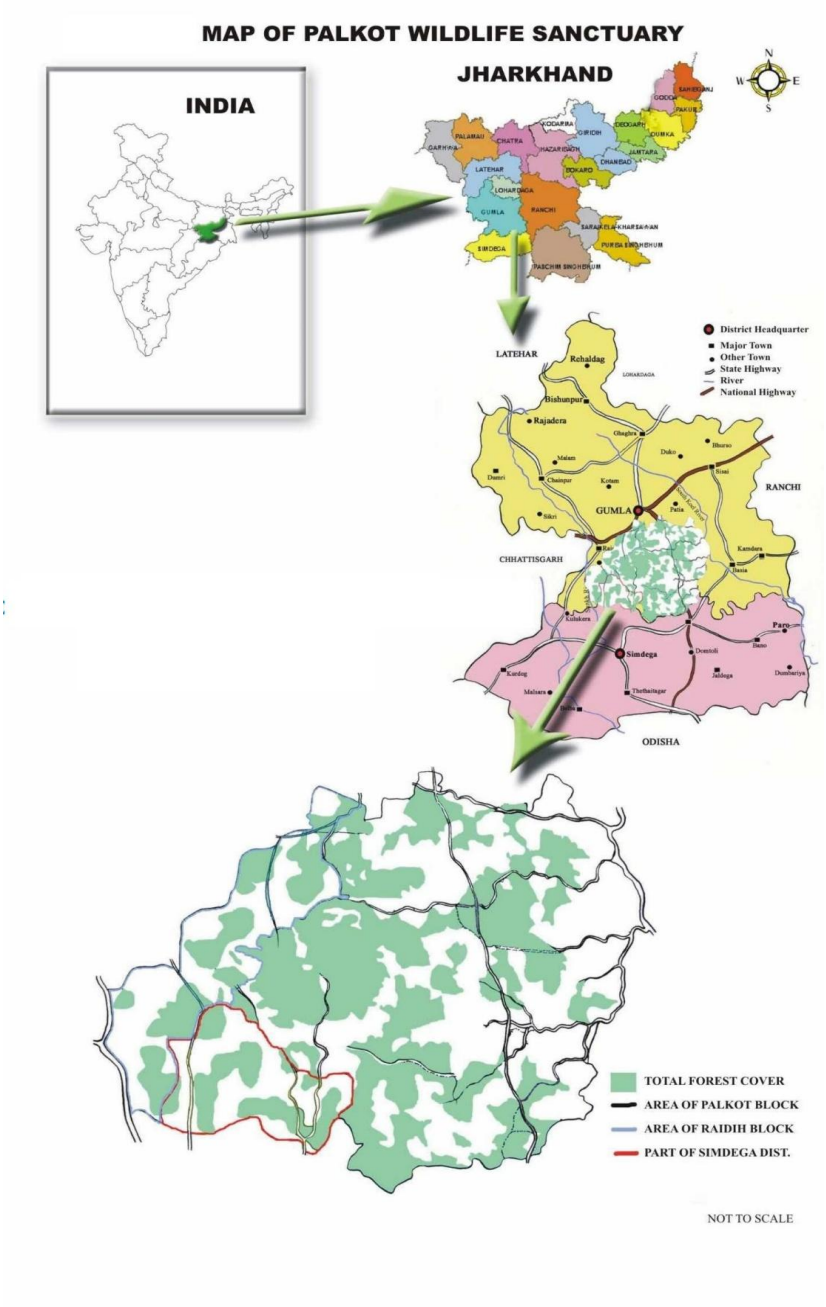

Figure 1. Map of Palkot WLS, Jharkhand showing total forest cover.

RESULTS AND DISCUSSION

The Specimen comprised of 65 species under 56 genera belonging to 23 families of Terrestrial bugs from the Palkot Wildlife Sanctuary, Jharkhand. Maximum diversity was found in the Palkot Beat with 41 species followed by 16 species from Kochedega Beat and 13 species from Raidih Beat (6 species of Cicadellidae, 4 species of Aphrophoridae, 1 species of Cercopidae, 2 species of Membracidae, 2 species of Cicadidae, 4 species of Fulgoridae, 3 species of Dictyopharidae, 1 species of Lophopidae under suborder Auchenorrhyncha and 5 species of Reduviidae, 2 species of Miridae, 15 species of Pentatomidae, 1 species of Acanthosomatidae, 1 species of Cydnidae, 2 species of Dinidoridae, 3 species of Scutelleridae, 1 species of Plataspidae, 6 species of Coreidae, 2 species of Rhyparochromidae, 1 species of Lygaeidae, 3 species of Largidae and 1 species of Pyrrhocoridae under suborder Heteroptera) of terrestrial bugs from the Palkot Wildlife Sanctuary, Jharkhand.

