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## **The sharpshooters of Panguana (Peru)** **(Auchenorrhyncha, Cicadellidae, Cicadellinae)**

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### **Abstract**

In this communication we list 38 species of Cicadellini and 14 species of Proconiini (Cicadellinae) from Panguana in the Amazon lowland of Peru, as well as some other interesting records of sharpshooters from South America. The following species are new for Peru: *Cardioscarta electa* MELICHAR, 1932, *Jakrama taeniata* YOUNG, 1977, *Oragua elegantula* YOUNG, 1977, *Omagua fitchii* (SIGNORET, 1855), *Propetes schmidti* MELICHAR, 1925, *Propetes triquetra* (FABRICIUS, 1803). New records for the countries given in brackets are: *Soosiulus interpolis* YOUNG, 1977 (Peru and Bolivia), *Dilobopterus lucentis* YOUNG, 1977 (Brazil), *Juliaca scalarum* YOUNG, 1977 (Brazil), *Paromenia isabellina* (FOWLER, 1899) (Ecuador), *Zyzzogeton viridipennis* (LATREILLE, 1811) (Ecuador), *Pawiloma rubra* CAVICHIOLI, 1998 (Guatemala) and *Aulacizes quadripunctata* (GERMAR, 1821) (Paraguay).

### **Introduction**

The ecological field station Panguana in the Amazon lowland of Peru is a research area predominantly for zoology. It is frequently called „hotspot of biodiversity” (e.g. DILLER & BURMEISTER 2007). For over 40 years the station has been used for research, since the foundation of Panguana by Hans-Wilhelm and Maria KOEPCKE. Within the last years the research station was expanded and is run by Juliane DILLER.

Panguana is located at about 260 m altitude in the departamento de Huánuco, its geographical position is 9° 36' 49,3" S, 74° 56' 8,2" W (see map in this issue in HORNBERG 2014, page 27, Fig. 68, point 8). There are many different habitats, partly dense rainforests, low hills, little creeks, swamps with palm trees and pastures. The river Lullapichis (= Yuyapichis) which originates from the Sira mountains passes through the area of Panguana. This river is usually only about one or two meters deep and some 40 m wide but it can become a rapid stream of six to seven meters depth within a few hours. The mean air temperature in Panguana is about 24,5 °C, but in the dry season (October to April) maximum temperatures of about 40 °C are quite common. The annual precipitations are up to 3.000 mm with 180 days of rain per year. The humidity of the air is about 90 % within the forest (DILLER & BURMEISTER 2006, HENZE 2011). Since 2011 the area of Panguana is a private natural reserve by appointment of the Peruvian authorities (SPDA, weblink).

In this communication we provide data on the sharpshooters collected in Panguana within the last years. A first, preliminary account on Cicadellidae from Panguana was published by LOZADA et al. (2007). In addition, we list some new records from other South American countries based on specimens housed in the ZSM collections.

### **Material and Methods**

The material was collected in Panguana by members of the Bavarian State Collection of Zoology (ZSM) and accompanying zoologists. The material is deposited in ZSM and in the Museo de Historia Natural Javier Prado of the University San Marcos in Lima (Universidad Nacional Mayor de San Marcos).

**Collection times and collectors.** To avoid unnecessary repetitions the main collectors and the collecting times are listed here in alphabetical order, single collectors are listed below.

Apr. 06 - Apr. 17/2003: T. KOTHE, E.-G., H. and J. BURMEISTER, C. J. ZWAKHALS

Sept. 21 - Oct. 04/2004: M. BREITSAMETER, T. KOTHE, K. SCHÖNITZER

Sept. 19 - Oct. 02/2005: M. BREITSAMETER, E.-G. BURMEISTER, E. DILLER, O. GRULER, T. KOTHE

Sept. 20 - Oct. 07/2007: E. DILLER

Nov. 23 - Dec. 11/2008: E. DILLER, F. GLAW, K. SCHÖNITZER, F. WACHTEL

Oct. 02 - Oct. 18/2009: E.-G. BURMEISTER

Sept. 20 - Oct. 06/2013: E. DILLER

The identification of the sharpshooters was predominantly done with the help of the excellent website by WILSON et al. (2009). Furthermore the publications by MELICHAR (1951), YOUNG (1968, 1977) and MCKAMEY (2007) were used. Previously determined material in the collection, especially determined by D. A. YOUNG and P. W. LOZADA, could be used for comparison or could be included in this communication. These two colleagues frequently made genitalia preparations. The distribution as mentioned follows WILSON et al. (2009) if not otherwise stated. In several cases the pictures in WILSON et al. (2009) provide additional locality information.

## Results

### Tribus Cicadellini

#### *Alocha rossi* (YOUNG, 1977)

Number of specimens: 1; leg.: April 8<sup>th</sup> 2003, E. DILLER.

