Survey of the Heteroptera (Hemiptera) on pastures from Espírito Santo state, Brazil: new records, range extension, and notes of potential pests

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Abstract. Espírito Santo is a Brazilian state that has a wide variety of habitats, providing a high biological diversity of fauna and flora. However, few reports had been shown about the insect diversity of this region, especially of heteropteran insects that inhabit on pasture ecosystems. In the present study, forty-three species of Heteroptera belonging to thirteen families were collected on pastures on Espírito Santo state, Brazil: Alydidae (1 sp.), Berytidae (3 sp.), Blissidae (1 sp.), Coreidae (7 sp.), Miridae (16 sp.), Nabidae (1 sp.), Pentatomidae (3 sp.), Pyrrhocoridae (1 sp.), Reduviidae (6 sp.), Rhopalidae (1 sp.), Rhyparochromidae (1 sp.), Thaumastocoridae (1 sp.) and Tingidae (1 sp.). Among the species; Cerbrus tenefrata, Trigonotylus tenuis, Tibellus aff. antillus, Oebalus ypsilongriseus and Collaria oleracea were observed causing damages on pastures, therefore, in this study, we suggested those species as potential pastures pests. This study aims to increase the knowledge about the heteropteran diversity and to show the presence of some pest species that may cause serious damage to pastures and consequently affect the economy of cattle breeders on the state.

Keywords: Biogeographic extension; pastureland; pests; Poaceae; true bugs.

The true bug (Hemiptera: Heteroptera) is considered the largest group of insects with incomplete metamorphosis (Schuh & Slater 1995; Weirauch & Schuh 2011; Panizzi & Grazia 2015). Heteroptera suborder includes such common insects as the assassin bugs, stink bugs, plant bugs, lace bugs, water striders, bedbugs, and so forth (Grazia & Fernandes 2012; Panizzi & Grazia 2015). The heteropteran diversity (over 42,300 species) is distributed in approximately 75 families (Schuh & Slater 1995; Henry 2009; Weirauch & Schuh 2011; Grazia & Fernandes 2012; Gullan & Cranston 2014). The largest family is Miridae, with more than 11,139 species or about 25% of the true bugs (Henry 2009; Schuh 2013; Ferreira et al. 2015).

Heteropterans have been studied on both basic and applied aspects worldwide (Panizzi & Grazia 2015) because no other major group of insects successfully utilizes such an enormous array of different habitats (terrestrial, aquatic and semiaquatic) and feeding habits (phytophagous, predatory or hematophagous). It has been inevitable that some of them would become pests of crops. Also, there are some predaceous that would feed on those and could be potential agents of biological control. As a consequence, the interest in heteropteran has been growing especially because many species have become the principal concern in economic and medical fields (Schafer & Panizzi 2000).

Among the cultivated plants, Poaceae family is the particular interest of humans. The economic importance of this group of plants is unquestionable, most people on earth rely on grasses, including rice, wheat, and maize, for a major portion of their diet; even to the animals like beef cattle which is raised on diets partly or wholly of grasses (Kellogg 2001; Euclides et al. 2010).

Espírito Santo is a Brazilian state that has a wide variety of habitats, providing high biological diversity and resources for various productive activities, both land, and sea (Lanni et al. 2008). About 4% of its territory is covered by natural pastures (approximately 120,000 ha) and around 43% by planted pastures (approximately 1,220 million ha). However, about 75,000 ha of total pastures of Espírito Santo state are degraded (IBGE 2006).

One of the causes of pasture degradation is attributed to its incorrect management. Pest attack is also a factor that had contributed to this situation (Diás-Filho 2011). Insect attacks on pastures affect directly the capacity of nutrient absorption by the plant, reflecting lower production of meat and milk resulting in economic losses (Almeida et al. 2000).

Although heteropterans of several genera are considered a serious pest of pastures; few studies had shown the importance of this group in Brazil. Most studies had focused on the biology and control measures to Scaptocoris carvalhoi,
Collaria, and Blissus genera (Menezes 1990; Vazeli et al. 1999; Oliveira & Malagudo 2004; Samuels & Coracini 2004; Nardi et al. 2007; Vivian et al. 2013). Nonetheless, Heteroptera has an enormous diversity that much remains to be studied.

Espírito Santo state has shown a small number of records and descriptions of Heteroptera species in the pastures and the studies of these species are extremely scarce, elsewhere, among the factors that control pasture productivity may include the understanding of heteropterans complex. To improve the knowledge of the diversity of species of heteropterans in the pastures of the state of Espírito Santo in Brazil, the authors reported new records of species for the state and country. The distributions for the species on the state and suggestions about potential pasture pests were given.

**MATERIAL AND METHODS**

Heteroptera specimens were collected from pastures of twenty municipalities of Espírito Santo state, Brazil (1. Montanha; 2. Pinheiros; 3. Ecoporanga; 4. Barra de São Francisco; 5. Vila Pavão, 6. Linhares; 7. Aracruz; 8. João Neiva; 9. Colatina; 10. Baixo Guandu; 11. Itaguaçu; 12. Santa Teresa; 13. Afonso Cláudio; 14. Conception do Castelo; 15. Venda Nova do Imigrante; 16. Castelo; 17. Ibiritama; 18. Jerônimo Monteiro; 19. Atílio Vivaçqua, 20. São José do Calçado). Four sites in each municipality were sampled, comprising in total of eighty sampled sites. The sampling sites were selected taking into account the climatic conditions of Espírito Santo which were defined in seven homogeneous climatic regions by Instituto Capixaba de Pesquisa, Assistência Técnica e Extensão Rural (INCAPER) (Figure 1).

To generate the map with each sampled site visited, geographic coordinates were obtained with a global positioning system (GPS) using a Garmin GPS (eTREX 10, Garmin, Brazil). All coordinates indicated on the labels of specimens examined are South (latitude) and West (longitude), respectively. The map showing the sampling sites was made with the software ArcMap (version 10.0) (ESRI 2010).

Specimens were collected using beating nets and deposited in plastic bags with pieces of paper and cotton soaked with ethyl acetate, then specimens were mounted in the glycerin. Dissected genitalia was preserved in microvials with glycerin.

All the localities are organized in north-to-south order. Abbreviations used for Brazilian states are as follows: AC, Acre; AL, Alagoas; AM, Amazonas; BA, Bahia; CE, Ceará; DF, Distrito Federal; ES, Espírito Santo; GO, Goiás, MA, Maranhão; MT, Mato Grosso; MS, Mato Grosso do Sul, MG, Minas Gerais; PA, Pará, PB, Paraíba; PR, Paraná; PE, Pernambuco, RJ, Rio de Janeiro; RN, Rio Grande do Norte; RS, Rio Grande do Sul; RO, Rondônia; SC, Santa Catarina; SP, São Paulo.