Comparative analysis

Table 1. Systematic accounts and distribution of the recorded hemipteran species in the different beats of Palkot Wildlife Sanctuary of Jharkhand.

Sl. No.	Name of the Species		Distribution of the species in Palkot WLS, Jharkhand		
			Palkot Beat	Raidih Beat	Kochedega Beat
	Family I. Cicadellidae				
1.	Subfamily Cicadellinae Genus 1. *Cofana* Melicher, 1926	*Cofana spectra* (Distant, 1908)	+	-	-
2.	Subfamily Deltocephalinae Genus 2. *Exitianus* Ball, 1929	*Exitianus indicus* (Distant, 1908)	+	-	-
3.	Genus 3. *Nephotettix* Matsumura, 1902	*Nephotettix virescens* (Distant, 1908)	+	-	+
4.		*Nephotettix nigropictus* (Stål, 1870)	+	+	-
5.	Subfamily Ledrinae Genus 4. *Ledropsis* (While,1844)	*Ledropsis obligens* (Walker,1858)	+	-	-
6.		*Ledropsis angularis* Distant,1916	+	-	-
	Family II. Aphrophoridae				
7.	Subfamily Aphrophorinae Genus 5. *Ptyelus* Lepeletier & Serville, 1825	*Ptyelus nebulosus* (Fabricius, 1794)	+	-	-
8.	Genus 6. *Poophilus* Stall, 1866	*Poophilus costalis* (Walker, 1851)	-	-	+
9.	Genus 7. *Clovia* Stål, 1869	*Clovia conifera* (Walker,1851)	-	-	+
10	Genus 8. *Philagra* Stal,1863	*Philagra fusiformis* (Walker,1858)	+	-	-
	Family III. Cercopidae				
11.	Subfamily Cercopinae Genus 9. *Callitettix* (Stal,1865)	*Callitettix versicolor* (Fabricius 1794)	-	-	+
	Family IV. Membracidae				
12.	Subfamily Centrotinae Genus 10. *Leptocentrus* Stål, 1866	*Leptocenturs leucaspis* (Walker,1858)	+	-	-
13.	Genus 11. *Otinotus* Buckton, 1903	*Otinotus pallescens* Distant,1908	+	-	-
	Family V. Cicadidae				
14.	Subfamily Cicadinae Genus 12. *Dundubia* Amy & Serv,1843	*Dundubia intemerata* Walker,1857	+	-	-
15.	Genus 13. *Pycna* Amy & Serv,1843	*Pycna repanda* (Linn,1773)	+	+	-
	Family VI. Fulgoridae				
16.	Subfamily Aphaeninae Tribe: Aphaenini Genus 14. *Penthicodes* Blanchard,1845	*Penthicoides atomaria* (Weber,1801)	+	-	-
17.	Genus 15. *Polydictya* Guerin-Meneville,1844	*Polydictya tricolor* (Westwood,1845)	+	-	-
18.	Subfamily Dichopterinae Genus 16. *Dichoptera* Spinola,1839	*Dichoptera hyalinata* (Fabricius,1781)	+	-	-

