

A preliminary study of family Lygaeidae from Andhra Pradesh, India

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Abstract

The present paper provides information on 30 species belonging to Lygaeidae family under 20 genera from Andhra Pradesh from the unidentified collections housed in Zoological Survey of India. Of them, 27 species are new records to Andhra Pradesh state. Distribution of each species with measurements and ratios of various body parts were taken as additional diagnostic characters along with key to identification have been provided.

Keywords: Distribution, First Record, Lygaeid Fauna, Pests, Small Bugs

Introduction

Lygaeidae is one of the most diversified families of Heteroptera, comprising about 4000 species under 500 genera all over the world (Henry, 2009). Members of the family are recognized by having 4-joint antennae, labium and rostrum; bucculae well-developed membranes. They are small to medium-sized, oval to elongated, usually brown, dark brown, black in colour, sometimes red or reddish-brown. Approximately about 250 species form 100 genera recorded from the Indian subcontinent (Ghosh 2008). These bugs are small in size but can cause great damage to crops of vegetables and fruits and so, recognized as pests.

Earlier reports on the family Lygaeidae from Andhra Pradesh is limited to Chopra & Rustagi (1981, 1982), with record of only 2 species, while Prabhakar *et al.* (1986) reported the genus *Spilosthetus* sp. from Andhra Pradesh on sorghum. While studying the unidentified collections of the National Zoological Collection in the Hemiptera Section of the Zoological Survey of India, Kolkata, the authors encountered 30 species in 20 genera of the family Lygaeidae from Andhra Pradesh.

Material and Methods

Specimens belonging to family Lygaeidae held in the National Zoological Collections collected by various tour parties were studied and identified. Collection details are given with each species account. Identification keys to taxa of family Lygaeidae are provided along with distributions in India and elsewhere for all the reported species. Morphometric studies have been conducted; measurements and ratios of various body parts were taken as additional diagnostic characters. Identification keys are prepared based on Distant (1910). Photography and the measurements of the various body parts of the specimens were taken by using M205A Leica microscope and 2mm scale is used in photography. New records for the state are marked with asterisk (*).

Results

Taxonomic Account

Subfamily RHYPAROCHROMINAE

Tribe **Rhyparochromini**

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Key to the genera

1. Pronotum sharp and dentate *Metochus*
- Pronotum strongly punctuate, without carination 2
2. Lower half portion of scutellum dark brown *Elasmolomus*
- Lower half of scutellum not dark brown 3
3. Scutellum length and width equal or subequal *Rhyparothethus*
- Scutellum always longer than broad 4
4. Pronotum size long *Dieuchus*
- Pronotum size short *Lachnethus*

Genus 1: *Metochus* Scott, 1874

1874. *Metochus* Scott, *Ann. Mag. Nat. Hist.*, **14**(4): 433-434.

1. *Metochus uniguttatus* (Thunberg, 1922)*

1922. *Pendulinus uniguttatus* Thunberg, *Hem. Rost. Cap.*, **4**: 6.
2016. *Metochus uniguttatus*: Saha et al., *Rec. Zool. Surv. India*, **116**(2): 150 – 151.

Material examined: 1 ex., Rajamundry, East Godavari, 20.x.1998, S.P. Chakraborty & Party.

Distribution: India: Andhra Pradesh, Andaman and Nicobar Islands, Assam, Chhattisgarh, Himachal Pradesh, Karnataka, Maharashtra, Meghalaya, Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere*: China, Malayan Archipelagos, Myanmar, Philippines, Sri Lanka, and Sumatra.

Genus 2. *Elasmolomus* Stal, 1872

1872. *Elasmolomus* Stal, *Ofv. Vet. Akad. Forh.*, **89**: 58.

Key to species

1. Anterior pronotal lobe red brown *sordidus*
- Anterior pronotal lobe and base of scutellum golden yellow *paralineosus*

2. *Elasmolomus sordidus* (Fabricius, 1787)*

1787. *Cimex sordidus* Fabricius, *Mant. Ins.*, **2**: 302.
2016. *Elasmolomus sordidus*: Saha et al., *Rec. Zool. Surv. India*, **116**(2): 151-152.

Material examined: 1 ex., Venkateshwara University, Chittoor, 30.x.1998, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Himachal Pradesh, Maharashtra, Meghalaya, Nagaland,

Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere*: China, Myanmar, and Sri Lanka.

3. *Elasmolomus paralineosus* Mukhopadhyay, 1988

1988. *Elasmolomus paralineosus* Mukhopadhyay, *Rec. Zool. Surv. India. Occ. Paper No.107*: 51- 52.

