



Taxonomy and Systematic

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 heteropterans 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; *Cebrenis tenebrosa* (Brailovsky, 1995) is recorded for the first time in Brazil. The range extension is also included for several heteropterans collected on the Espírito Santo state. The following species: *Blissus* aff. *antillus* (Leonard, 1968); *Collaria oleosa* (Distant, 1883); *Oebalus ypsilon* (De Geer, 1773), and *Trigonotylus tenuis* (Reuter, 1893) 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 heteropterans 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 (SCHAEFFER & 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 (KELLOG 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 (LANI *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 (DIAS-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; VALERIO *et al.* 1999; OLIVEIRA & MALAGUIDO 2004; SAMUELS & CORACINI 2004; NARDI *et al.* 2007; VIVAN *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 Guandú; 11, Itaguaçu; 12, Santa Teresa; 13, Afonso Cláudio; 14, Conceição do Castelo; 15, Venda Nova do Imigrante; 16, Castelo; 17, Ibitirama; 18, Jerônimo Monteiro; 19, Atilio Vivacqua; 20, São José do Calçado). Four sites in each municipality were sampled, comprising in a 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 lab, and examined under a Leica MZ8 stereomicroscope. Whenever required to identify, the genital capsule of males was dissected and cleared with a potassium hydroxide solution for observation. 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.

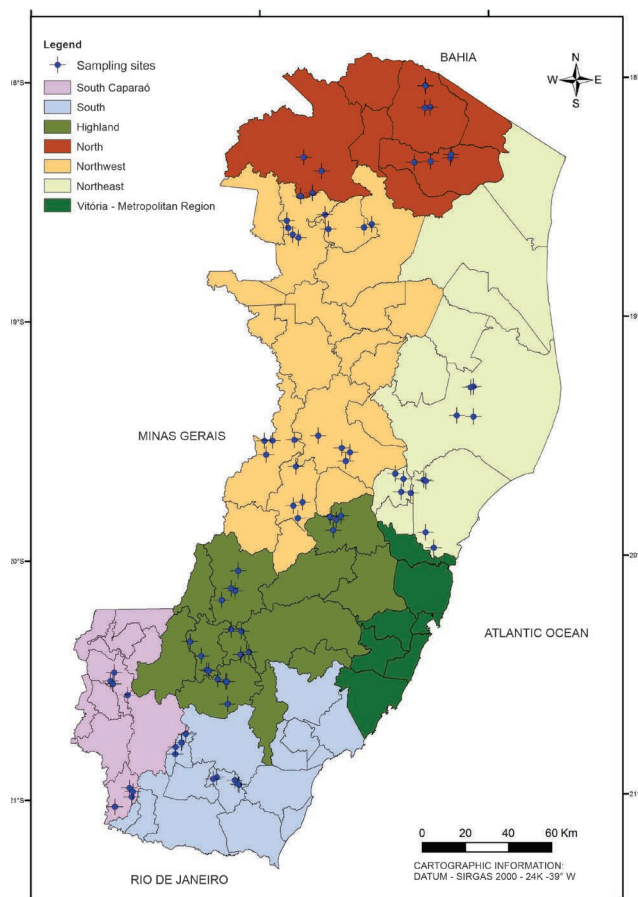


Figure 1. Map of Espírito Santo state showing the sampling sites of pastures in which heteropterans were collected.

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, RS, ES* (Jerônimo Monteiro, Ibitirama, Atilio Vivacqua, 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: (UFVB) 1 ♀, Brasil - ES - Jerônimo Monteiro, Coord. 20°44'4.61", 41°21'57.90", Rede de varredura, 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Ibitirama, Ribeirão Santa Marta, Coord. 20°30'26.90", 41°41'52.75", 26.II.2013, Col. M.C. Vélez. 1 ♂, 1 ♀, Brasil - ES - Atilio Vivacqua, Retiro da lagoinha, Coord. 20°55'24.25", 41°14'47.72", 26.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Castelo, Minerva, Coord. 20°30'57.44", 41°11'9.16", 02.III.2013, Col. M.C. Vélez. 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 - 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 Sapí, Coord. 19°40'53.97", 40°17'55.36", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - João Neiva, Três Ríos, Coord. 19°39'15.81", 40°25'25.36", 13.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Pinheiros, Fazenda Bom

Gosto, Coord. 18°20'1.97", 40°10'14.11", 19.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Vila Pavão, Sítio três irmãos, Coord. 18°36'32.04", 40°31'4.22", 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. ruziziensis* x *B. brizantha* cv. Marandu, *B. humidicola*, *Cynodon* spp. and *Panicum maximum* cv. Mombaza. Pastures were associated with weeds.