All the material examined, including sex and the complete data from the labels, is presented. New records for Espírito Santo state and to the country are indicated with an asterisk (*). When the observations pointed to a particular taxon, but it wasn't identified any character to separate it from others that are very similar, the abbreviation aff., from latin affinis, is used to indicate affinity. In the remarks section, it is shown the Poaceae host plant in which heteropterans specimens were collected. Some pastures in which heteropterans were collected had infested by weeds or crop residuals in the outskirts, the weeds were not identified by specie. However, it was described in the manuscript in general terms.

**RESULTS**

We list all taxa, determined to specie level, belonging to thirteen families of Heteroptera. The families studied were Alydidae, Berytidae, Blissidae, Coreidae, Miridae, Nabidae, Pentatomidae, Pyrrhocoridae, Reduviidae, Rhopalidae, Rhyparochromidae, Thaumastocoridae, and Tingidae.

**Alydidae**

*Neomegalotomus parvus* (Westwood, 1842)

**Distribution:** USA, Mexico, Ecuador, Argentina, Brazil: MG, RJ, SP, ES* (Jerônimo Monteiro, Ibiritama, Atílio Vivaçqua, Castelo, Conceição do Castelo, Santa Teresa, Aracruz, João Neiva, Pinheiros, Vila Pavão, Ecoporanga, Barra de São Francisco) (Silva et al. 1968; Panizzi et al. 2000a; Henry & Wilson 2004; Schaefer & Ahmad 2008; Panizzi & Schaefer 2015; Martins et al. 2016).

**Material examined:** (UVB) 1 ♀, Brasil - ES - Jerônimo Monteiro, Coord. 20°44’46.1"N, 41°21’57.90"W, 06.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Itibirama, Ribeirão Santa Marta, Coord. 20°30’26.90", 41°41’52.75", 26.II.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Atílio Vivaçqua, Retiro da Iagoinha, Coord. 20°55’24.25", 41°14’47.72", 26.II.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Conc. Do Castelo, Sítio Montevideo, Coord. 20°30’57.44", 41°11’16.1", 02.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Castelo, Minerva, Coord. 20°28’17.04", 41°15’37.22", 06.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53’19.03", 40°42’1.59", 08.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Aracruz, Ribeirão do Sap, Coord. 19°40’53.97", 40°17’55.36", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - João Neiva, Três Rios, Coord. 19°39’15.81", 40°25’25.36", 13.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Pinheiros, Fazenda Bom
Gusto, Coord. 2010.1.0°7°, 40°10‘14.11‘, 19.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Vila Pavão, Sítio três irmãos, Coord. 18°38‘32.04‘, 40°31‘42.22‘, 20.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Ecoporanga, Sítio Huviner, Coord. 18°28‘34.31‘, 40°46‘38.27‘, 21.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - B. de São Francisco, Sítio dois corações, Coord. 18°37‘17.99‘, 40°53‘8.53‘, 22.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *N. parvus* were collected in pastures of *Brachiaria mutica, B. decumbens, B. ruiziziensis x B. brizantha* cv. Marandu, *B. humidicola*, *Cynodon* spp. and *Panicum maximum* cv. Mombaza. Pastures were associated with weeds.

**Bertydae**

**Gampsocoris nuxis** (Harriss, 1943)

**Distribution:** Peru, Bolivia, Brazil: AM, BA, MG, RJ, SP, ES* (Baixo Guandu, Montanha) (Henry 1997; Henry & Froeschner 1998).

**Material examined:** (UFVJB) 2 ♂, 2 ♀, Brasil - ES - Baixo Guandu, Granja Capixaba, Coord. 19°30‘3.59‘, 40°57‘5.75‘, 14.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Montanha, Sítio Estrela, Coord. 18°15‘50.56‘, 40°16‘43.45‘, 14.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *G. nexus* were collected in pastures of *Brachiaria mutica* and *B. brizantha*.

**Jalysus macer** (Stål, 1859)

**Distribution:** USA, Mexico, Cuba, Jamaica, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Guyana, Ecuador, Peru, Paraguay, Argentina, Brazil: ES* (Pinheiros) (Henry 1997; Henry & Froeschner 1998; Deliape et al. 2010; Rengifo-Correa & González 2011).

**Material examined:** (UFVJB) 1 ♂, Brasil - ES - Pinheiros, Fazenda Bom Gosto, Coord. 18°20‘1.97‘, 40°10‘14.11‘, 19.III.2013, Col. M.C. Vélez.

**Remarks:** The specimen of *J. macer* was collected in pastures of *Brachiaria brizantha*.

**Jalysus sobrinus** (Stål, 1862)

**Distribution:** Mexico, Jamaica, Guatemala, Honduras, El Salvador, Costa Rica, Panama, Nicaragua, Colombia, Venezuela, Trinidad, Ecuador, Peru, Bolivia, Paraguay, Argentina, Uruguay, Brazil: MG, SP, ES* (Afonso Cláudio) (Silva et al. 1968; Froeschner 1981; Henry & Froeschner 1998; Paula & Ferreira 2000).

**Material examined:** (UFVJB) 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermarv. Coord. 20°8‘16.10‘, 41°8‘19.19‘, 05.III.2013, Col. M.C. Vélez.

**Remarks:** The specimen of *J. sobrinus* was collected in pastures of *Brachiaria ruziziensis*.

**Blissidae**

**Blissus aff. antillus** (Leonard 1968)

**Distribution:** Puerto Rico, Cuba, Cayman Islands; Dominican Republic, Grenada, Jamaica, Trinidad and Tobago, Brazil: RJ, MS, ES* (Jerônimo Monteiro, Afonso Cláudio, Conceição do Castelo, Itaguacu, Santa Teresa, Linhares, Baixo Guandu, Montanha, Ecoporanga, Barra de São Francisco, Pinheiros) (Valério et al. 1999; Samuels et al. 2002; Dellape & Henry 2020).

**Material examined:** (UFVJB) 1 ♀, Brasil - ES - Jerônimo Monteiro, Sítio Boa Sorte, Coord. 20°47‘14.37‘, 41°24‘43.08‘, 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Anga 2, Coord. 20°3‘13.27‘, 41°7‘24.77‘, 05.III.2013, Col. M.C. Vélez. 2 ♂, 6 ♀, Brasil - ES - Itaguacu, Sítio Bela Vista, Coord. 19°37‘14.03‘, 40°5‘14.51‘, 07.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53‘19.03‘, 40°42‘1.59‘, 08.III.2013, Col. M.C. Vélez. 1 ♂, 2 ♀, Brasil - ES - Baixo Guandu, Granja Capixaba, Coord. 19°30‘39.94‘, 40°57‘54.75‘, 14.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - B. de São Francisco, Sítio dois corações, Coord. 18°37‘17.99‘, 40°53‘8.53‘, 22.III.2013, Col. M.C. Vélez. (USNM) 1 specimen, Brasil - ES - Conc. Do Castelo, Sítio Montforte Frio, Coord. 20°20‘52.69‘, 41°20‘29.80‘, 06.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Linhares, Fazenda Graciosa II, Coord. 19°17‘43.17‘, 40°5‘18.90‘, 11.III.2013, Col. M.C. Vélez. 2 ♂, Brasil - ES - Montanha, Sítio Estrela, Coord. 18°15°50.56‘, 40°16‘43.45‘, 14.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Baixo Guandu, Granja Capixaba, Coord. 19°3°39.94‘, 40°57‘54.75‘, 14.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *B. antillus* were collected in pastures of *Brachiaria mutica, B. brizantha, B. decumbens, B. mutica x B. arrecta, Cynodon* spp. and *Panicum maximum* cv. Mombaza.