Material examined: 1 ex., Chitval, Nellore Dist., 28.v.2000, S.K. Chatterjee & Party; 1 ex., Sri Sailam F.R.H, Prakasam Dist, 22.x.1985, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, and West Bengal.

Genus 3. *Rhyparothesus* Scudder, 1962

1962. *Rhyparothesus* Scudder, *Can. Ent.*, **95**: 983.

Key to species:

1. Corium coarsely punctuate having scattered black dots on lateral margin *orientalis*
- Corium more prominently speckled with ochraceous of lateral margin *sparsus*

4. *Rhyparothesus orientalis* (Distant, 1904)*

1904. *Aphanus orientalis* Distant, *Fauna Brit. India, Rhyn.*, **2**: 81.
2016. *Rhyparothesus orientalis* Saha et al., *Rec. Zool. Surv. India*, **116**(2): 154.

Material examined: 1 ex, Gokavarom Forest, East Godavari, 25.xii.2000, P.H. Roy & Party; 1 ex., Guntur, 31.ix.1999, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Bihar, Chhattisgarh, Karnataka, and Uttar Pradesh.

5. *Rhyparothesus sparsus* (Distant, 1904)*

1904. *Aphanus orientalis* Distant, *Fauna Brit. India. Rhynchota.*, **2**: 81.
2016. *Rhyparothesus sparsus*: Saha et al., *Rec. Zool. Surv. India*, **116**(2): 155.

Material examined: 1 ex, Vempally, Cuddaph, 10.i.2002, G.C. Sen & Party.

Distribution: India: Andhra Pradesh, Assam, Chhattisgarh, Maharashtra, Uttarakhand, and West Bengal.

Genus 4. *Dieuches* Dohrn, 1860

1860. *Dieuches* Dohrn, *Slett. Ent. Zeit.*, **21**: 159.

Key to species

1. Pronotum's margin sinuate, not ampliate..... 2
 - Lateral margin of pronotum strongly ampliate but not reflexed..... *insignis*
2. Margin of pronotum ampliate and reflexed*femoralis*
 - Lateral pronotal margins run almost parallel..... 3
3. Pronotal base sub equal to the length of pronotum*leucoceras*
 - Pronotal base always broader than length*coloratus*

6. *Dieuchus insignis* (Distant, 1904)*

1904. *Critobulus insignis* Distant, *Fauna British India, Rhyncho-ta.*, **2**: 77.

2016. *Dieuchus insignis*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 157-158.

Material examined: 1 ex., Guntur, 31.ix.1999, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Assam, and Chhattisgarh. *Elsewhere*: Malaysia.

7. *Dieuches femoralis* Dohrn, 1860*

1860. *Dieuches femoralis* Dohrn, *Slett. Ent. Zeit.*, **21**: 405.

2016. *Dieuches femoralis*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 156-157.

Material examined: 1 ex., Ramasinghavaram, West Godavari, 4.x.1998, S. K. Mandal & Party.

Distribution: India: Andhra Pradesh, Assam, Chhattisgarh, Kashmir, Nagaland, Sikkim, Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere*: China, Japan, Myanmar, Sri Lanka, and Thailand.

8. *Dieuches leucoceras* Walker, 1872*

1872. *Dieuches leucoceras* Walker, *Cat. Hem. Het. B.M.*, **5**: 98 - 99.

2016. *Dieuches leucoceras*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 157.

Material examined: 1 ex., Sri Sailam F.R.H, Prakasam, 22.x.1985, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Assam, Chhattisgarh, Jammu and Kashmir, Maharashtra, Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere*: Australia, Iran, and Sri Lanka.

9. *Dieuchus coloratus* (Distant, 1909)*

1909. *Abanus coloratus* Distant, *Ann. Mag. Nat. Hist.*, **3**(8): 493.

2016. *Dieuchus coloratus*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 158.

Material examined: 1 ex., Chitval, Nellore, 28.v.2000, S. K. Chatterjee & Party.

Distribution: India: Andhra Pradesh, Bihar, and Chhattisgarh.

Genus 6. *Lachnethus* Scudder, 1904

1962. *Lachnethus* Scudder, *Can. Ent.*, **94**: 768.

10. *Lachnethus singalensis* (Dohrn, 1860)*

1860. *Rhyparochromus singalensis* Dohrn, *Stett. Ent. Zeit.*, **21**: 404.

2016. *Lachnethus singalensis*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 158-159.

Material examined: 1 ex., Chitval, Nellore Dist, 28.v.2000, S.K. Chatterjee & Party.