Berytidae

Gampsocoris nexus (Harris, 1943)

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

Material examined: (UFVB) 2 ♂, 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 - Montanha, Sítio Estrela, Coord. 18°1'50.56", 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; DELLAPÉ *et al.* 2010; RENGIFO-CORREA & GONZÁLEZ 2011).

Material examined: (UFVB) 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, Perú, Bolivia, Paraguay, Argentina, Uruguay, Brazil: MG, SP, ES* (Afonso Cláudio) (SILVA *et al.* 1968; FROESCHNER 1981; HENRY & FROESCHNER 1998; PAULA & FERREIRA 2000).

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.

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, Itaguaçu, Santa Teresa, Linhares, Baixo Guandu, Montanha, Ecoporanga, Barra de São Francisco, Pinheiros) (VALÉRIO *et al.* 1999; SAMUELS *et al.* 2002; DELLAPÉ & HENRY 2020).

Material examined: (UFVB) 1 ♂, 3 ♀, 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 - Itaguaçu, Sítio Bela Vista, Coord. 19°37'14.03", 40°51'45.12", 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 - Baixo Guandu, Fazenda São Sebastião, Coord. 19°30'32.76", 40°52'7.53", 14.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Ecoporanga, Santa Teresinha, Coord. 18°29'20.89", 40°49'45.38", 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. (USNM) 1 specimen, Brasil - ES - Conc. Do Castelo, Sítio Monforte 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°1'50.56", 40°16'43.45", 14.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Baixo Guandu, Granja Capixaba, Coord. 19°30'39.94", 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.

Coreiidae

Cebrenis duplicata (Brailovsky, 1995)

Distribution: Peru, Brazil: RJ, SC, ES* (João Neiva) (BRAILOVSKY 1995; CRUCES & 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, RS, ES (Linhares, Jerônimo Monteiro, Santa Teresa) (BLÖTE 1938; SILVA *et al.* 1968; THUM & COSTA 1997; DELLAPÉ P. *et al.* 2015; MARTINS *et al.* 2016).

Material examined: (UFVB) 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 - 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* (Atílio Vivacqua, São José do Calçado) (STÄL 1870; KORMILEV 1954).

Material examined: (UFVB) 1 ♂, Brasil - ES - Atílio Vivacqua, Fazenda Reta, Coord. 20°54'53.84", 41°13'49.75", 27.II.2013, Col. M.C. Vélez. 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.

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

***Phthiacnemis picta* (Drury, 1773)**

Distribution: Mexico, Cuba, Honduras, El Salvador, Nicaragua, 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; DELLAPÉ P. et al. 2015; MARTINS et al. 2016).

Material examined: (UFVB) 1 ♂, Brasil - ES - João Neiva, Sítio Boa Amizade, Coord. 19°40'36.77", 40°23'16.08", 13.III.2013, Col. 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; OLIVERA 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, Col. M.C. Vélez. 2 specimens, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'4.32", 25.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Montanha, Fazenda Cinelândia, Coord. 18°7'16.91", 40°15'32.49", 18.III.2013, Col. 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 westwoodi* (Kolenati, 1845)**

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

Material examined: (UFVB) 1 ♂, 1 ♀, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'4.32", 25.II.2013, Col. M.C. Vélez.

Remarks: Specimens of *V. westwoodi* were collected on pastures of *Panicum maximum* cv. Mombaza. Pastures were associated with weeds.

Miridae

***Campyloneuropsis infumatus* (Carvalho, 1947)**

Distribution: Peru, Argentina, Brazil: MG, SC, ES* (Ibitirama) (CARVALHO 1947; SCHUH 2013; CARPINTERO et al. 2014).