**Coreidae**

**Cebrenis duplicata** (Brailovsky, 1995)

**Distribution:** Peru, Brazil: RJ, SC, ES* (João Neiva) (Brailovsky 1995; Crucés & Vergara 2015).

**Material examined:** (UNAM) 2 specimens, Brasil - ES - João Neiva, Sítio Boa Amizade, Coord. 19°40‘36.77‘, 40°23‘16.08‘, 13.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *C. duplicata* were collected in pastures of *Brachiaria brizantha*. Pastures were associated with weeds.

**Cebrenis tenebrosa** (Brailovsky 1995)

**Distribution for C. tenebrosa** (Brailovsky, 1995): Colombia, Venezuela, Brazil*: ES* (Pinheiros) (Brailovsky 1995).

**Material examined:** (UNAM) 1 specimen, Brasil - ES - Pinheiros, Fazenda Bom Gosto, Coord. 18°20‘1.97‘, 40°10‘14.11‘, 19.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *C. tenebrosa* were collected in pastures of *Brachiaria brizantha*. Pastures were associated with weeds.

**Hypselonotus interruptus** (Hahn, 1833)

**Distribution:** Mexico, Guatemala, Belize, Honduras, El Salvador, Costa Rica, Panama, Colombia, Venezuela, Trinidad and Tobago, Ecuador, Peru, Bolivia, Paraguay, Argentina, Brazil: PA, PE, MG, SP, ES (Linhares, Jerônimo Monteiro, Santa Teresa) (Blote 1938; Silva et al. 1968; Thum & Costa 1997; Dellape P. et al. 2015; Martins et al. 2016).

**Material examined:** (UFVJB) 1 ♂, Brasil - ES - Jerônimo Monteiro, Sítio Boa Sorte, Coord. 20°47‘14.37‘, 41°24‘43.08‘, 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Anga 2, Coord. 20°3‘13.27‘, 41°7‘24.77‘, 05.III.2013, Col. M.C. Vélez. 2 ♂, 6 ♀, Brasil - ES - Itaguacu, Sítio Bela Vista, Coord. 19°37‘14.03‘, 40°5‘14.51‘, 07.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53‘19.03‘, 40°42‘1.59‘, 08.III.2013, Col. M.C. Vélez.

**Remarks:** Specimens of *H. interruptus* were collected in pastures of *Brachiaria brizantha* and *B. mutica x B. arrecta*. 
Pastures were associated with weeds.

**Merocoris elevatus** (Spinola, 1837)

**Distribution:** Bolivia, Argentina, Brazil: DF, ES* (Attilio Vivacqua, São José do Caçado) (Stål 1870; Kormilev 1954).

**Material examined:** (UFVBJ) 1 ♂, Brasil - ES - Attilio Vivacqua, Fazenda Reti, Coord. 20°54'53.84", 41°13'49.75", 27.II.2013, Coll. M.C. Vélez. 1 ♀, Brasil - ES - São José do Caçado, Fazenda Soledade, Coord. 20°57'19.19", 41°37'16.34", 28.II.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of M. elevatus were collected in pastures of *Brachiaria brizantha* and B. decumbens. Pastures were associated with weeds.

**Phthiactenium pictum** (Drury, 1773)

**Distribution:** Mexico, Cuba, Puerto Rico, Guatemala, El Salvador, Costa Rica, Puerto Rico, Saint Martin, Colombia, Venezuela, Suriname, Guyana Paraguay, Argentina, Uruguay, Brazil: PE, AL, MG, RJ, SP, SC, ES (Linhares, João Neiva) (Costa Lima 1940; Silva et al. 1968; Brailovsky 2009; Dellep. et al. 2015; Martins et al. 2016).

**Material examined:** (UFVBJ) 1 ♂, Brasil - ES - São José Neiva, Sítio Boa Amizade, Coord. 19°40'36.77", 40°23'16.08", 13.III.2013, Coll. M.C. Vélez.

**Remarks:** The specimen of P. picta was collected on pasture of *Brachiaria brizantha*. Pastures were associated with weeds.

**Vilga sanctipauli** (Dolling, 1977)

**Distribution:** Argentina, Brazil: SP, ES* (Jerônimo Monteiro, Ibitirama, Montanha) (Dolling 1977; Oliveira et al. 2017).

**Material examined:** (UNAM) 2 specimens, Brasil - ES - Jerônimo Monteiro, Coord. 20°49'1.31", 41°24'53.04", Rede de varredura, 25.II.2013, Coll. M.C. Vélez. 2 specimens, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'34.32", 25.II.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - Montanha, Fazenda Cinelândia, Coord. 18°7'16.91", 40°15'32.49", 18.III.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of V. sanctipauli were collected on pastures of *Brachiaria brizantha* and Panicum maximum cv. Mombaza. Pastures were associated with weeds.

**Vilga westwoodii** (Kolenati, 1845)

**Distribution:** Panama, Colombia, Trinidad, Guyana, Bolivia, Paraguay, Argentina, Brazil: AM, PA, MT, BA, ES* (Jerônimo Monteiro) (Dolling 1977; Forero 2006).

**Material examined:** (UFVBJ) 1 ♂, 1 ♀, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'34.32", 25.II.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of V. westwoodii were collected on pastures of *Brachiaria brizantha* and Panicum maximum cv. Mombaza. Pastures were associated with weeds.

**Miridae**

**Campylopleuropsis infumatus** (Carvalho, 1947)

**Distribution:** Peru, Argentina, Brazil: MG, SC, ES* (Ibitirama) (Carvalho 1947; Schuh 2013; Carpineto et al. 2014).

**Material examined:** (UFVBJ) 1 ♂, Brasil - ES - Ibitirama, Ribeirão Santa Marta, Coord. 20°30'26.90", 41°41'52.75", 26.II.2013, Coll. M.C. Vélez.

**Remarks:** The specimen of C. infumatus was collected on pastures of Brachiaria decumbens.

**Collaria oleosa** (Distant, 1883)

**Distribution:** Mexico, Cuba, Puerto Rico, Guatemala, El Salvador, Costa Rica, Panama, Colombia, Ecuador, Peru, Brazil: AM, PA, AC, RO, MT, BA, GO, MG, RJ, SP, PR, SC, ES (Linhares, Ibitirama, São José do Caçado, Venda Nova do Imigrante, Afonso Cláudio, Concepção do Castelo, Itaguaçu, Santa Teresa, Aracruz, Águia Doce do Norte, Baixo Gandu, Cotatina) (Carvalho & Fontes 1981; Silva et al. 1994; Hernández & Henri 2010; Schuh 2013; Martins et al. 2016; Morales et al. 2016).