Distribution: India: Andhra Pradesh, Assam, Chhattisgarh, and Maharashtra. *Elsewhere*: Kenya, Madagascar, Natal, Nyasaland, South Africa, Seychelles, Sri Lanka, and Sudan.

Tribe Myodocini

Key to genera

1. Pronotal collar not well define.....*Pseudopachybrachius*
 - Pronotal collar distinct 2
2. Rostrum not reaching the intermediate coxae *Horridipamera*
 - Rostrum reaching the intermediate coxae 3
3. Basal margin of pronotum subequal to pronotal length*Paraecosmetus*
 - Basal margin of pronotum concavely truncated.....*Paromius*

Genus 7. *Pseudopachybrachius* Malipatil, 1978

1978. *Pseudopachybrachius* Malipatil, *Aust. J. Zool., Suppl. Ser. no. 56*: 36.

11. *Pseudopachybrachius guttus* Malipatil, 1978*

1978. *Pseudopachybrachius guttus* Malipatil, *Aust. J. Zool., Suppl. Ser. no. 56*: 63.

Material examined: 1 ex., Cuddapah F.R.H, Cuddapah, 21.i.2000, G.C. Sen & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Uttar Pradesh, and West Bengal.

Genus 8. ***Horridipamera*** Malipatil, 1978

1978. *Horridipamera* Malipatil, *Aust. J. Zool., Suppl. Ser. No. 56*: 89.

12. *Horridipamera nietneri* (Dohrn, 1860)*

1860. *Plociomerus nietneri* Dohrn, *Stett. Ent. Zeit.*, **21**: 404
1988. *Horridipamera nietneri*: Mukhopadhyay, *Rec. Zool. Surv. India, Occ. Paper No 107*: 61.

Material examined: 1 ex., Cuddapah F.R.H , Cuddapah, 21.i.2000,G.C. Sen & Party.

Distribution: India: Andhra Pradesh, Bihar, Chhattisgarh, and West Bengal. *Elsewhere*: Myanmar, Rangoon, and Sri Lanka.

Genus 9. ***Paraecosmetus*** Malipatil, 1978

1978. *Paraecosmetus* Malipatil, *Aust. J. Zool. Suppl. Ser. No. 56*. 67.

13. *Paraecosmetus pallicornis* (Dallas, 1852)*

1852. *Rhyparochromus pallicornis* Dallas, *List. Hem. B.M.*, **2**: 573.
2016. *Paraecosmetus pallicornis*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 162-163.

Material examined: 1 ex., Gokavarom Forest, East Godavari, 25.xii.2000, P.H. Roy & Party.

Distribution: India: Andhra Pradesh, and Chhattisgarh.

Genus 10. ***Paromius*** Fieber, 1860

1860. *Paromius* Fieber, *Eur. Hem.*, **45**: 170 –171.

14. *Paromius exiguus* (Distant, 1883)*

1883. *Pamera exiguus* Distant, *Trans. Ent. Soc. London*: 434.
2016. *Paromius exiguus*: Saha *et al.*, *Rec. Zool. Surv. India*, **116**(2): 163.

Material examined: 1 ex., Gokavarom Forest, East Godavari, 25.xii.2000, P. H. Roy & Party.

Distribution: India: Andhra Pradesh, and West Bengal. *Elsewhere*: Japan, and Sri Lanka.

Tribe **Ozophorini**

Genus 11. ***Primierus*** Distant 1901

1901. *Primierus* Distant, *Ann. Mag. Nat. Hist.*, (7), p. 477.

15. *Primierus bispinus* (Motschulsky, 1863)*

1863. *Plociomerus bispinus* Motschulsky, *Bull. Soc. Nat. Mosc.*, **36**: 81-2.
2016. *Primierus bispinus*: Saha *et al.*, *Rec. zool. surv. India*, **116**(2): 164.

Material examined: 1 ex., Eluru, West Godavari, 28.xi.2000, P. H. Roy & Party.

Distribution: India: Andhra Pradesh, and West Bengal. *Elsewhere*: Sri Lanka.

Tribe **Lethaeini**

Key to genera

1. Head length equals its width.....*Neolethaeus*
- Head length and width not same *Adauctus*

Genus 12. ***Neolethaeus*** Distant 1909

1909. *Neolethaeus* Distant, *Ann. Mag. Nat. Hist.*, (8)**3**: 340.

16. *Neolethaeus typicus* Distant, 1909*

1909. *Neolethaeus typicus* Distant, *Ann. Mag. Nat. Hist.*, **3**(8): 340.