Distribution: Peru, Brazil.

Determined by P. LOZADA, labelled as *Paromenia rossi* (i.e. synonym).

#### *Amblyscarta trinotata* YOUNG, 1977 (Fig. 1)

Specimens: 8; leg.: 2004, 2007.

Distribution: Peru, Brazil.

Only known from Amazon lowland of Peru and Brazil (YOUNG 1977). MCKAMEY (2007) listed for Peru only.

#### *Caldwellioli solimoana* YOUNG, 1977 (Fig. 2)

Specimens: 1; leg.: 2004 (T. KOTHE).

Distribution: Peru, Brazil.

Only found in Amazon lowland (YOUNG 1977, ZAMOL & MENEZES 1982).

#### *Cardioscarta electa* MELICHAR, 1932 (Fig. 3)

Specimens: 2; leg.: 2003.

Distribution: Ecuador, Bolivia, **new record for Peru.**

Determined by P. LOZADA.

#### *Cardioscarta quadrifasciata* (LINNAEUS, 1758)

Specimens: 1; leg.: 2003 (T. KOTHE).

Distribution: Colombia, Guiana, French Guiana, Peru, Bolivia, Brazil.

Determined by P. LOZADA

#### *Catagonalia conjunctula* (OSBORN, 1926) (Fig. 4)

Specimens: 3; leg.: 2003, 2008.

Distribution: Colombia, Bolivia, Brazil, Ecuador, Peru, Paraguay.

One of the specimens looks rather like *Graphocephala lemnisca*, but the latter species is known from Mexico only. In Peru found in Madre de Dios (LOZADA 2010).

#### *Catagonalia lunata* (SIGNORET, 1854) (Fig. 5)

Specimens: 18; leg.: 2003, 2004, 2007, 2008.

Distribution: Ecuador, Peru, Bolivia, Brazil, Colombia.

Partly determined by P. LOZADA and listed by LOZADA et al. (2007). According to LOZADA & ARELLANO (2008) this species is very common in the lowland of Peru, especially on open, secondary vegetation.

#### *Diedrocephala bimaculata* (GMELIN, 1789) (Fig. 6)

Specimens: 4; leg.: 2004, 2005, 2008 (one specimen collected with hand-net).

Distribution: Mexico, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Colombia, Venezuela, Guiana, Suriname, French Guiana, Brazil, Paraguay, Argentina, Peru, Bolivia (DELLAPÉ et al. 2013).

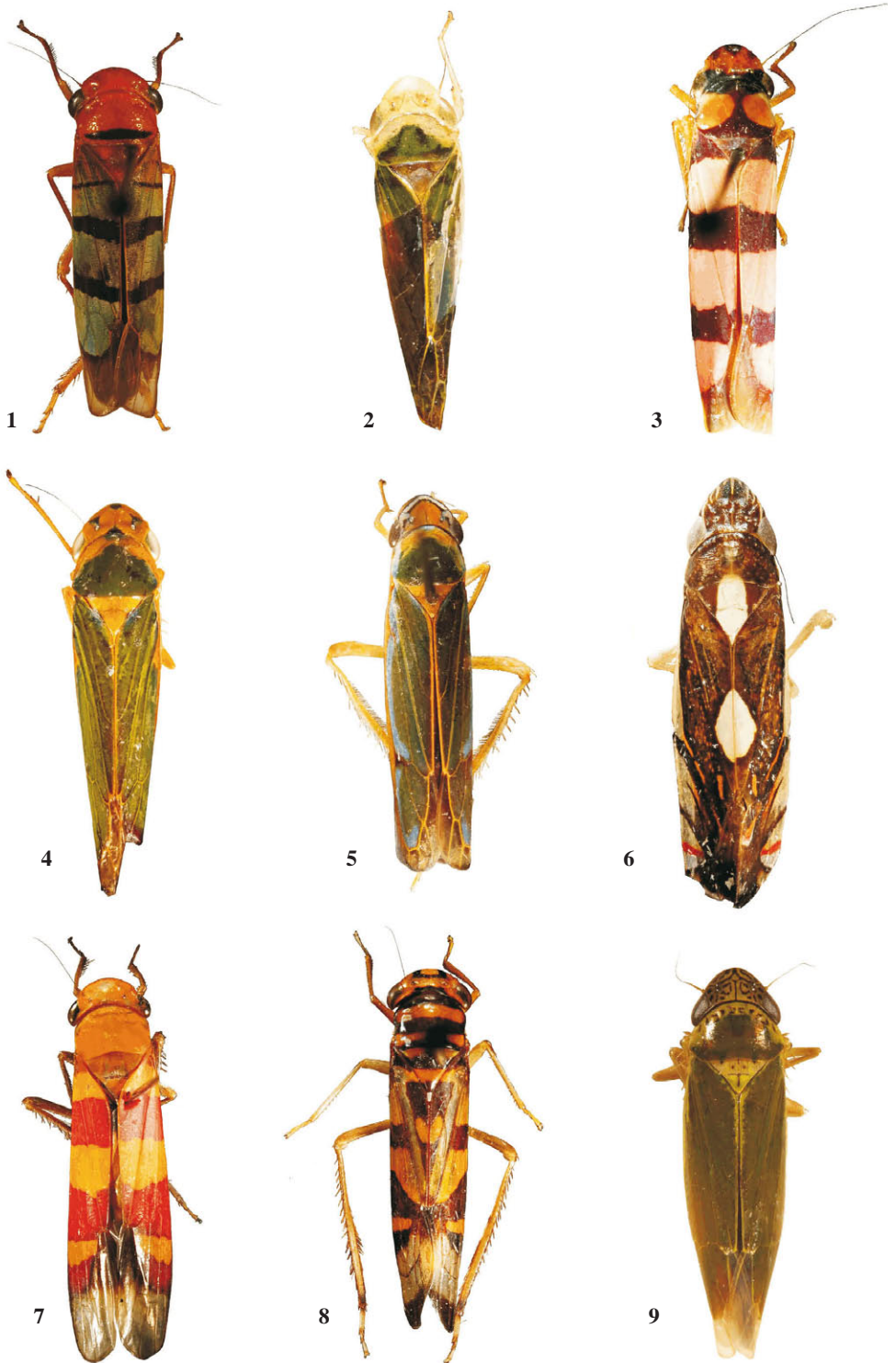
This species is of economic importance as vector for bacteria *Xylella fastidiosa* in citrus orchards (DELLAPÉ et al. 2013), it is also common in the Satipo province of Peru (LOZADA & ARELLANO 2008). Species with similar appearance are *Tipuana chirensis*, *Platygonia angrana* and *Lebaja mediana*.