Material examined: (UFVB) 1 ♂, Brasil - ES - Ibitirama, Ribeirão Santa Marta, Coord. 20°30'26.90", 41°41'52.75",

26.II.2013, Col. 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 Calçado, Venda Nova do Imigrante, Afonso Cláudio, Conceição do Castelo, Itaguaçu, Santa Teresa, Aracruz, Água Doce do Norte, Baixo Gandu, Colatina) (CARVALHO & FONTES 1981; SILVA et al. 1994; HERNÁNDEZ & HENRY 2010; SCHUH 2013; MARTINS et al. 2016; MORALES et al. 2016).

Material examined: (UFVB) 1 specimen, Brasil - ES - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - São José do Calçado, Sítio Bandeira, Coord. 21°2'1.58", 41°41'15.33", 28.II.2013, Col. M.C. Vélez. 3 ♂, 3 ♀, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. 1 ♂, 3 ♀, Brasil - ES - Afonso Cláudio, Sítio Bom Sucesso Coord. 20°10'32.29", 41°11'53.65", 05.III.2013, Col. M.C. Vélez. 2 ♂, Brasil - ES - Conc. Do Castelo, Sítio Monforte Quente, Coord. 20°24'31.20", 41°17'30.96", 06.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Itaguaçu, Sítio Ninke, Coord. 19°47'3.50", 40°52'32.96", 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. 1 ♂, Brasil - ES - Aracruz, Ribeirão do Sapí, Coord. 19°40'53.97", 40°17'55.36", 05.III.2013, Col. M.C. Vélez.

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

***Cyrtocapsus femoralis* (Reuter, 1892)**

Distribution: Venezuela, French Guiana, Brazil: MG, RS, ES* (Jerônimo Monteiro) (BARCELLOS et al. 2011; FERREIRA & HENRY 2011; SCHUH 2013).

Material examined: (UFVB) 6 ♂, 4 ♀, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'4.32", 25.II.2013, Col. 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; FERREIRA et al. 2001; SCHUH 2013).

Material examined: (UFVB) 1 specimen, Brasil - ES - Conc. Do Castelo, Sítio Monforte Frio, Coord. 20°20'52.69", 41°20'29.80", 06.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Venda Nova, Pe da Serra, Coord. 20°24'19.59", 20°18'24.13", 41°6'43.77", 04.III.2013, Col. M.C. Vélez. 4 ♂, 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 - Ibitirama, Córrego da lagoa, Coord. 20°28'20.61", 41°40'50.80", 26.II.2013, Col. M.C. Vélez. 1 ♂, 1 ♀, Brasil - ES - B. de São Francisco, Pau de alho, Coord. 18°39'48.13", 40°50'26.50", 22.III.2013, Col. M.C. Vélez.

Remarks: Specimens of *D. linearis* were collected on pastures

of *Brachiaria brizantha*, *B. decumbens*, and *Cynodon* spp.

***Engytatus varians* (Distant, 1884)**

Distribution: USA, México, Cuba, Dominican Republic, Puerto Rico, Guatemala, Nicaragua, Suriname, Ecuador, Argentina, Brazil: GO, MG, SP, ES* (Castelo) (CARVALHO 1947; FERREIRA & HENRY 2011; MARTÍNEZ *et al.* 2014).

Material examined: (UFVB) 1 ♂, Brasil - ES - Castelo, Minerva, Coord. 20°30'57.44", 41°11'9.16", 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; CARPINTERO *et al.* 2014).

Material examined: (UFVB) 1 ♀, Brasil - ES - Ibitirama, Córrego 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°4'49.16", 04.III.2013, Col. M.C. Vélez.

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

***Horciasinus signoreti* (Stål, 1859)**

Distribution: Colombia, Venezuela, French Guiana, Peru, Bolívia, 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 & JURBERG 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 *Cynodon* spp.

***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; HERNÁNDEZ & 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 Mombaza. 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, Ecoporanga) (CARVALHO 1975b; CARVALHO & AFONSO 1977; FERREIRA 1980, FERREIRA *et al.* 2001; HERNÁNDEZ & 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 - Ecoporanga, 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 *Cynodon* spp. Pastures were associated with weeds.

***Pycnoderes quadrimaculatus* (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°49'1.31", 41°24'53.04", Rede de varredura, 25.II.2013, Col. M.C. Vélez.

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

***Sericophanes ornatus* (Berg, 1878)**

Distribution: Guyana, Suriname, Bolívia, 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; CARPINTERO *et al.* 2014; 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* e *Brachiaria ruziziensis*.