Material examined: 1 ex., Gokavarom Forest, East Godavari, 25.xii.2000, P. H. Roy & Party.

Distribution: India: Andhra Pradesh, and Chhattisgarh. *Elsewhere*: Myanmar.

Genus 13. ***Adauctus*** Distant, 1909

1909. *Adauctus* Distant, *Ann. Mag. Nat. Hist.*, **3**(8): 492.

17. *Adauctus nigrocapitatus* Distant, 1918*

1918. *Adauctus nigrocapitatus* Distant, *Fauna Brit. India, Rhynch.*, **7**: 195..

Material examined: 1 ex., Ramasinghavaram, West Godavari, 4.x.1998, S.K. Mandal & Party; 1ex, Eluru, West Godavari, 28.xi.2000, P. H. Roy & Party Coll.

Distribution: India: Andhra Pradesh, and Chhattisgarh.

Tribe Stygnocorini

Genus 14. *Arrianus* Distant, 1904

1904. *Arrianus* Distant, *Fauna Brit. India, Rhynch.*, 2: 74.

18. *Arrianus excavatus* Distant, 1904*

1904. *Arrianus excavatus* Distant, *Fauna Brit. India, Rhynch.*, 2: 74.

Material examined: 1 ex., Ramasinghavaram, West Godavari, 4.x.1998, S.K. Mandal & Party; 1ex, Eluru, West Godavari, 28.xi.2000, P.H. Roy & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Sikkim, and West Bengal.

Subfamily ORSILLINAE

Genus 15. *Nysius* Dallas, 1852

1852. *Nysius* Dallas, *List. Hem. B. M.*, 2: 551 – 552.

Key to species

- 1 Antenna black; segment 2nd >3rd *ceylonicus*
- Antenna not black; segment 2nd >3rd >4th2
- 2 Legs dark brown, large coarse punctures to femora.....*inconspicuus*
- Legs light brown, femora yellow, spotted*lacustrinus*

19. *Nysius ceylanicus* (Motschulsky, 1863)*

1863. *Heterogaster ceylanicus*: Motschulsky, *Bull. Soc.Nat. Moscu.*, 36:78.

2016. *Nysius ceylanicus* Saha et al., *Rec. Zool. Surv. India*, 116(2): 167.

Material examined: 1 ex., Ramasinghavaram, West Godavari, 4.x.1998, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Jharkhand, Sikkim, Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere:* China, Java, Nepal, Sri Lanka, and Sumatra.

20. *Nysius inconspicuus* Distant, 1904*

1902. *Nysius inconspicuus* Distant, *Fauna British India, Rhynchota*, 2: 18-19.

Material examined: 1 ex., Machalipattam, Krishna, 15.ix.1998, S.P. Chakraborty & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Himachal Pradesh, Uttar Pradesh, and West Bengal. *Elsewhere:* Myanmar.

21. *Nysius laucustrinus* Distant, 1909*

1909. *Nysius laucustrinus* Distant, *Ann. Mag. Nat. Hist.*, 3: 321.

Material examined: 1 ex., Gokavarom Forest, East Godavari Dist, 25.xii.2000, P.H. Roy & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Uttarakhand, and West Bengal. *Elsewhere:* Sumatra.

Subfamily LYGAEINAE

Key to genera

1. Metathoracic gland not well defined..... *Spilostethus*
- Metathoracic scent gland opening properly.....*Graptostethus*

Genus 16. *Spilostethus* Stal, 1868

1868. *Spilostethus* Stal, *Kongk. Svensk. Vet. Akad. Handl.*, 7: 72.

Key to species

1. Membrenal suture having 2 white spots..... *militaris*
- Membrenal suture does not have ant spot *hospes*

22. *Spilostethus pandurus militaris* (Fabricius, 1775)

1775. *Cimex militaris* Fabricius, *Syst. Ent.*: 717.

1871. *Spilostethus pandurus militaris*: Lethierry, *Ann. Soc. Ent. Belg.* Note: 20: 45.

Material examined: 1 ex., Guntur, Guntur, 31.ix.1999, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Karnataka, Maharashtra, Punjab, Uttar Pradesh, Uttarakhand, Rajasthan, and West Bengal. *Elsewhere:* Australia, Myanmar and South Africa.

23. *Spilostethus hospes* (Fabricius, 1794)

1794. *Lygaeus hospes* Fabricius, *Ent. Syst.*, **4**: 150.
1914. *Spilostethus hospes*: Bergroth, *Ent. Mitteil.*, **2**: 356.