#### *Dilobopterus adocetus* YOUNG, 1977

Specimens: 1; leg.: 2003 (E.-G. BURMEISTER.).

Distribution: Peru, Brazil, Bolivia.

A rather small specimen (size = 10,4 mm), possibly female (YOUNG, 1977, had males only).



**Figs 1-9:** 1. *Amblyscarta trinotata* (Length: 10,1 mm); 2. *Caldwellioliola solimoana* (6,0 mm); 3. *Cardioscarta electa* (11,0 mm); 4. *Catagonalia conjunctula* (7,6 mm); 5. *Catagonalia lunata* (9,1 mm); 6. *Diedrocephala bimaculata* (6,9 mm); 7. *Dilobopterus gaudens* (16,0 mm); 8. *Dilobopterus vicinus* (12,9 mm); 9. *Hortensia similis* (4,9 mm).

***Dilobopterus demissus*** (FABRICIUS, 1803)

Specimens: 3; leg.: 2003.

Distribution: Panama, Colombia, French Guiana, Guiana, Ecuador, Peru, Bolivia, Brazil, Venezuela.

***Dilobopterus gaudens*** (WALKER, 1851) (Fig. 7)

Specimens: 3; leg.: 2009, 2013.

Distribution: Peru, Brazil.

Rather large species (size = 16,0 mm), with conspicuous coloration.

***Dilobopterus jemima*** (DISTANT, 1908)

Specimen: 1; leg.: 2004.

Distribution: Ecuador, Peru, Bolivia, Brazil.

Determined by P. LOZADA. Also found in rather high altitude in the sierra of Peru (up to 2.400 m; LOZADA & ARELLANO 2008).

***Dilobopterus manni*** YOUNG, 1977

Specimens: 4; leg.: 2003.

Distribution: Bolivia, Peru.

***Dilobopterus obliquatulus*** (JACOBI, 1905)

Specimens: 2;; leg.: 2003, 2004.

Distribution: Colombia, Ecuador, Peru, Bolivia, Brazil.

One specimen (size = 9,3 mm) determined by P. LOZADA; listed for the region of Cusco (LOZADA & ARELLANO 2008).

***Dilobopterus syrphoidulus*** (JACOBI, 1905)

Specimens: 2; leg.: 2003, 2004.

Distribution: Ecuador, Peru, Bolivia, Brazil, Colombia.

One specimen determined by P. LOZADA.

***Dilobopterus vicinus*** (SIGNORET, 1853) (Fig. 8)

Specimens: 2; leg.: 2005, 2009.

Distribution: Colombia, Bolivia, Brazil, Paraguay, Ecuador, Peru.