**Material examined:** (UFVBJ) 1 specimen, Brasil - ES - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - São José do Caçado, Sítio Bandeira, Coord. 21°21'58", 41°41'15.33", 28.II.2013, Coll. M.C. Vélez. 3 ♂️, 3 ♀️, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°71'47", 04.III.2013, Coll. M.C. Vélez. 1 ♂️, 3 ♀️, Brasil - ES - Afonso Cláudio, Sítio Bom Sucesso Coord. 20°10'32.29", 41°11'53.65", 05.III.2013, Coll. M.C. Vélez. 2 ♂️, Brasil - ES - Conc. Do Castelo, Sítio Monforte Quente, Coord. 20°24'31.20", 41°17'30.96", 06.III.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - Itaguaçu, Sítio Ninké, Coord. 19°47'35.50", 40°52'32.96", 07.III.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53'19.03", 40°42'15.99", 08.III.2013, Coll. M.C. Vélez. 1 ♂️, Brasil - ES - Aracruz, Ribeirão do Sapil, Coord. 19°40'53.97", 40°17'55.36", 05.III.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of C. oleosa were collected on pastures of Brachiaria mutica, B. brizantha, B. decumbens, B. ruziennis, Cydonon spp., Panicum maximum cv. Mombaza, P. maximum cv. Tanzania.

**Cyrtoecapsus femoralis** (Reuter, 1882)

**Distribution:** Venezuela, French Guiana, Brazil: MG, RS, ES* (Jerônimo Monteiro) (Barcelos et al. 2011; Ferreria & Henry 2013).

**Material examined:** (UFVBJ) 6 ♂️, 4 ♀️, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'4.32", 25.II.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of C. femoralis were collected on pastures of Brachiaria brizantha and Panicum maximum cv. Mombaza.

**Dolichomiris linearis** (Reuter, 1882)

**Distribution:** India, Ghana, Canary Island, New Hebrides, Fiji, Australia, New Guinea, New Caledonia, USA, México, Cuba, Puerto Rico, Guatemala, Honduras, El Salvador, Venezuela, Suriname, Ecuador, Peru, Brazil: MT, BA, GO, MG, RJ, SP, SC, ES* (Conceição do Castelo, Venda Nova do Imigrante, Ibitirama, Barra de São Francisco) (Carvalho 1975a; Ferreria et al. 2001; Schuh 2013).

**Material examined:** (UFVBJ) 1 specimen, Brasil - ES - Conc. Do Castelo, Sítio Monforte Frio, Coord. 20°20'52.69", 41°20'29.80", 06.III.2013, Coll. M.C. Vélez. 1 ♂️, Brasil - ES - Venda Nova, Pe da Serra, Coord. 20°24'19.59", 41°18’24.13", 41°64'37.77", 04.III.2013, Coll. M.C. Vélez. 4 ♂️, 1 ♀️, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°71'47", 04.III.2013, Coll. M.C. Vélez. 1 specimen, Brasil - ES - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Coll. M.C. Vélez. 1 ♂️, 1 ♀️, Brasil - ES - Santa Teresa, Pe de alho, Coord. 18°39'48.13", 40°50'26.50", 22.III.2013, Coll. M.C. Vélez.

**Remarks:** Specimens of D. linearis were collected on pastures of *Brachiaria brizantha* and Panicum maximum cv. Mombaza.
of Brachiaria brizantha, B. decumbens, and Cydonod spp.

**Ergythus varians** (Distant, 1884)

**Distribution**: USA, México, Cuba, Dominican Republic, Puerto Rico, Guatemala, Nicaragua, Suriname, Ecuador, Argentina, Brazil: GO, MG, SP, MT, ES* (Ibitirama, Venda Nova do Imigrante) (SILVA et al 1968; CARVALHO & AFONSO 1977; FERREIRA et al 2001; SCHUH 2013; MARTINS et al. 2014).

**Material examined**: (UFVB) 1 ♂, Brasil - ES - Castelo, Minerva, Coord. 20°30'57.44", 41°11'19.16", 02.III.2013, Col. M.C. Vélez.

**Remarks**: The specimen of *E. varians* was collected on pastures of *Brachiaria decumbens*. Pastures were associated with weeds.

**Garganus gracilentus** (Stål, 1860)

**Distribution**: Colombia, Venezuela, Ecuador, Peru, Paraguay, Argentina, Brazil: MG, RJ, SC, SP, MT, ES* (Ibitirama, Venda Nova do Imigrante) (SILVA et al 1968; CARVALHO & AFONSO 1977; FERREIRA et al 2001; SCHUH 2013; MARTINS et al. 2014).

**Material examined**: (UFVB) 1 ♂, Brasil - ES - Ibitirama, Córgo da passagem, Coord. 20°34'1.75", 41°37'21.87", 26.II.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Venda Nova, Fazenda Luis Uliana, Coord. 20°23'42.20", 41°44'49.16", 04.III.2013, Col. M.C. Vélez.

**Remarks**: Specimens of *G. gracilentus* were collected on pastures of *Brachiaria brizantha* and *Panicum maximum* cv. Mombaça.

**Horcasias signoreti** (Stål, 1859)

**Distribution**: Colombia, Venezuela, French Guiana, Peru, Bolivia, Paraguay, Argentina, Uruguay, Brazil: AP, AM, PA, MA, CE, PB, MT, BA, DF, GO, MG, RJ, SP, PR, SC, RS, ES (Linhares, Afonso Cláudio) (CARVALHO & JÜRBERG 1976; FERREIRA et al. 2001; SCHUH 2013).

**Material examined**: (UFVB) 5 ♂, 3 ♀, Brasil - ES - Afonso Cláudio, Fazenda Sermarv, Coord. 20°8'16.10", 41°8'19.19", 05.III.2013, Col. M.C. Vélez.

**Remarks**: Specimens of *H. signoreti* were collected on pastures of *Brachiaria ruziziensis* and *Cydonod ssp.*

**Macrolophus praeclarus** (Distant, 1884)

**Distribution**: Mexico, Cuba, Puerto Rico, Guatemala, Colombia, Venezuela, Suriname, Brazil: GO, MG, SC, ES* (São José do Calçado) (CARVALHO 1945; CARVALHO & AFONSO 1977; HERNANDEZ & HENRY 2010; FERREIRA & HENRY 2011; SCHUH 2013).

**Material examined**: (UFVB) 1 specimen, Brasil - ES - São José do Calçado, Fazenda Vida Nova Soledade, Coord. 20°58'19.81", 41°36'19.54", 28.II.2013, Col. M.C. Vélez.

**Remarks**: The specimen of *M. praeclarus* was collected on pastures of *Panicum maximum* cv Mombaça. Pastures were associated with weeds.