Material examined: 1 ex., Chitval, Nellore, 28.v.2000, S.K. Chaterjee & Party.

Distribution: India: Andhra Pradesh, Assam, Chhattisgarh, Karnataka, and Maharashtra *Elsewhere*: Australia, China, Hong Kong, Japan, Java, Iran, Australia, Myanmar, Mandalay, New Zealand, Philippines, Sri Lanka, and Sumatra.

Genus 17. ***Graptostethus*** Stal, 1868

1968. *Graptostethus* Stal, *Kngl. Seensk. Vet. Aked. Hand.*, **11**: 73 – 74.

Key to species

1. Subclaval spot large and oblique; corium with small marginal spot*servus*
- Clavus with small spot; corium with large rounded spot at centre **2**
2. Pronotum with two large rounded spots basally..... *maculatus*
- Pronotum with two larger spots close to posterior margin..... *argentatus*

24. *Graptostethus servus* (Fabricius, 1787)*

1787. *Cimex servus* Fabricius, *Mant. Ins.*, **2**: 300.
1988. *Graptostethus servus*: Mukhopadhyay, *Rec. Zool. Surv. India, Occ. Paper No. 107*: 18.

Material examined: 1 ex., Rajamundry, East Godavari, 20.x.1998, S.P. Chakraborty & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Kerala, Maharashtra, Meghalaya, Uttarakhand, Uttar Pradesh, and West Bengal. *Elsewhere*: Algeria, Australia, China, Ethiopia, France, Indonesia, Japan, Java, Israel, Malaya, Maldives island, Myanmar, Philippines island, Singapore, Spain, Somalia, Sri Lanka, Sudan, Tibet, and Turkey.

25. *Graptostethus maculatus* (Dallas, 1852)*

1852. *Lygaeus maculatus* Dallas, *List. Hem.*, **2**: 545.
1901. *Graptostethus maculatus*: Distant, *Ann. Mag. Nat. Hist.*, (7)7: 537.

Material examined: 1 ex., Venkateshwara Nature Park, Chittoor Dist, 1.x.1998, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, Uttarakhand, and Uttar Pradesh. *Elsewhere*: Sri Lanka.

26. *Graptostethus argentatus* (Fabricius, 1803)*

1803. *Lygaeus argentatus* Fabricius, *Syst. Rhync.*, p. 288.
1988. *Graptostethus argentatus*: Mukhopadhyay, *Rec. Zool. Surv. India, Occ. Pap. No. 107*: 17.

Material examined: 1 ex., Vempally, Cuddaph, 10.i.2002, G.C. Sen & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, and West Bengal. *Elsewhere*: Sri Lanka, and Myanmar

Subfamily PACHYGRONTHINAE

Genus 18. ***Pachygrontha*** Germar, 1837

1837. *Pachygrontha* Germar, *Silb. Rev. Ent.*, **5**: 152 – 153.

27. *Pachygrontha bipunctata* Stal 1865*

1865. *Pachygrontha bipunctata* Stal, *Hem. Afr.*, **2**: 149.

Material examined: 1 ex., Machalipattam, Krishna, 15.ix.1998, S.P. Chakraborty & Party.

Distribution: India: Andhra Pradesh, Chhattisgarh, and West Bengal. *Elsewhere*: Australia, Borneo, Congo, Japan, Philippines, Malacca, Mauritius, Mozambique, Nigeria, Sri Lanka, and Tanganyika.

Subfamily OXYCARENINAE

Genus 19. ***Oxycarenus*** Fieber, 1837

1837. *Oxycarenus* Fieber, *Beitr. Nat. Ges. Heilwiss.*: 339 - 340.

28. *Oxycarenus proximus* (Walker, 1872)

1872. *Anthocoris proximus* Walker, *Cat. Het.*, **5**: 152.
1901. *Oxycarenus proximus*: Distant, *Ann. Mag. Nat. Hist.*, (7) **8**: 475.

Material examined: 1 ex., Machalipattam, Krishna, 15.ix.1998, S.P. Chakraborty & Party.

Distribution: India: Andhra Pradesh, and Chhattisgarh.