***Draeculacephala clypeata*** OSBORN, 1926

Specimens: 2; leg.: 2003, T. KOTHE.

Distribution: Mexico to Colombia, Guiana, Argentina, Peru.

Determined by P. LOZADA.

***Fusigonalia optata*** YOUNG, 1977

Specimens: 1; leg.: 2003, T. KOTHE.

Distribution: Bolivia, Peru.

Determined by P. LOZADA. This species was found frequently in coffee plantations (LOZADA & ARELLANO 2008).

***Hortensia similis*** (WALKER, 1851) (Fig. 9)

Specimens > 200; leg.: 2003, 2004 (a large series of 130 individuals was collected by hand-net on pasture near Panguana, 17.4.2003 by E. DILLER and T. KOTHE).

Distribution: widely distributed in North, Middle and South America.

This species is frequently found on agricultural land. In Peru it is found in the coastal areas, in the mountain ranges (COSTA & LOZADA 2010) and in the Amazon basin (LOZADA 1993, LOZADA & ARELLANO 2008, DIAZ & ZAMORA 2001). In an orchard in Brazil it was found to be frequent throughout all the year (OTT et al. 2006). In our investigation this species was very abundant in April 2003, but was found only rarely in other years, when collection trips were performed in September and October. Thus it seems that this species might be more frequent in April than September and October.

***Iragua montana*** YOUNG, 1977

Specimens: 3; leg.: 2004, 2006 (G. RIEDEL).

Distribution: Peru, Bolivia.

Determined by P. LOZADA. This species is also reported from the sierra of Peru (COSTA & LOZADA 2010). Furthermore LOZADA et al. (2007) mentioned *Iragua diversa* (SIGNORET, 1855), but material of this species could not be found (possibly a mistake, or material passed to Lima).

***Jakrama krameri*** YOUNG, 1977 (Fig. 10)

Specimens: 3; leg.: 2003.

Distribution: Venezuela, Guiana, Brazil, Peru, Colombia.

Very similar to *J. eureka*, one sample was previously determined as *J. eureka* by P. LOZADA.

***Jakrama taeniata*** YOUNG, 1977

Specimens: 3; leg.: 2004, one specimen collected in malaise trap.

Distribution: Bolivia, Brazil, Ecuador, Colombia, **new record for Peru.**

This species may be distinguished by the broader dark stripes and a generally lighter coloration, fine silvery shade. One sample was previously determined as *J. eureka* by LOZADA and listed by LOZADA et al. (2007). According to our results, however, the latter species was not recorded from Panguana.

***Juliaca cinctella*** (MELICHAR, 1951) (Fig. 11)

Specimens: 15; leg.: 2003, 2004, (mostly collected with hand net on pasture, 17.4.2003 by E. DILLER and T. KOTHE).

Distribution: Peru.

Rather small species (size = 4,5 mm), with distinctive color pattern. By LOZADA determined to genus. A rare species, up to now only known from the original description from Pachitea (MELICHAR 1951, p. 97). Panguana and Pachitea are both in the department Huánuco.

***Ladoffa obscurana*** YOUNG, 1977 (Fig. 12)

Specimens: 1; leg.: 2004 (A. OEHLKE, malaise trap).

Distribution: Peru, Ecuador, Bolivia, Brazil, Colombia (FREYTAG & SHARKEY 2002).

***Lissoscarta nipata*** YOUNG, 1977

Specimens: 4; leg.: 2003, 2004.

Distribution: Peru.

Determined by P. LOZADA and listed by LOZADA et al. (2007). This species was previously only reported from the original description from Cusco country, Hacienda María (YOUNG, 1977), listed also in COSTA & LOZADA (2010). These cicadas probably imitate wasps.

***Macugonalia moesta*** (FABRICIUS, 1803)

Specimens: 48; leg.: 2003, 2004, 2008 (31 specimens collected with hand-net, on pasture near Panguana, 17.4.2003 E. DILLER, T. KOTHE, one specimen collected in Malaise trap).

Distribution: Guiana, Suriname, French Guiana, Brazil, Ecuador, Peru, Bolivia, Colombia.

Mostly determined by P. LOZADA. Common in plantations of papaya and avocado trees (LOZADA & ARELLANO 2008).

***Microgoniella pudica*** (FABRICIUS, 1803)

Specimens: 4, leg.: 2003.

Distribution: Colombia, Brazil, Bolivia, Peru.

Determined by P. LOZADA. All year round to be found in plantations in Peru in Chanchomayo and Satipo (LOZADA & ARELLANO 2008), also found in Ucayali province (DIAZ & ZAMORA 2001).

***Oragua elegantula*** YOUNG, 1977 (Fig. 13)

Specimens: 3; leg.: 2004, one specimen collected by malaise trap.