	Family VII. Dictyopharidae				
19.	Subfamily Dictyopharinae Genus 17. *Dictyopharina* Melichar,1903	*Dictyopharina viridissima* Melichar,1908	-	+	-
20.	Genus 18. *Orthopagus* Uhler,1897	*Orthopagus splendens* (Germar,1830)	-	+	+
21.	Genus 19. *Raivuna* Fennah,1978	*Raivuna pallida* (Donovan,1800)	+	-	-
	Family VIII. Lophopidae				
22.	Subfamily Lophopinae Genus 20. *Pyrilla* Stal,1859	*Pyrilla perpusilla* (Walker,1851)	-	+	-
	Family IX. Reduviidae				
23.	Subfamily Harpactorinae Genus 21. *Coranus* Curtis,1833	*Coranus fuscipennis* Reuter,1881	-	+	-
24.	Subfamily Stenopodainae Genus 22. *Oncocephalus* Klug,1830	*Oncocephalus schioedtei* Reuter,1882	+	-	-
25.	Subfamily Peiratinae Genus 23. *Ectomocoris* Mayr,1865	*Ectomocoris quadriguttatus* (Fabricius,1781)	+	-	-
26.	Subfamily Reduviinae Genus 24. *Acanthaspis* Amyot & Serv,1843	*Acanthaspis tavoyana* (Distant,1904)	+	-	-
27.	Genus 25. *Triatoma* Laporte,1832	*Triatoma rubrofasciatus* (De Geer,1773)	+	-	-
	Family X. Miridae				
28.	Subfamily Mirinae Tribe Mirini Genus 26. *Charagochilus* (Fieber, 1858)	*Charagochilus longicornis* (Reuter, 1885)	-	-	+
	Subfamily Orthotylinae				
29.	Tribe Orthotylini Genus 27. *Cyrtorhinus* Fieber,1858	*Cyrtorhinus lividipennis* Reuter,1885	-	-	+
	Family XI. Pentatomidae				
30.	Subfamily Pentatominae Tribe Antestiini Genus 28. *Plautia* Stal, 1867	*Plautia crossota* (Fabricius, 1787)	+	+	-
31.	Genus 29. *Agonoscelis* Spin, 1837	*Agonoscelis nubilis* (Fabricius, 1775)	_	+	-
32.	Genus 30. *Tolumnia* Stal,1867	*Tolumnia latipes* (Dallas,1857)	-	+	-
33.	Genus 31. *Menida* Motschulsky,1861	*Menida versicolor* (Geelin,1790)	+	-	-
34.	Genus 32. *Eysarcoris* Hahn, 1834	*Eysarcoris montivagus* (Distant, 1902)	-	-	+
35.		*Eysarcoris ventralis* (Westwood, 1837)	-	+	-
36.		*Eysarcoris rosaceus* Distant,1901	+	-	-
37.		*Eysarcoris aenescens* (Walker,1867)	+	-	-
38.	Genus 33. *Carbula* Stal,1864	*Carbula scutellata* Distant,1887	-	+	-
39.	Genus 34. *Neocarbula* Distant,1918	*Neocarbula capitata Distant,1918*	-	+	-
40.	Genus 35. *Halys* Fabricius,1803	*Halys dentatus* (Fabricius,1775)	+	-	-
41.	Genus 36. *Acrosternum* Fieber,1860	*Acrosternum graminea* Kirkaldy, 1787	-	-	+
42.	Genus 37. *Nezara* Amy. and Serv.1843	*Nezara viridula* (Linnaeus, 1758)	-	-	+
43.	Genus 38. *Piezodorus* Fieber,1861	*Piezodorus hybneri* Gmelin, 1790	-	-	+
	Subfamily Asopinae				
44.	Genus 39. *Eocanthecona* Amy& Serv,1843	*Eocanthecona furcellata* (Wolff,1801)	-	-	+
	Family XII. Acanthosomatidae				
45.	Subfamily Acanthosomatinae Genus 40. *Microdeuterus*	*Microdeuterus dallasi* (Atkinsoni,1889)	-	-	+