Table 1. Showing ratio of the body parts and length of tibia

Sl. No.	Name of the species	HL/ HW	PL/ PW	HW/ PW	SL/ SW	A1:A2:A3:A4	TBL (in mm)
1.	<i>Metochus uniguttatus</i> (Thunb)	1.078	1.095	0.593	1.081	1: 4.4: 5.8: 8.8	10.396
2.	<i>Elasmolomus sordidus</i> (Fabricius)	0.669	0.759	0.592	1.305	1: 1.8: 3.4	8.144
3.	<i>Elasmolomus paralineosus</i> Mukhopadhyay	0.588	0.605	0.507	1.048	1: 2.5: 2.1	5.093
4.	<i>Rhyparotesus orientalis</i> Distant	0.501	0.802	0.509	0.973	1: 2.1: 1.6	7.220
5.	<i>Rhyparotesus sparsus</i> Distant	0.751	0.696	0.544	0.950	-	6.173
6.	<i>Dieuches insignis</i> (Distant)	0.746	0.598	0.687	0.892	1: 2.9: 6.1	5.722
7.	<i>Dieuches femoralis</i> Dohrn	0.870	0.967	0.647	0.956	1: 2.3: 2.4: 2.6	5.606
8.	<i>Dieuches leucocerus</i> (Walker)	1.085	0.878	0.541	1.359	1: 1.8: 1.5	5.633
9.	<i>Dieuches coloratus</i> (Distant)	0.731	0.715	0.590	1.613	-	5.589
10.	<i>Lachnethus singalensis</i> Scudder	0.744	0.773	0.594	1.381	1: 2.1: 2.0	5.152
11.	<i>Pseudopachybrachius guttus</i> Malipatil	0.828	0.780	0.677	0.913	-	4.138
12.	<i>Horridipamera nietneri</i> (Dohrn)	0.988	0.872	0.624	0.962	-	5.884
13.	<i>Paraucosmetus pallicornis</i> (Dallas)	0.754	0.782	0.683	0.984	-	6.664
14.	<i>Paromius exiguous</i> (Distant)	0.911	0.883	0.662	1.223	-	6.798
15.	<i>Primierusbispinus</i> Distant	0.682	0.508	0.698	0.820	1: 2.1: 1.4: 2.1	3.037
16.	<i>Neolethaeus typicus</i> Distant	0.644	0.589	1.673	0.991	-	4.759
17.	<i>Adauctus cupres</i> Distant	0.561	0.595	0.694	0.907	-	4.217
18.	<i>Arrianus excavates</i> , Distant	0.718	0.593	0.520	1.069	1: 0.9: 1.8: 1.2	7.687
19.	<i>Nysius ceylanicus</i> (Motschulsky)	0.524	0.614	0.783	0.844	-	3.464
20.	<i>Nysius inconspicuous</i> Distant	0.508	0.498	0.797	0.880	-	3.533
21.	<i>Nysius laucustrinus</i> Distant	0.308	0.353	0.792	0.811	1: 2.3: 2.5: 2.8	3.454
22.	<i>Spilostethus pandurus militaris</i> (Fabricius)	0.577	0.623	0.536	0.971	-	12.609
23.	<i>Spilostethus hospes</i> (Fabricius)	0.467	0.680	0.550	0.864	1 ; 3.4: 2.9	9.581
24.	<i>Graptostethus servus</i> Fabricius	0.609	0.654	0.580	0.627	1: 2.2	10.035

Sl. No.	Name of the species	HL/ HW	PL/ PW	HW/ PW	SL/ SW	A1:A2:A3:A4	TBL (in mm)
25.	<i>Graptostethus maculates</i> Dallas	0.648	0.675	0.577	1.159	-	7.368
26.	<i>Graptostethus argentatus</i> Fabricius	0.493	0.664	0.609	0.743	-	6.674
27.	<i>Pachygrontha bipunctata</i> Stal	1.032	0.726	0.589	1.030	1: 0.8: 0.5	3.586
28.	<i>Oxycareus proximus</i> Walker	1.714	0.795	0.425	0.724	1: 2.3: 2.3: 1.2	3.126
29.	<i>Geocoris ochropterus</i> Fieber	0.281	0.552	1.060	0.741	1: 2.7: 2.3: 2.4	3.656
30.	<i>Harmostica ornata</i> Distant	0.761	0.555	0.511	0.765	1: 2.7: 2.2: 2.6	5.615

HL=Length of Head, HW= maximum width of Head, PL=Length of pronotum, PW=maximum width of pronotum, SL=Length of Scutellum, SW= Maximum width of scutellum at base, A1=length of 1st Antennal segment, A2=length of 2nd Antennal segment, A3=length of 3rd Antennal segment, A4= length of 4th Antennal segment, TBL=Total body length, all measurements are in mm.