Distribution: Brazil, **new record for Peru.**

Very similar to *O. alvarengai*. By LOZADA labelled as „*Oragua* spec. nov.”

***Oragua nusinasa*** YOUNG, 1977 (Fig. 14)

Specimens: 5; leg.: 2003, 2007.

Distribution: Peru.

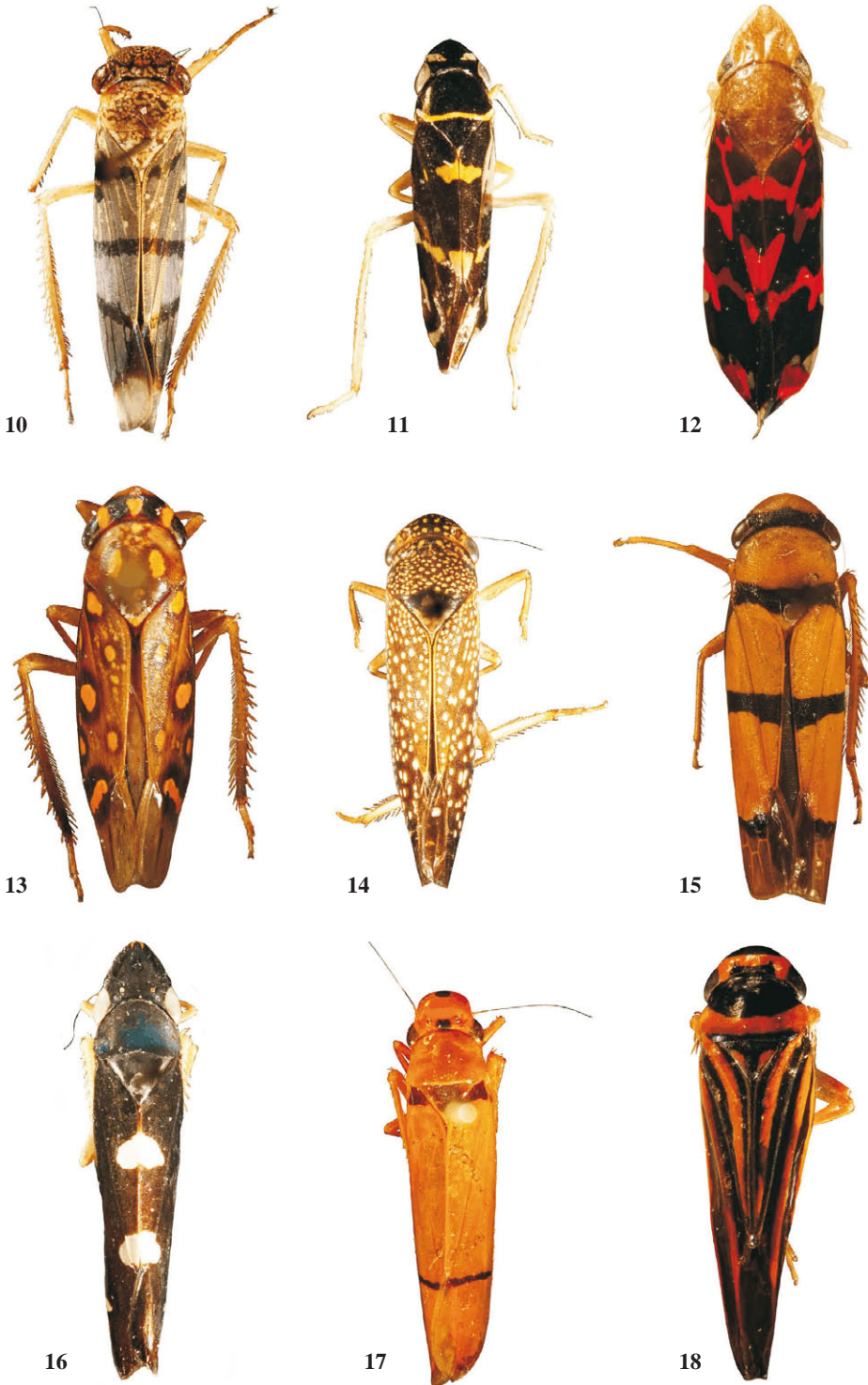
This species is only known from Peru, it was reported from Cusco and Arequipa regions (Callanga), interestingly from higher elevations (YOUNG 1977, COSTA & LOZADA 2010), but also found in the northern lowland, San Martin region (WILSON et al. 2009).

***Oragua partitula*** (JACOBI, 1905) (Fig. 15)

Specimens: 1; leg.: 2007 (E. DILLER).

Distribution: Peru, Bolivia.

According to LOZADA & ARELLANO (2008) a very common species in tropical forests of Peru, also reported from the department Cusco (COSTA & LOZADA, 2010), listed by LOZADA et al. (2007).