***Sthenaridea 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, Ibitirama, 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°4'49.16", 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 Montevideo, 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 specimen, Brasil - ES - Ibitirama, Barra de Santa Marta, Coord. 20°31'12.78", 41°41'9.94", 26.II.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Atílio 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*, *Cynodon* spp. *Panicum maximum* cv. Mombaza.

***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,

ES* (Venda Nova do Imigrante, Afonso Cláudio, Conceição do Castelo) (CARVALHO & AFONSO 1977; FERREIRA *et al.* 2001; HERNÁNDEZ & HENRY 2010; SCHUH 2013; CARPINTERO *et al.* 2014).

Material examined: (UFVB) 1 specimen, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermarv, Coord. 20°8'16.10", 41°8'19.19", 05.III.2013, Col. M.C. Vélez. 1 ♂, 1 ♀, Brasil - ES - Conc. Do Castelo, Sítio Montevideo, Coord. 20°28'17.04", 41°15'37.22", 06.III.2013, Col. M.C. Vélez.

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

Trigonotylus tenuis (Reuter, 1893)

Distribution: New Guinea, New Britain, USA, Mexico, Cuba, Puerto Rico, Guatemala, El Salvador, Costa Rica, Venezuela, Peru, Argentina, Brazil: BA, MG, ES* (Venda Nova do Imigrante, Afonso Cláudio, Colatina, Baixo Guandu) (CARVALHO 1975a; FERREIRA *et al.* 2001; VIVAS *et al.* 2005; SCHUH 2013; CARPINTERO *et al.* 2014).

Material examined: (UFVB) 3 ♂, 3 ♀, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. 2 ♂, 5 ♀, 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 - Afonso Cláudio, Sítio Bom Sucesso, Coord. 20°10'32.29", 41°11'53.65", 05.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Colatina, Sítio das Palmeiras, Coord. 19°35'57.95", 40°38'30.77", 14.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Baixo Guandu, Holz, Coord. 19°30'40.08", 41°0'1.54", 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; CARPINTERO *et al.* 2014).

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.

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

Tytthus neotropicalis (Carvalho, 1954)

Distribution: USA, Mexico, Cuba, Puerto Rico, Haiti, Belize, Nicaragua, Panama, Venezuela, Guyana, Suriname, Ecuador, Peru, Bolivia, Paraguay, Argentina, Brazil: AM, PA, CE, RO, MG, RJ, SP, PR, SC, ES (Linhares, Venda Nova do Imigrante, Baixo Guandu) (FERREIRA *et al.* 2001, HERNÁNDEZ & HENRY 2010; HENRY 2012; SCHUH 2013; CARPINTERO *et al.* 2014; MARTINS *et al.* 2016).

Material examined: (UFVB) 2 ♂, 2 ♀, 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 - Baixo Guandu, Holz, Coord. 19°30'40.08", 41°0'1.54", 14.III.2013, Col. M.C. Vélez.

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

Nabidae

Nabis capsiformis (Germar 1837)

Distribution: USA, México, Guyana, Peru, Chile, Uruguay, Argentina, Brazil: PA, MS, RJ, ES* (Ibitirama, São José do Calçado, Castelo, Venda Nova do Imigrante, Conceição do Castelo, Itaguaçu, João Neiva, Colatina, Baixo Guandu) (OJEDA-PEÑA 1971; CORNELIS & COSCARÓN 2013).

Material examined: (UFVB) 1 ♀, Brasil - ES - Ibitirama, 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 Calçado, Fazenda Soledade, Coord. 20°57'19.19", 41°37'16.34", 28.II.2013, Col. M.C. Vélez. 1 ♂, 1 ♀, Brasil - ES - Castelo, Minerva, Coord. 20°30'57.44", 41°11'9.16", 02.III.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Venda Nova, Fazenda Luis Uliana, Coord. 20°23'42.20", 41°4'49.16", 04.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Conc. Do Castelo, Sítio Monforte Quente, Coord. 20°24'31.20", 41°17'30.96", 06.III.2013, Col. M.C. Vélez. 1 ♂, 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°44'9.33", 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°0'1.54", 14.III.2013, Col. M.C. Vélez.