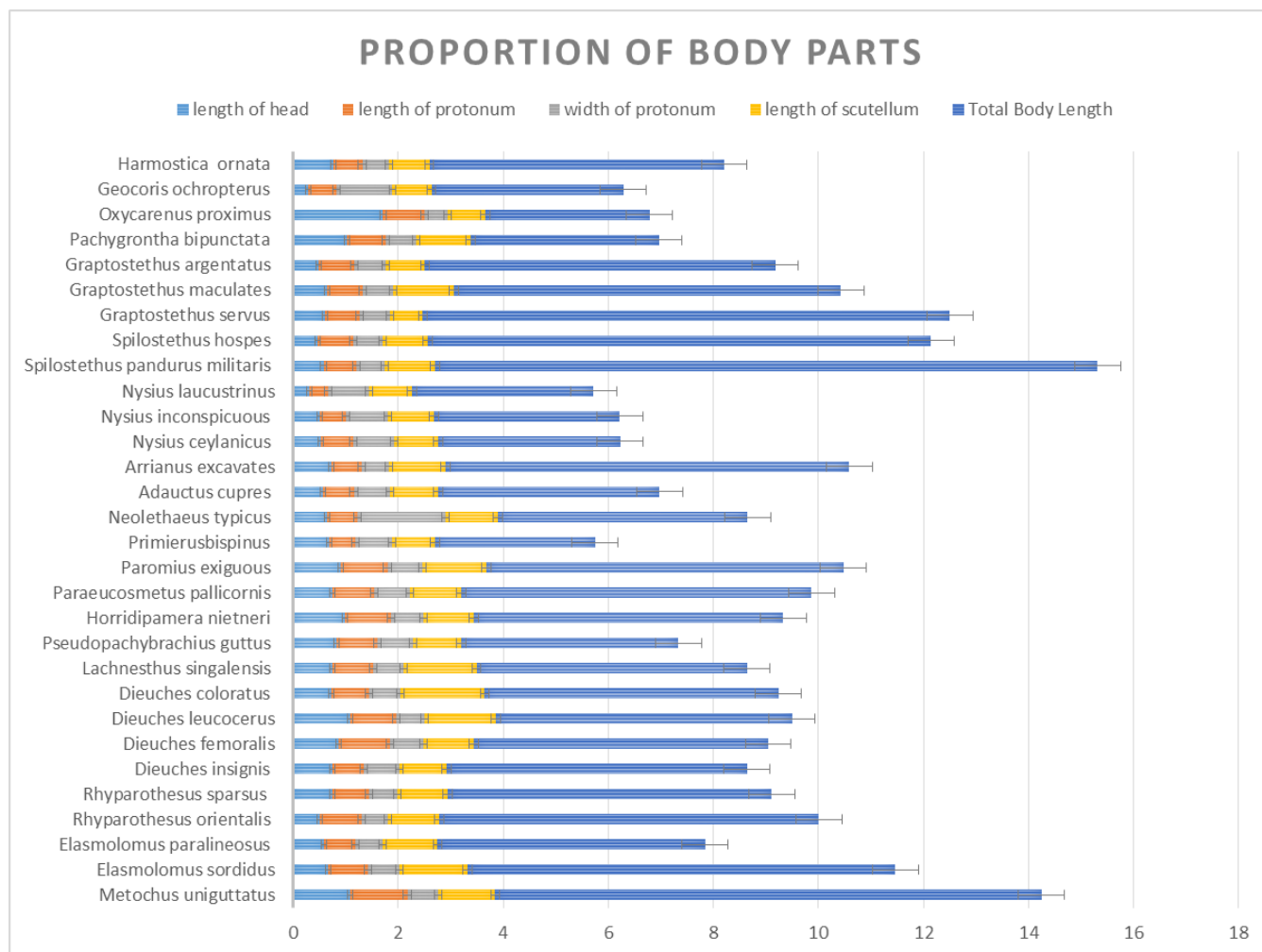


Figure 1. Proportion of body parts of species with respect to its total body length.

Subfamily GEOCORINAE

Genus 20. *Geocoris* Fallen, 1814

1814. *Geocoris* Fallen, *Spec. Nov. Hem. Disp. Met.*: 10.

29. *Geocoris ochropterus* (Fabricius, 1844)*

1844. *Geocoris ochropterus* Fieber, *Ent. Monogr.*: 117.

2018. *Geocoris (Geocoris) ochropterus*: Kóbor. *Raffles Bull. Zool.*, **66**: 581, 583-584.

Material examined: 1 ex., Ramasinghavaram, West Godavari, 4.x.1998, S.K. Mandal & Party, 1 ex., Eluru, West Godavari, 28.xi.2000, P.H. Roy & Party.