**Figs 10-18:** 10. *Jakrama krameri* (Length: 13,3 mm); 11. *Juliaca cinctella* (4,5 mm); 12. *Ladoffe obscurana* 6,3 mm); 13. *Oragua elegantula* (7,8 mm); 14. *Oragua nusinasas* (9,7 mm); 15. *Oragua partitula* (9,9 mm); 16. *Pachitea jezima* (9,4 mm); 17. *Poeciloscarta aurorula* (11,7 mm); 18. *Ramosulus corrugipennis* (4,6 mm).

***Pachitea jezima*** YOUNG, 1977 (Fig. 16)

Specimens: 1; leg.: 2009 (E.-G. BURMEISTER).

Distribution: Peru.

The black surface of the wings has a bluish tinge. Only known from Amazon lowland in Peru, Tingo Maria, Madre de Dios (YOUNG 1977, p. 333).

***Plesiommata mollicella*** FOWLER, 1900

Specimens: 23; leg.: 2003, 2004, partly by hand-net.

Distribution: Mexico, Belize, Guatemala, Costa Rica, Panama, Colombia, Venezuela, French Guiana, Ecuador, Bolivia, Paraguay, Brazil, Argentina, Peru.

According to LOZADA (1993) and LOZADA & ARELLANO (2008) a very common species in tropical Peru (although Peru is not listed in WILSON et al. 2009).

Determined by P. LOZADA.

***Poeciloscarta aurorula*** (BREDDIN, 1901) (Fig. 17)

Specimens: 1; leg.: April 2012, E. DILLER.

Distribution: Colombia, Peru, Bolivia, Brazil.

Coloration may vary considerably (WILSON et al. 2009).

***Ramosulus corrugipennis*** (OSBORN, 1926) (Fig. 18)

Specimens: 7; leg.: 2003, 2004 (hand net, one specimen from pasture near Panguana).

Distribution: Brazil, Ecuador, Peru, Bolivia, Colombia.

According to LOZADA & ARELLANO (2008) a species which is common in disturbed areas of the tropical forest, also reported from the department Cusco (COSTA & LOZADA, 2010). The species is similar to *Juliaca pergrata* and *J. cruenta*.

***Rotigonalia concedula*** (MELICHAR, 1926)

Specimens: 1; leg.: Apr. 17<sup>th</sup> 2003, E. DILLER & T. KOTHE, hand-net on pasture near Panguana.

Distribution: Peru, Bolivia, Brazil (CAVICHIOLO & TAKIYA 2012).

Determined by P. LOZADA.

***Scopogonalia subolivacea*** (STÅL, 1862)

Specimens: 3; leg.: 2003 (T. KOTHE), 2006 (G. RIEDEL).

Distribution: Peru, Bolivia, Brazil, Paraguay, Argentina.

Determined by P. LOZADA. According to LOZADA & ARELLANO (2008) a species which is common in disturbed areas of the tropical forest. In Peru also known from the Chanchamayo province (LOZADA et al. 2007, WILSON et al. 2009).

***Soosiulus interpolis*** YOUNG, 1977 (Fig. 19)

Specimens: 2; leg.: 2003, 2004 (T. KOTHE) hand net.

Distribution: Brazil, Colombia, Guiana (BASSET et al. 2001), **new record for Peru and Bolivia.**

This species feeds on leaves in the canopy (BASSET et al. 2001). Additional material in ZSM: Bolivia, Chapare, La Jungla, Chipiriri near Villa Tunari 9.11.2002; two specimens; leg. B. BEMBÉ.

***Tylozygus fasciatus*** (WALKER, 1851)

Specimens 3; leg.: 2004.

Distribution: US, Mexico, Guatemala, Belize, El Salvador, Costa Rica, Panama, Haiti, Dominica, Grenada, Trinidad, Jamaica, Venezuela, Colombia, Ecuador, Peru, Brazil, Cuba.

Determined by P. LOZADA, listed by LOZADA et al. (2007). This very widespread and colorful species was found only rarely in Panguana.

### **Additional species**

Several specimens could only be identified to genus level within this study:

*Amblyscarta* sp. (possibly *A. opulenta*?, LOZADA et al. 2007), *Lautereria* sp., *Lissocarta* sp., *Mesogonia* sp., *Dilobopterus* sp., and *Oragua* sp..

The genus *Soosiulus* contains several rather similar species, one specimen was determined as *S. servulus* (MELICHAR, 1932) by P. LOZADA, but this is doubtful.

Of the genus *Microgoniella* one specimen was determined by LOZADA as *Microgoniella* sp. n., cf. *apicula* (OSBORN, 1926) and another one as *Microgoniella* sp. n.. These identifications require confirmation.