**Polymerus testaceipes** (Stål, 1860)

**Distribution**: USA, Mexico, Cuba, Jamaica, Puerto Rico, El Salvador, Nicaragua, Venezuela, St. Vincent, Guyana, Suriname, French Guiana, Ecuador, Peru, Paraguay, Argentina, Brazil: AM, PA, AC, PE, AL, RO, MT, BA, GO, MG, RJ, SP, PR, SC, ES (Guarapari, Linhares, Venda Nova do Imigrante, Afonso Cláudio, Ecoparangá) (CARVALHO 1975b; CARVALHO & AFONSO 1977; FERREIRA 1980, FERREIRA et al. 2001; HERNANDEZ & HENRY 2010; SCHUH 2013).

**Material examined**: (UFVB) 1 ♂, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. 2 ♂, 1 ♀, Brasil - ES - Afonso Cláudio, Fazenda Sermarv, Coord. 20°8'16.10", 41°8'19.19", 05.III.2013, Col. M.C. Vélez. 1 ♂, 4 ♀, Brasil - ES - Ecoparangá, Sítio do Divino, Coord. 18°19'33.39", 40°48'52.69", 21.III.2013, Col. M.C. Vélez.

**Remarks**: Specimens of *P. testaceipes* were collected on pastures of *Brachiaria brizantha*, *B. humidicola*, *B. ruziziensis*, and *Cydonod ssp.* Pastures were associated with weeds.

**Pygnoeres quadrirmacularus** (Guerin-Meneville, 1857)

**Distribution**: USA, Cuba, Dominican Republic, Puerto Rico, Guatemala, Honduras, Nicaragua, Panama, Colombia, Suriname, Peru, Brazil: MT, MG, ES* (Jerônimo Monteiro) (CARVALHO & AFONSO 1977; FERREIRA & HENRY 2011; SCHUH 2013).

**Material examined**: (UFVB) 1 ♂, Brasil - ES - Jerônimo Monteiro, Coord. 20°49'31.1", 41°24'53.04", Rede de varredura, 25.II.2013, Col. M.C. Vélez.

**Remarks**: The specimen of *P. quadrirmacularus* was collected on pastures of *Brachiaria brizantha*. Pastures were associated with weeds.

**Sericophanes ornatus** (Berg, 1878)

**Distribution**: Guyana, Suriname, Bolivia, Chile, Paraguay, Argentina, Brazil: MT, GO, MG, RJ, SP, SC, ES (Afonso Cláudio, Itaguaçu) (CARVALHO 1944; CARVALHO & AFONSO 1977; CARVALHO & COSTA 1988; FERREIRA et al. 2001; SCHUH 2013; MARTINS et al. 2016).

**Material examined**: (UFVB) 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermarv, Coord. 20°8'16.10", 41°8'19.19", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Itaguaçu, Sítio Bela Vista, Coord. 19°37'14.03", 40°51'45.12", 07.III.2013, Col. M.C. Vélez.

**Remarks**: Specimens of *S. ornatus* were collected on pastures of *Brachiaria mutica* and *Brachiaria ruziziensis*.

**Sthenoridae carmelitana** (Carvalho, 1948)

**Distribution**: México, Puerto Rico, Nicarágua, Colombia, Suriname, Peru, Paraguay, Argentina, Brazil: AL, MG, RJ, SC, RS, ES* (Venda Nova do Imigrante, Afonso Cláudio, Conceição do Castelo, Santa Teresa, Itibarita, Atílio Vivacqua) (CARVALHO 1948; CARVALHO & AFONSO 1977; SCHUH & SCHWARTZ 1988; FERREIRA et al. 2001; BARCELLOS et al. 2011; SCHUH 2013).

**Material examined**: (UFVB) 2 ♂, Brasil - ES - Venda Nova, Fazenda Luis Uliana, Coord. 20°23'42.20", 41°44'49.16", 04.III.2013, Col. M.C. Vélez. 1 ♂, 1 ♀, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Afonso Cláudio, Sítio Bom Sucesso, Coord. 20°10'32.29", 41°11'53.65", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Conc. Do Castelo, Sítio Monteveido, Coord. 20°28'17.04", 41°15'37.22", 06.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53'19.03", 40°42'51.59", 08.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Itibarita, Barra de Santa Marta, Coord. 20°31'12.78", 41°41'9.94", 26.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Atilio Vivacqua, Independência, Coord. 20°57'0.10", 41°7'56.99", 27.II.2013, Col. M.C. Vélez.

**Remarks**: Specimens of *S. carmelitana* were collected on pastures of *Brachiaria brizantha*, *B. decumbens*, *B. ruziziensis*, *Cydonod ssp.* *Panicum maximum* cv Mombaça.

**Taylorilygus apicalis** (Fieber, 1861)

**Distribution**: Spain, Switzerland, Australia, Madagascar, Turkey, Nubia, Egypt, Korea, USA, Mexico, Cuba, Puerto Rico, Guatemala, El Salvador, Panama, Colombia, Suriname, Ecuador, Peru, Chile, Paraguay, Argentina, Uruguay, Brazil: MG, C.
Material examined: (UFVB) 1 ♂, Brasil - ES - Ibrahim, Sítio Boa Esperança, Coord. 27.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Venda Nova, Sítio Briel, Coord. 19.35°57.95", 40°38°30.77", 14.III.2013, Col. M.C. Vélez. 3 specimen, Brasil - ES - Baixo Guandu, Holz, Coord. 19°30°40.08", 41°0°15.54", 14.III.2013, Col. M.C. Vélez.

Remarks: Specimens of T. tenuis were collected on pastures of Cynodon spp.

Tupiocoris cucurbitaceus (Spinola, 1852)

Distribution: Mexico, Colombia, Ecuador, Peru, Chile, Argentina, Brazil: SC, ES* (Venda Nova do Imigrante), (Carvalho & Afonso 1977; Ferreira & Henry 2011; Schuh 2013; Carpenter et al. 2014).

Material examined: (UFVB) 3 ♂, 2 ♀, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24°19.59", 41°71°47.4", 04.III.2013, Col. M.C. Vélez. 2 ♂, 5 ♀, Brasil - ES - Afonso Cláudio, Fazenda Sermava, Coord. 20°8°16.10", 41°8°19.19", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Conc. Do Castello, Sítio Montevideo, Coord. 20°28°17.04", 41°15°37.22", 06.III.2013, Col. M.C. Vélez.

Remarks: Specimens of T. cucurbitaceus were collected on pastures of Cynodon spp. Pastures were associated with weeds.

Tyththus neotropicalis (Carvalho, 1954)

Distribution: USA, Mexico, Cuba, Puerto Rico, Haiti, Belize, Nicaragua, Panama, Venezuela, Guyana, Suriname, Ecuador, Peru, Bolivia, Paraguay, Argentina, Brazil: AM, PA, PE, RO, MG, RJ, SP, PR, SC, ES (Linhares, Venda Nova do Imigrante, Baixo Guandu) (Ferreira et al. 2001; Henrique & Henry 2010; Schuh 2013; Carpenter et al. 2014).

Material examined: (UFVB) 1 ♂, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24°19.59", 41°71°47.4", 04.III.2013, Col. M.C. Vélez.