	(Dallas,1851)				
46.	Family XIII. Cydnidae Genus 41. *Macroscytus* (Fieber,1861)	*Macroscytus subaeneus* (Dallas, 1851)	+	-	-
47.	Family XIV. Dinidoridae Genus 42. *Coridius* Illiger,1807	*Coridius brunneus* (Thunberg,1783)	+	-	-
48.		*Coridius ianus* (Fabricius,1775)	+	-	-
49.	Family XV. Scutelleridae Genus 43. *Chrysocoris* Hahn, 1843	*Chrysocoris stockerus* (Linn,1764)	+	-	-
50.		*Chrysocoris purpureus* (Westwood,1837)	+	-	-
51.	Genus 44. *Hotea* Amy& Serv,1843	*Hotea curculionoides* (Herr-Sch,1835)	+	-	-
52.	Family XVI. Plataspidae Genus 45. *Megacopta* Hsiao & Jen, 1977	*Megacopta cibraria* (Fabricius,1798)	-	+	-
53.	Family XVII. Coreidae Subfamily Coreinae Genus 46. *Cletus* Stal, 1860	*Cletus punctulatus* (Westwood, 1842)	-	-	+
54.	Family XVIII. Alydidae Subfamily Micrelyterinae Genus 47. *Leptocorisa* Latreille, 1829	*Leptocorisa acuta* (Thunberg,1783)	+	-	-
55.	Genus 48. *Riptortus* Stal, 1860	*Riptortus pedestris* Fabricius,1775	+	-	-
56.		*Riptortus linearis* (Fabr., 1775)	+	-	-
57.	Family XIX. Rhophalidae Subfamily Serinathinae Genus 49. *Leptocorios* Hahn, 1831	*Leptocoris augur* (Fabricius, 1781)	+	-	-
58.		*Leptocoris abdominalis* (Fabricius,1803)	+	-	-
59.	Family XX. Rhyparochromidae Subfamily Rhyparochrominae Genus 50. *Elasmolomus* Stal,1870	*Elasmolomus sordidus* (Fabricius,1787)	+	-	-
60.	Genus 51. *Dieuches* Dohrn, 1860	*Dieuches femoralis* Dohrn,1860	-	-	+
61.	Family XXI. Lygaeidae Subfamily Lygaeinae Genus 52. *Spilostethus* Stal,1868	*Spilostethus hospes* (Fabricius, 1794)	+	-	-
62.	Family XXII. Largidae Subfamily Physopeltinae Genus 53. *Physopelta* Amy. & Serv.,1843	*Physopelta schlansbuschi* (Fabricius,1787)	+	-	-
63.	Genus 54. *Iphita* (Stal,1870)	*Iphita limbata* (Stal,1870)	+	-	-
64.	Subfamily Lohitinae Genus 55. *Macroceroea* Spinola, 1837	*Macroceroea grandis* (Gray,1832)	+	-	-
65.	Family XXIII. Pyrrhocoridae Subfamily Pyrrhocorinae Genus 56. *Dysdercus* Amy. & Serv.,1843	*Dysdercus koenigii* (Fabricius,1775)	-	-	+

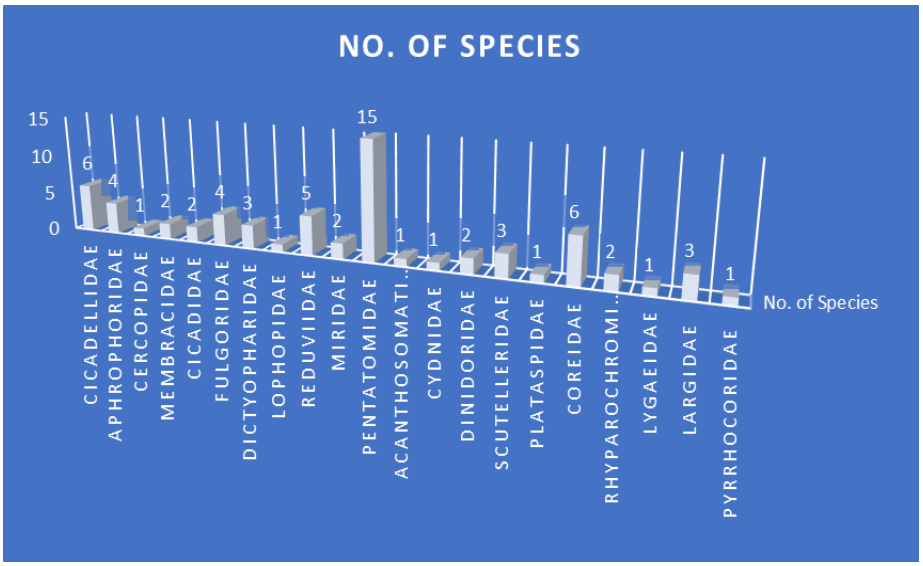

Figure 2. Faunal diversity of Terrestrial Hemiptera in Palkot Wildlife Sanctuary, Jharkhand.

Under suborder Auchenorrhyncha reported maximum 6 species of Cicadellidae, followed by 4 species of Fulgoridae and Aphrophoridae each, 3 species of Dictyopharidae, 2 species of Membracidae and Cicadidae each and 1 species of Lophopidae. Under suborder Heteroptera maximum 15 species of Pentatomidae were reported, followed by 6 species of Coreidae, 5 species of Reduviidae, 3 species of Scutelleridae and Largidae each, 2 species of Rhyparochromidae, Dinidoridae and Miridae each and 1 species of Pyrrhocoridae, Plataspidae, Lygaeidae, Cydnidae, Cercopidae and Acanthosomatidae each.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

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AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

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