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

Pentatomidae

Dichelops melacanthus (Dallas, 1851)

Distribution: Colombia, Venezuela, Peru, Bolivia, Paraguay, Argentina, Uruguay, Brazil: MS, PR, SC, RS, ES* (Jerônimo Monteiro, Atílio Vivacqua) (GRAZIA 1978; PANIZZI *et al.* 2000b; CHOCOROSQUI & PANIZZI 2004; PANIZZI *et al.* 2013; DELLAPÉ *et al.* 2015).

Material examined: (UFVB) 1 ♂, Brasil - ES - Jerônimo Monteiro, Coord. 20°44'4.61", 41°21'57.90", Rede de varredura, 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Atílio Vivacqua, Independência, Coord. 20°57'0.10", 41°7'56.99", 27.II.2013, Col. M.C. Vélez.

Remarks: Specimens of *D. melacanthus* were collected on pastures of *Brachiaria brizantha*.

Oebalus ypsilon (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, Ecoporanga, Barra de São Francisco) (SAILER 1944; SILVA *et al.* 1968; PANIZZI *et al.* 2000b; REBAGLIATI *et al.* 2005; DELLAPÉ *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.II.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Castelo, Minerva, Coord. 20°30'57.44", 41°11'9.16", 02.III.2013, Col. M.C. Vélez. 2 ♂, Brasil - ES - Venda Nova, Fazenda Luis Uliana, Coord. 20°23'42.20", 41°4'49.16", 04.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Afonso Cláudio, Fazenda Sermav, Coord. 20°8'16.10", 41°8'19.19", 5.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Santa Teresa, Estancia Paraíso, Coord. 19°49'43.55", 40°39'56.81", 08.III.2013, Col. M.C. Vélez. 3 ♂, Brasil - ES - Aracruz, São José, Coord. 19°41'9.49", 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°23'16.08", 13.III.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Colatina, IFES 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°59'38.36", 14.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - Vila Pavão, Sítio Boa Esperança, Coord. 18°34'0.84", 40°43'24.04", 20.III.2013, Col. M.C. Vélez. 2 ♂, 2 ♀, Brasil - ES - Ecoporanga, Santa Teresinha, Coord. 18°29'20.89", 40°49'45.38", 21.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 *O. ypsilongriseus* were collected on pastures of *Brachiaria brizantha*, *B. decumbens*, *Cynodon* spp. *Panicum maximum* cv. Mombaza.

***Piezodorus guildinii* (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; CARPINTERO *et al.* 2014; DELLAPÉ *et al.* 2015; FERNANDES *et al.* 2015).

Material examined: (UFVB) 1 ♂, Brasil - ES - Linhares, Graciosa II, Coord. 19°17'43.17", 40°5'18.90", 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. guildinii* 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; DOESBURG 1968; SILVA *et al.* 1968; FROESCHNER 1981; SCHAEFER & AHMAD 2000; MELO & DELLAPÉ 2013).

Material examined: (UFVB) 1 ♂, Brasil - ES - Afonso Cláudio, Sítio Bom Sucesso, Coord. 20°10'32.29", 41°11'53.65", 05.III.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) (AMARAL FILHO *et al.* 1994; GIL-SANTANA & ALENCAR 2001; FORERO 2004; MARQUES *et al.* 2006; COSCARÓN & MARTIN-PARK 2011; MARTINS *et al.* 2016).

Material examined: (UFVB) 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*.

***Attrachelus (Phorobura) saileri* (Elkins, 1954)**

Distribution: Guyana, Suriname, Bolívia, Brazil AM, PA, ES* (Jerônimo Monteiro, Venda Nova do Imigrante, Itaguaçu, Santa Teresa) (ELKINS 1954).

Material examined: (UFVB) 1 ♂, Brasil - ES - Jerônimo Monteiro, Fazenda Luzitania, Coord. 20°46'10.64", 41°23'4.32", 25.II.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 04.III.2013, Col. M.C. Vélez. (CEIOC) 1 specimen, Brasil - ES - Itaguaçu, 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) saileri* were collected on pastures of *Brachiaria brizantha*, *B. mutica*, *Cynodon* spp. *Panicum maximum* cv. Mombaza.