### *Tribus Proconiini*

*Acrogonia terminalis* YOUNG, 1968

Specimens 2; leg.: 2003.

Distribution: Peru, Brazil, Bolivia.

Determined by P. LOZADA. This species occurs from February to August on leaves of papaya trees (LOZADA & ARELLANO 2008); this and the following species are known to be vectors for plant diseases in Brazil (AZEVEDO FILHO & CARVALHO 2004).

*Acrogonia virescens* (METCALF, 1949)

Specimens 2; leg.: VII.1982, 2009 (E.-G. BURMEISTER).

Distribution: Peru, Guiana, Brazil, Paraguay.

LOZADA & ARELLANO (2008) reported this species from papaya leaves.

*Desamera intersecta* (GERMAR, 1821) (Fig. 20)

Specimens 3; leg.: 2005, 2009.

Distribution: Peru, Brazil (CARVALHO et al. 2011, ZAMOL & MENEZES 1982).

*Diostemma huallagana* YOUNG, 1968

Specimens 1; leg.: 2004.

Distribution: Peru, Brazil, Bolivia (DELLAPE et al. 2011).

Determined by P. LOZADA; in Peru reported from several locations, mostly from department of Huánuco (YOUNG 1968, p.44, WILSON et al. 2009).

*Ichthyobelus bellicosus* MELICHAR, 1925

Specimens 1; leg.: 2005.

Distribution: Ecuador, Peru, Bolivia.

Also reported from the department Cusco (COSTA & LOZADA, 2010) and listed by LOZADA et al. (2007).

*Molomea consorta* (MELICHAR, 1925)

Specimens: 2; leg.: 2005, 2009 (E.-G. BURMEISTER).

Distribution: Brazil, Peru.

Reported for the department Cusco (COSTA & LOZADA, 2010) and listed by LOZADA et al. (2007); Peru is not mentioned, however, in WILSON et al. (2009).

*Omagua fitchii* (SIGNORET, 1855) (Fig. 21)

Specimens 2; leg.: 2005, 2007.

Distribution: French Guiana, Guiana, Ecuador (WILSON et al. 2009), **new record for Peru.**

According to YOUNG (1968) also reported from „Amazonas”, which probably means Brazil, listed in ZAMOL & MENEZES (1982).

*Proconia marmorata* (FABRICIUS, 1803)

Specimens 6; leg.: 2003 (T. KOTHE).

Distribution: Colombia, Bolivia, Brazil, Ecuador, Guiana, Peru.

In Peru previously reported from the department Cusco (COSTA & LOZADA, 2010) and Huanuco (WILSON et al. 2009), listed by LOZADA et al. (2007). Determined by P. LOZADA.

*Propetes schmidtii* MELICHAR, 1925 (Figs 22, 23)

Specimens 1♂; leg.: 2003 (T. KOTHE).

Distribution: Paraguay, Brazil, **new record for Peru.**

This species is imitating wasps (TAKIYA et al. 1999). Males and females mimic different (morpho-)species of wasps.

*Propetes triquetra* (FABRICIUS, 1803)

Specimens 2; leg.: 2005.

Distribution: Guiana, Brazil, **new record for Peru.**

Also this species apparently mimics wasp species. The fore tibiae are remarkably broadened. For taxonomy of this species see TAKIYA et al. (2006).

*Pseudometopia amblardii* (SIGNORET, 1855) (Fig 24)

Specimens 28; leg.: 2003, 2004, 2006, 2008, 2009, 2013.

Distribution: Bolivia, Mexico, Brazil, Colombia, Ecuador, Peru, Paraguay, Argentina.



Remarkably often found in Panguana, with variable coloration, but nevertheless with a characteristic color pattern. Part of the material was determined P. LOZADA. Very common species in plantations in Chanchamayo province (LOZADA & ARELLANO 2008), also known from Tingo Maria (WILSON et al. 2009).

***Pseudometopia phalaesia*** (DISTANT, 1908)

Specimens 2; leg.: 2003.

Distribution: Colombia, Peru, Bolivia.

Determined by P. LOZADA. In Peru also frequent in plantations in Chanchamayo province (LOZADA & ARELLANO 2008) and known from Tingo Maria (WILSON et al. 2009).

***Raphirhinus phosphoreus*** (LINNAEUS, 1758) (Fig. 25)

Specimens 14; leg.: 2003 (T. KOTHE, C. ZWAKHALS), 2004, 2005, 2009.

Distribution: Ecuador, Bolivia, Peru, Colombia, Venezuela, Trinidad, Guiana, Suriname, French Guiana, Brazil.