Remarks: Specimens of T. cucurbitaceus were collected on pastures of Cynodon spp. Pastures were associated with weeds.

Nabidae

Nabis capsiformis (Germain 1837)

Distribution: USA, México, Guyana, Peru, Chile, Uruguay, Argentina, Brazil: PA, MS, RJ, ES* (Ibirapuera, São José do Caçado, Castelo, Venda Nova do Imigrante, Conceição do Castelo, Itaguaçu, João Neiva, Colatina, Baixo Guandu) (Ieda-Peña 1971; Cornelsen & Coscarón 2013).

Material examined: (UFVB) 1 ♂, Brasil - ES - Ibrahim, Ribeirão Santa Marta, Coord. 20°30°26.90", 41°41°52.75", 26.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - São José do Caçado, Fazenda Soledade, Coord. 20°57°19.19", 41°37°16.34", 28.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Castelo, Minerva, Coord. 20°30°57.44", 41°11°19.16", 02.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Venda Nova, Fazenda Luís Uiliana, Coord. 20°23°42.20", 41°44°49.16", 04.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Conc. Do Castello, Sítio Monforte Quente, Coord. 20°24°31.20", 41°17°30.96", 16.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Itaguaçu, Sítio Bela Vista, Coord. 19°37°14.03", 40°51°45.12", 07.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - João Neiva, Fazenda Jua, Coord. 19°44°39.33", 40°21°21.53", 13.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Colatina, Sítio Briel, Coord. 19°32°39.37", 40°39°33.57", 14.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Baixo Guandu, Holz, Coord. 19°30°40.08", 41°0°15.54", 14.III.2013, Col. M.C. Vélez.

Remarks: Specimens of N. capsiformis were collected on pastures of Brachiairia mutica, B. brizantha, B. decumbens, Cynodon spp.

Pentatomidae

Dichelops melocantha (Dallas, 1851)

Distribution: Colombia, Venezuela, Peru, Bolivia, Paraguay, Argentina, Uruguay, Brazil: MS, PR, SC, ES* (Jerônimo Monteiro, Atilio Vivasca) (Graziá 1978; Panizzi et al. 2000b; Chocorosqui & Panizzi 2004; Panizzi et al. 2013; Dellape et al. 2015).

Material examined: (UFVB) 1 ♂, Brasil - ES - Jerônimo Monteiro, Coord. 20°43°4.61", 41°21°57.90", 27.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Atilio Vivasca, Independência, Coord. 20°5°10.10", 41°75°56.99", 27.III.2013, Col. M.C. Vélez.

Remarks: Specimens of D. melocantha were collected on pastures of Brachiairia brizantha.

Oebalus pugnax (De Geer, 1773)

Distribution: Colombia, Guyana, Suriname, Peru, Paraguay, Argentina, Uruguay, Brazil: PA, GO, SP, RS, ES* (São José do Calçado, Castelo, Venda Nova do Imigrante, Afonso Cláudio, Santa Teresa, Aracruz, João Neiva, Colatina, Baixo Guandu, Vila Pavão, Ecooparagua, Barra de São Francisco) (Sailer 1944; Silva et al. 1968; Panizzi et al. 2000b; Reblassi et al. 2005; Dellape et al. 2015).

Specimens examined: (UFVB) 1 ♂, Brasil - ES - São José do Calçado, Sítio bom futuro, Coord. 20°59°37.59", 41°36°40.75", 28.III.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Castelo, Minerva, Coord. 20°30°57.44", 41°11°19.16", 02.III.2013, Col. M.C. Vélez. 2 ♂, Brasil - ES - Venda Nova, Fazenda Luís Uiliana, Coord. 20°23°42.20", 41°44°49.16", 04.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermava, Coord. 20°8°16.10", 41°8°19.19", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Estancia Paraiso, Coord. 19°49°43.55", 40°39°56.81", 08.III.2013, Col. M.C. Vélez. 3 ♂, Brasil - ES - Aracruz, São José, Coord. 19°41°49", 40°17°19.36", 12.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - João Neiva, Sítio Boa Amizade, Coord. 19°40°36.77", 40°21°06.08", 13.III.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Colatina, IES Campus Itapina, Coord. 19°29°32.00", 40°45°45.67", 14.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Baixo Guandu, Sítio Seriema, Coord. 19°34°9.52", 40°39°33.57", 14.III.2013, Col. M.C. Vélez.

Remarks: Specimens of O. pugnax were collected on pastures of Brachiairia mutica, B. brizantha, B. decumbens, Cynodon spp. Pastures were associated with weeds.

Oebalus pugnax (De Geer, 1773) was collected on pastures of Brachiairia brizantha.
Specimens of O. ypsilongriseus were collected on pastures of Brachiaria brizantha, B. decumbens, Cydonon spp. Panicum maximum cv. Mombaza.

**Pileoderus guindinii** (Westwood, 1837)

Distribution: USA, Mexico, Cuba, Jamaica, Haiti, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, St. Vincent, Paraguay, Argentina, Uruguay, Brazil: AM, PA, AC, MG, SP, RS, ES (Linhares, Aracruz, Colatina) (Silva et al. 1968; Maes 1994; Malaguido & Panizzi 1998; Panizzi et al. 2000b; Carpietro et al. 2014; Dellape et al. 2015; Fernandes et al. 2015).

Material examined: (UFV) 1 ♂, Brasil - ES - Linhares, Graciosa II, Coord. 19°17'43.17", 40°58'90.9", 11.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Aracruz, São José, Coord. 19°41'9.49", 40°17'19.36", 12.III.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Colatina, Sítio das Palmeiras, Coord. 19°35'57.95", 40°38'30.77", 14.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *P. guindinii* were collected on pastures of *Brachiaria brizantha*, *Panicum maximum* cv. Mombaza.

**Pyrrhocoridae**

**Dysdercus maurus** (Distant, 1901)

Distribution: Colombia, Venezuela, Curaçao, Trinidad, Guyana, Suriname, Ecuador, Peru, Paraguay, Argentina, Brazil: AM, RN, PB, PE, BA, MG, RJ, SP, ES (Afonso Cláudio, São José do Calçado, Santa Teresa) (Pearson 1932; Dossburg 1968; Silva et al. 1968; Froschmier 1981; Schafer & Ahmad 2000; Melo & Dellape 2013).

Material examined: (UFV) 1 ♂, Brasil - ES - Afonso Cláudio, Sítio dois corações, Coord. 20°10'32.29", 41°11'53.65", 05.II.2013, Col. M.C. Vélez. 3 ♂, Brasil - ES - São José do Calçado, Fazenda Vida Nova Soledade, Coord. 20°58'19.81", 41°36'19.54", 28.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Fazenda Montanha, Coord. 19°49'55.97", 40°42'48.95", 08.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *D. maurus* were collected on pastures of *Brachiaria brizantha*, *Panicum maximum* cv. Mombaza. Pastures were associated with weeds.