***Cosmoclopius nigroannulatus* (Stål 1860)**

Distribution: Venezuela, Bolívia, Argentina, Uruguay, Brazil: BA, RS, ES* (São José do Calçado, Baixo Guandu, Pinheiros) (COSCARÓN *et al.* 2002; JAHNKE *et al.* 2003; MELO *et al.* 2004; MARQUES *et al.* 2006).

Material examined: (UFVB) 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 Seriema, 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* e *B. decumbens*.

***Doldina carinulata* (Stål, 1859)**

Distribution: Venezuela, Guyana, Dominica, West Indies, Paraguay, Argentina, Brazil: AM, PA, MT, SP, ES* (Conceição do Castelo, Itaguaçu, Aracruz, João Neiva, Montanha, Barra de São Francisco) (HUSSEY & ELKINS 1955; MELO & COSCARÓN 2004).

Material examined: (UFVB) 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 - Itaguaçu, Corrego das flores, Coord. 19°46'11.82", 40°50'6.09", 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 - B. de São Francisco, Sítio dois corações, Coord. 18°37'17.99", 40°53'8.53", 22.III.2013, Col. M.C. Vélez. (CEIOC) 1 specimen, Brasil - ES - Aracruz, São José, Coord. 19°41'9.49", 40°17'19.36", 12.III.2013, Col. M.C. Vélez. 1 specimen, Brasil - ES - João Neiva, Três Ríos, 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.

***Pnirontis 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; FROESCHNER 1981; SWANSON 2011; DIEZ & COSCARÓN 2014).

Material examined: (CEIOC) 1 specimen, 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 *P. infirma* was collected on pastures of *Cynodon* spp.

***Repipta flavicans* (Amyot & Serville, 1843)**

Distribution: Mexico, Cuba, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Guyana, French Guiana, Bolívia, 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; GÁMEZ-VIRUÉS & 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 & GÖLLNER-SCHIEDING 1993; DELLAPÉ & CARPINTERO 2012; DIEZ & COSCARÓN 2015; FOWLES *et al.* 2015; MELO & MONTEMAYOR 2015).

Material examined: (MNRJ) 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 *Brachiaria humidicola*.

Rhyparochromidae

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°57'0.10", 41°7'56.99", 27.II.2013, Col. M.C. Vélez. 1 ♀, Brasil - ES - Venda Nova, Sítio São José, Coord. 20°24'19.59", 41°7'1.47", 4.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 ♀, 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 Natal, Coord. 19°53'19.03", 40°42'1.59", 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°0'1.54", 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.

Thaumastocoridae

Thaumastocoris peregrinus (Carpintero & Dellapé, 2006)

Distribution: Australia, Kenya, Zimbabwe, South Africa, Chile, Argentina, Uruguay Brazil: MS, MG, RJ, SP, PR, SC, RS, ES (Castelo, Afonso Cláudio, Barra de São Francisco) (CARPINTERO & DELLAPÉ 2006; MARTÍNEZ & BIANCHI 2010; NADEL *et al.* 2010; WILCKEN *et al.* 2010; NOACK *et al.* 2011).

Material examined: (UFVB) 1 ♀, Brasil - ES - Castelo,

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 Sucesso, 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) (AJMAT 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°23'6.66", 40°44'12.63", 21.III.2013, Col. M.C. Vélez. 1 ♂, Brasil - ES - Atílio Vivacqua, Independência, Coord. 20°57'0.10", 41°7'56.99", 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 species), Reduviidae (six species), Rhopalidae (one specie), Rhyparochromidae (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. nexu*; *J. macer*; *J. sobrinus*; *B. aff. antillus*; *C. duplicata*; *M. elevatus*; *V. sanctipauli*; *V. westwoodi*; *C. infumatus*; *C. femoralis*; *D. linearis*; *E. varians*; *G. gracilentus*; *M. praeclarus*; *P. quadrimaculatus*; *S. carmelitana*; *T. apicalis*; *T. tenuis*; *T. cucurbitaceus*; *N. capsiformis*; *D. melacanthus*; *O. ypsilongriseus*; *A. (Phorobura) saileri*; *P. infirma*; *C. nigroannulatus*; *D. carinulata*; *P. infirma*; *X. picturatum*; *P. vinctus*; *G. aff. lunulata*. This study showed the highest diversity of heteropterans 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 (ANDOW 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. antillus*; *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. ypsilongriseus* 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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