Part of the material determined by P. LOZADA and listed by LOZADA et al. (2007). In Peru also known from the department Cusco (COSTA & LOZADA, 2010) and Tingo Maria (WILSON et al. 2009).

***Tretogonia cribrata*** MELICHAR, 1926

Specimens 253; leg.: 2003, 2004.

Distribution: Brazil, Argentina (WILSON et al. 2009), French Guiana, Bolivia, Peru (LOZADA & ARELLANO 2008).

Determined by P. LOZADA, listed by LOZADA et al. (2007). Frequently found in Chanchamayo province (LOZADA & ARELLANO 2008). For morphology and distribution in Brazil see MEJDALANI (1998).

**Additional species**

Of the following genera some specimens could not be determined to species level:

*Acrogonia* sp., *Hygonia* sp., *Dichrophleps* sp. and *Proconia* sp.. This material should be investigated in more detail.

**Additional material from ZSM**

**Cicadellini**

***Dilobopterus lucentis*** YOUNG, 1977

Number of specimens: 1; Brazil, Tapuruquara am Rio Negro / Amazonas; 4.II.1963, leg.: C. LINDEMANN.

Distribution: Guiana, French Guiana (WILSON et al. 2009), **new record for Brazil**.

***Juliaca scalarum*** YOUNG, 1977

Specimens: 1 ♀; St. Catharina, Brazil, leg.: M. WIRTNER.

Distribution: Colombia, Peru, Venezuela (WILSON et al. 2009), **new record for Brazil**.

Determined by YOUNG „*Juliaca* sp.” (genital preparation) otherwise not distinguishable from *Microgoniella pudica*.

***Paromenia isabellina*** (FOWLER, 1899)

Specimens: 4; Ecuador, Prov. Napo, Lumbaqui, 900 m, (Ölpumpstation) 6.I.1976; leg.: W. SCHACHT.

Distribution: Mexico, Guatemala, Costa Rica, Panama, Colombia, Bolivia, Nicaragua, Venezuela, **new record for Ecuador**.

***Pawiloma rubra*** CAVICHIOLI, 1998

Specimens: 2; Guatemala, Verapaz, San Cristobal, Quixal, 23.IV.80; leg.: H. & L. FREUNDE.

Distribution: Belize, **new record for Guatemala**.

**Proconiini**

***Aulacizes quadripunctata*** (GERMAR, 1821)

Specimens: 1; Paraguay, Independencia, 10.X.1951 (name of collector not indicated).

Distribution: Brazil, Argentina, **new record for Paraguay**.

See MEJDALANI et al. (2006) for further details, taxonomy and images.

***Zyzzogeton viridipennis*** (LATREILLE, 1811) (Fig. 26)

Specimens: 1, Ecuador, Pr. Imbabura, Cojapi bei Carolina, 900 m, 18.-20.12.1975, leg.: W. SCHACHT.

Distribution: Colombia and Peru (FREYTAG & SHARKEY 2002, WILSON et al. 2009), **new record for Ecuador**.



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**Figs 19-26:** 19. *Soosiulus interpolis* (Length: 6,8 mm); 20. *Desamera intersecta* (14,3 mm); 21. *Omagua fitchii* (16,5 mm); 22. and 23. *Propetes schmidti* (13,4 mm); 24. *Pseudometopia amblardii* (10,9 mm); 25. *Raphirhinus phosphoreus* (18,6 mm).; 26. *Zyzzogeton viridipennis* (head, frontal).

## Discussion

This list of species is a contribution to the exploration of the fauna of Panguana. Our contribution lists 65 species of Cicadellinae, with 52 species identified to species level, but certainly there are more species to be found. On the one hand we could not yet determine all material and on the other hand more species may be collected in the future. It is quite obvious that also some new species may be expected there, but we are not able to describe new species of Cicadellinae since this has to be done by experts.

An interesting point is that a good deal of species (8 Cicadellini, 3 Proconiini) are represented by single specimen, indicating that several species occur at very low densities. Common species are predominantly those inhabiting pastures and are also common on other places on crops, e.g. *Catagonalia lunata*, *Hortensia similis*, *Macugonalia moesta*, and *Tretogonia cribrata*. Other species which are reported to be common in agricultural areas e.g. *Scopogonalia subolivacea*, *Oragua partitula* and *Acrogonia terminalis* are only rarely found in Panguana, possibly because collectors have been active mainly in forests and less on pastures.

Some of the species reported here are obviously rather rare, e.g. *Amblyscarta trinotata*, *Juliaca cincitella*, *Propetes schmidti*, or *Lissoscarta nipata*. These species have been mainly known from their original description and are now reported from Panguana.

Most species were collected during field trips in 2003 and 2004. This is probably due to the efforts of Tanja KOTHE who collection manager of ZSM Hemiptera section at that time.

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