**Reduviidae**

**Apiomerus lanipes** (Fabricius, 1803)

Distribution: Mexico, Colombia, Argentina, Brazil: BA, SP, ES (Linhares, Pinheiros) (Amorim Filho et al. 1994; Gil-Santana & Alencar 2001; Forero 2004; Marques et al. 2006; Coscarón & Martín-Park 2011; Martíns et al. 2016).

Material examined: (UFV) 1 specimen, Brasil - ES - Pinheiros, Fazenda São Roque, Coord. 18°19'10.09", 40°10'2.01", 19.III.2013, Col. M.C. Vélez.

Remarks: The specimen of *A. lanipes* was collected on pastures of *Brachiaria brizantha*.

**Atrachelus (Phorobura) saaleri** (Elkins, 1954)

Distribution: Guyana, Suriname, Bolivia, Brazil AM, PA, ES* (Jeronimo Monteiro, Venda Nova do Imigrante, Itaguaçu, Santa Teresa) (Elkins 1954).

Material examined: (UFV) 1 ♂, Brasil - ES - Jérônimo Monteiro, Fazenda Luizitana, Coord. 20°46'10.64", 41°23'3.32", 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'41.47", 04.III.2013, Col. M.C. Vélez. (CEIOC) 1 specimen, Brasil - ES - Itaguacu, Sítio Bela Vista, Coord. 19°37'14.03", 40°51'45.12", 07.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Santa Teresa, Sítio Natal, Coord. 19°53'19.03", 40°42'1.59", 08.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *A. (Phorobura) saaleri* were collected on pastures of *Brachiaria brizantha*, *B. mutica*, *Cydonon* spp. *Panicum maximum* cv. Mombaza.

**Cosmoclopius nigroannulatus** (Stål 1860)

Distribution: Venezuela, Bolivia, Argentina, Uruguay, Brazil: BA, RS, ES* (São José do Calçado, Baixo Guandu, Pinheiros) (Coscarón et al. 2002; Janke et al. 2003; Melo et al. 2004; Marques et al. 2006).

Material examined: (UFV) 1 ♂, Brasil - ES - São José do Calçado, Fazenda Soledade, Coord. 20°57'19.19", 41°37'16.34", 28.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Pinheiros, Fazenda São Roque, Coord. 18°19'10.09", 40°10'2.01", 19.III.2013, Col. M.C. Vélez. (CEIOC) 2 specimens, Brasil - ES - Baixo Guandu, Sítio Serieira, Coord. 19°34'9.52", 40°59'38.36", 14.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *C. nigroannulatus* were collected on pastures of *Brachiaria brizantha* and *B. decumbens*.

**Doldina carinulata** (Stål, 1859)

Distribution: Venezuela, Guyana, Dominica, West Indies, Paraguay, Argentina, Brazil: AM, PA, MT, SP, ES* (Conceição do Castelo, Itaguiuçu, Aracruz, João Neiva, Montanha, Barra de São Francisco) (Hussey & Elkins 1955; Melo & Coscarón 2004).

Material examined: (UFV) 1 ♂, Brasil - ES - Conc. Do Castelo, Sítio Montevideo, Coord. 20°28'17.04", 41°15'37.22", 06.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Itaguacu, Correg de flores, Coord. 19°46'11.82", 40°50'56.09", 07.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Montanha, Fazenda Cinelândia, Coord. 18°7'16.91", 40°15'32.49", 18.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - São José do Calçado, Sítio dois corações, Coord. 18°37'19.99", 40°53'58.53", 22.III.2013, Col. M.C. Vélez. (CEIOC) 1 specimen, Brasil - ES - Itaguacu, Sítio dos corações, Coord. 19°41'9.49", 40°17'19.36", 12.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - João Neiva, Três Rios, Coord. 19°39'15.81", 40°25'25.36", 13.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *D. carinulata* were collected on pastures of *Brachiaria mutica*, *B. decumbens*, *Panicum maximum* cv. Mombaza.

**Pniortis infirma** (Stål, 1859)

Distribution: USA, Mexico, Cuba, Puerto Rico, Guatemala, Panama, Ecuador, Argentina, Brazil: RJ, ES* (Afonso Cláudio) (Champion 1897; Costa Lima & Seabra 1945; Wolkott 1948; Froschmier 1981; Swanson 2011; Diez & Coscarón 2014).

Material examined: (CEIOC) 1 specimen, Brasil - ES - Afonso Cláudio, Fazenda Servarv, Coord. 20°8'16.10", 41°8'19.19", 05.III.2013, Col. M.C. Vélez.

Remarks: The specimen of *P. infirma* was collected on pastures of *Cydonon* spp.

**Repipita flavicans** (Amytot & Servelle, 1843)

Distribution: Mexico, Cuba, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Guyana, French Guiana, Bolivia, Paraguay, Argentina, Uruguay, Brazil: DF,
RS, ES (São José do Calçado, Ecoporanga) (Melo et al. 2004; Barcellos 2006; Martin Park et al. 2012; Dellapé P. et al. 2015; Gamez-Viëus & Eben 2005; Martins et al. 2016).

Material examined: (CEIOC) 1 specimen, Brasil - ES - São José do Calçado, Fazenda Vida Nova Soledade, Coord. 20°58’19.81” 41°36’19.54”, 28.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Ecoporanga, Santa Teresinha, Coord. 18°29’20.89”, 40°49’45.38”, 21.III.2013. Col. M.C. Vélez.

Remarks: Specimens of R. flavicans were collected on pastures of Cynodon spp. and Panicum maximum cv. Mombaza.

Rhopalidae

Xenogenus picturatum (Berg, 1883)

Distribution: USA, Mexico, Cuba, Puerto Rico, Nicaragua, St. Vincent, Bolivia, Argentina, Uruguay, Brazil: PR, ES* (Ecoporanga) (Maes & Gollner-Scheidt 1993; Dellapé & Carpeniero 2012; Diez & Coscarón 2015; Fowles et al. 2015; Melo & Montemeyer 2015).

Material examined: (MNJR) 1 ♀, Brasil - ES - Ecoporanga, Sítio do Divino, Coord. 18°19’33.39”, 40°48’52.69”, 21.III.2013. Col. M.C. Vélez.

Remarks: The specimen of X. picturatum was collected on pastures of Bracharia humidicola.

Rhypharochromidae

Pseudopachybrachius vinctus (Say, 1831)

Distribution: USA, Mexico, Cuba, Cayman Islands, Jamaica, Bahamas, Dominican Republic, Puerto Rico, St. Croix Island, St. Thomas Island, Haiti, Belize, Guatemala, Panama, Antigua, Dominica, Barbados, Colombia, St. Vincent Island, Grenada, Guyana, Ecuador, Argentina, Brazil: MG, SP, RS, ES* (Atílio Vivacqua, Castelo, Venda Nova do Imigrante, Afonso Cláudio, Conceição do Castelo, Santa Teresa, Baixo Guandu, Vila Pavão) (Silva et al. 1968; Albuquerque 1990; Paula & Ferreira 2000; Melo et al. 2004; Baranowski & Slater 2005).