Distribution: India: Andhra Pradesh; Assam, Bangalore (Karnataka), Chhattisgarh, and West Bengal. *Elsewhere*: China, Borneo, Myanmar, Sri Lanka, and Sumatra (Indonesia).

Subfamily APHANINAE

Genus 21. *Harmostica* Brgröth, 1918

1918. *Harmostica* Brgröth, *Phil. Jour. Sci.*, **13**(3): 107.

30. *Harmostica ornata* (Distant, 1903)*

1903. *Edulica ornata* Distant, *Ann.Soc.Ent. Belg.*, **47**: 45.

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Material examined: 1 ex., Venkateshwara Nature Park, Chittoor, 1.x.1998, S.K. Mandal & Party.

Distribution: India: Andhra Pradesh, and Chhattisgarh. *Elsewhere*: Sri Lanka.

Discussion

The presently reported study is based on Lygaeid specimens of National Zoological Collection which were collected by various tour parties during last two decades. This is probably the first attempt to study Lygaeid diversity

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of Andhra Pradesh, which results in documenting 30 species fewer than 20 genera. Except *Oxycarenus proximus* (Walker, 1872), *Spilostethus pandurus militaris* (Fabricius, 1775) and *Spilostethus hospes* (Fabricius, 1794), rest of the species are new to the state of Andhra Pradesh. Measurements were taken for all 30 species and ratios were calculated between different body parts (Table 1). The family Lygaeidae exhibits great morphological diversity as depicted in the table showing measurements of the ratio of the different body parts (Figure 1). The ratio calculated between head length and maximum head width across compound eyes, which varies from 0.281 to 1.714, the ratio between pronotum length and maximum pronotum width varies from 0.353 to 1.095, the ratio between head width and pronotum width varies from 0.425 to 1.673, similarly, ratios between scutellum length and scutellum width varies 0.627 to 1.613. Among different body parts, tibia shows greater diversity and varies from 3.037 (in *Primierus bispinus*) to 12.609 (in *Spilostethus pandurus militaris*). Measurements and ratios of body parts serve as the most reliable diagnostic characters for taxonomic identification. When the sizes of the different body parts of the species are compared, it was found that *Spilostethus* sp. and *Metochus* sp. report the highest length however, the interesting aspect of it is the lengths and widths of their pronotum and scutellum are quite similar to other reported species. The total body length of most species lie within an average range of 6-8 mm. *Pachygrontha* sp., *Metochus* sp. and *Dieuches* sp. mark the longest pronotum while *Nysius* sp. mark the shortest. Overall, it can be concluded that there is considerable variation in sizes of body parts among the reported species as illustrated in the figure below.

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1. *Metochus uniguttatus*
(Thunberg, 1922)



2. *Elasmolemus sordidus*
(Fabricius, 1787)



3. *Elasmolemus paralineosus*
Mukhopadhyay, 1988



4. *Rhyparotheres orientalis*
(Distant, 1904)



5. *Rhyparotheres sparsus*
(Distant, 1904)



6. *Dieuchus insignis*
(Distant, 1904)



7. *Dieuches femoralis*
(Dohrn, 1860)



8. *Dieuches leucocerus*
(Walker, 1872)



9. *Dieuches coloratus*
(Distant, 1909)



10. *Lachnesthus singalensis*
(Dohrn, 1860)



11. *Pseudopachybrachius guttus*
(Dallas, 1852)



12. *Horridipamera nietneri*
(Dohrn, 1860)



13. *Paraeucosmetus pallicornis*
(Dallas, 1852)



14. *Paromius exiguus*
(Distant, 1883)



15. *Primierus indicus*
Distant, 1901



16. *Neolethaeus typicus*
Distant, 1909



17. *Adauctus cupres*
Distant, 1909



18. *Arrianus excavates*
Distant, 1904



19. *Nysius ceylanicus*
(Motschulsky, 1863)



20. *Nysius inconspicuus*
Distant, 1902



21. *Nysius laucustrinus*
Distant, 1909



22. *Spilostethus pandurus*
militaris (Fabricius, 1763)



23. *Spilostethus hospes*
(Fabricius, 1794)



24. *Graptostethus servus*
(Fabricius, 1787)



25. *Graptostethus maculatus*
(Dallas, 1852)



26. *Graptostethus argentatus*
(Fabricius, 1803)



27. *Pachygrontha bipunctata*
Stal, 1865



28. *Oxycarenus proximus*
Walker, 1872



29. *Geocoris ochropterus*
Fieber, 1844



30. *Harmostica ornate*
Scudder, 1959