Material examined: (UFVB) 3 ♀, Brasil - ES - Atílio Vivacqua, Independência, Coord. 20°57’10.70”, 41°75’56.99”, 27.II.2013. Col. M.C. Vélez. 1 ♂, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24’19.59”, 41°71’14.77”, 4.III.2013. Col. M.C. Vélez. 2 ♀, 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermarrv, Coord. 20°8’16.10”, 41°8’19.19”, 05.III.2013. Col. M.C. Vélez. 1 ♀, Brasil - ES - Conc. Do Castelo, Sítio Montevideo, Coord. 20°28’17.04”, 41°15’37.22”, 6.III.2013. Col. M.C. Vélez. 3 ♀, Brasil - ES - Santa Teresa, Sítio Natral, Coord. 19°53’19.03”, 40°42’11.59”, 08.III.2013. Col. M.C. Vélez. 1 ♀, Brasil - ES - Vila Pavão, Sítio Alegre, Coord. 18°37’41.21”, 40°42’32.29”, 20.III.2013. Col. M.C. Vélez. (USNM) 1 specimen, Brasil - ES - Castelo, Minerva, Coord. 20°31’2.50”, 41°10’47.25”, 2.III.2013. Col. M.C. Vélez. 1 specimen, Brasil - ES - Baixo Guandu, Holz, Coord. 19°30’40.8”, 41°01’54.54”, 14.III.2013. Col. M.C. Vélez.

Remarks: Specimens of P. vinctus were collected on pastures of Brachiaria brizantha, B. decumbens, B. ruziziensis, and Cynodon spp. Cachoeirinha de São José, Coord. 20°30’24.62”, 41°13’13.61”, 02.III.2013. Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Sítio Bom Successo, Coord. 20°10’32.29”, 41°11’53.65”, 05.III.2013. Col. M.C. Vélez. 1 ♂, Brasil - ES - B. de São Francisco, Sítio Boa Vista, Coord. 18°35’28.79”, 40°53’30.28”, 22.III.2013. Col. M.C. Vélez.

Remarks: Specimens of Thaumastocoris peregrinus were collected on pastures of Brachiaria brizantha, Cynodon spp. Panicum maximum cv. Mombaza. In these places there were many remains (leaves) of eucalyptus trees, pastures were surrounded by this specie of tree.

Tingidae

Gargaphia aff. lunulata (Mayr 1865)

Distribution: Colombia, Paraguay, Argentina, Uruguay, Brazil: PA, CE, BA, MG, RJ, ES* (Jerônimo Monteiro, Atílio Vivacqua) (Amat 2003; Coelho & Silva 2015).

Material examined: (UFVB) 1 ♂, 1 ♀, Brasil - ES - Jerônimo Monteiro, Sítio Boa Sorte, Coord. 20°47’14.37”, 41°24’43.08”, 25.II.2013. Col. M.C. Vélez. 2 specimens, Brasil - ES - Ecoporanga, Sítio Antenor Cavensan, Coord. 18°23’66.66”, 40°44’12.63”, 21.III.2013. Col. M.C. Vélez. 1 ♂, Brasil - ES - Atílio Vivacqua, Independência, Coord. 20°57’10.70”, 41°75’56.99”, 27.II.2013. Col. M.C. Vélez.

Remarks: Specimens of G. lunulata were collected on pastures of Cynodon spp., Brachiaria brizantha, and Panicum maximum cv. Mombaza. Pastures were associated with weeds.

DISCUSSION

In the present study, forty-three species of Heteroptera belonging to thirteen families were collected on pastures of the Espírito Santo state: Alydidae (one specie), Berytidae (three species), Blissidae (one specie), Coreidae (seven species), Miridae (sixteen species), Nabidae (one specie), Pentatomidae (three species), Pyrrhocoridae (one specie), Reduviidae (six species), Rhopalidae (one specie), Rhypharochromidae (one specie), Thaumastocoridae (one specie), and Tingidae (one specie). Among the species collected; Cebrenis tenebrosa (Brailovsky, 1995) is recorded for the first time on Brazil, besides, the biogeographic range extension is also included for: N. parvus; G. nexus; j. macer; J. sobrinus; B. aff. antilus; C. duplicata; M. elevatus; V. sanctipaulii; V. westwoodii; C. infumatus; C. femorialis; D. linearis; E. varianis; G. gracilentus; M. praeclerus; P. quadriramulatus; S. carmelitana; T. apicalis; T. tenuis; T. cucurbitaceae; N. capsiformis; D. melacanthus; O. ypsilorinseis; A. (Pohoruba) saileri; P. infima; C. nigronuanteus; D. carinulata; P. infima; X. picturatum; P. vincent; G. aff. lunulata. This study showed the highest diversity of heteroptera on pastures ecosystems of Espírito Santo state.

The vegetational diversity and density in agroecosystems surrounding the pastures influenced the abundance of herbivorous insects as well as their natural enemies (Andrew 1983; Schellhorn & Sork 1997). We believe that the association of pastures with weeds and the presence of crop residues improved the records of this study.

Among the forty-three collected species of Heteroptera three of them were observed inducing extensive damage and killing most of the pastures leaves. The species B. aff. antilus; C. oleosa and T. tenuis were collected in many pastures, although only in Tangola grass (Brachiaria mutica x Brachiaria arrecta); Angola grass (B. mutica) and Star grass (Cynodon sp.), respectively were observed causing serious damage. Besides, O. ypsilorinseis was observed feeding of developing grains of bread grass (B. brizantha).
The plant bugs: B. aff. antillus; C. oleosa, T. tenuis, and O.ypsilongriseus are important sapsuckers, those are specialized for feeding especially on Poaceae family plants (PANIZZI et al. 2000b; VALÉRIO et al. 2015; MORALES et al. 2016; VIVAS & ASTUDILLO 2017). The damages produced by the first three species before mentioned are similar, the youngest leaves attacked can partially or dry out, delaying the growth, reducing yield and nutritional value of the crops and grasses palatability; elsewhere, when the damage of insect is serious its may cause plants death (VALÉRIO et al. 2015; VIVAS & ASTUDILLO 2017; VÉLEZ et al. 2020). In the case of O.ypsilongriseus, is considered an important pest of rice in South America, adults and nymphs feeding kernels cause conspicuous areas of discoloration, panicles can be partially or empty and therefore causing losses in the yield and quality of the grain (PANIZZI et al. 2000b; VIVAS & ASTUDILLO 2011). The damages of O.ypsilongriseus on pastures seeds need to receive more attention, especially to small cattle breeders that depend on good seeds condition to keep their grasslands.

Therefore, this study helps to increase knowledge about the relationships between heteropterans and pastures. Besides, the timely and accurate identification of heteropterans on pastures could help to recognize among beneficial and harmful insects; establish management strategies to pest insects; prevent the pasture degradation attributed to pest damages, and consequently to avoid losses of dry matter, grass digestibility, which are directly related on the reduction of milk as well as the meat production. Finally, more efforts are still necessary to increase the number of heteropterans species known on the state.

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