

# Breddin's types of *Ochlerus* (Hemiptera, Pentatomidae, Discocephalinae)

With 43 figures and 1 table

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## Summary

After more than a century, the type specimens of the Pentatomidae genus *Ochlerus* SPINOLA, 1837 described by Gustav Breddin are revised. Due to unfortunate circumstances, the author left most of the related work incomplete and it resulted in the possible mislabeling of the type material, as well as a change in the institutions where they should be deposited. Types are assigned to the following species: *Ochlerus bergrothi*, *O. bistillatus*, *O. communis*, *O. cotylophorus*, *O. dentijugis*, *O. handlirschi*, *O. incisulus*, *O. notatulus*, *O. profanus*, *O. rusticus*, *O. signoreti*, *O. stylulatus*, and *O. tenuicornis*. The male of *O. tenuicornis* is transferred to a new species, *Ochlerus breddini*.

## Key words

Heteroptera, Ochlerini, stink bug, *Phytomonas*, palm trees

## Zusammenfassung

Mehr als ein Jahrhundert nachdem Gustav Breddin die Typusexemplare der Pentatomiden-Gattung *Ochlerus* SPINOLA, 1837 beschrieben hatte, werden sie hier überarbeitet. Aufgrund unglücklicher Umstände konnte Breddin sein Manuskript nicht selbst vollenden. Das führte vermutlich zur Falschetikettierung des Typenmaterials und zur Änderung der Institutionen, wo es aufbewahrt werden sollte. Die Typen werden den folgenden Arten zugeordnet: *Ochlerus bergrothi*, *O. bistillatus*, *O. communis*, *O. cotylophorus*, *O. dentijugis*, *O. handlirschi*, *O. incisulus*, *O. notatulus*, *O. profanus*, *O. rusticus*, *O. signoreti*, *O. stylulatus* und *O. tenuicornis*. Das Männchen *O. tenuicornis* wird in die neue Art *Ochlerus breddini* übertragen.

## 1. Introduction

With a worldwide distribution (except in polar regions), Pentatomidae is listed as the fourth in diversity among the Heteroptera (GRAZIA et al. 2012). These insects are highly related to cultivated plants such as soybeans and palm trees, among others, and constantly reported as plagues, which highlight its impact to economy (PANIZZI et al. 2000). The family is divided into 10 subfamilies, six of which occur in the Neotropical region (RIDER, 2014).

One of such subfamilies is Discocephalinae, where the genus we deal with in the present paper is placed. *Ochlerus* SPINOLA, 1837 has a record of unresolved taxonomy and classification matters, having its monophyly recently disputed (CAMPOS & GRAZIA, 2006). Being the type genus for the tribe Ochlerini, surprisingly it has not received significant attention from taxonomists and systematists alike, besides the diagnosis by ROLSTON

**Tab. 1:** List of valid species of *Ochlerus* in alphabetical order.

Species	Author	Year
<i>Ochlerus bergrothi</i>	Breddin	1910
<i>Ochlerus bistillatus</i>	Breddin	1910
<i>Ochlerus breddini</i>	Simões & Campos	–
<i>Ochlerus cinctus</i>	Spinola	1837
<i>Ochlerus circummaculatus</i>	Stål	1860
<i>Ochlerus communis</i>	Breddin	1910
<i>Ochlerus coriaceus</i>	Herrich-Schäffer	1844
<i>Ochlerus cotylophorus</i>	Breddin	1910
<i>Ochlerus dentijugis</i>	Breddin	1910
<i>Ochlerus handlirschi</i>	Breddin	1910
<i>Ochlerus incisulus</i>	Breddin	1910
<i>Ochlerus lutosus</i>	Herrich-Schäffer	1844
<i>Ochlerus notatulus</i>	Breddin	1910
<i>Ochlerus profanus</i>	Breddin	1910
<i>Ochlerus rusticus</i>	Breddin	1910
<i>Ochlerus signoreti</i>	Breddin	1910
<i>Ochlerus stylulatus</i>	Breddin	1910
<i>Ochlerus tenuicornis</i>	Breddin	1910

(1992). While the last description of a new species dates back to BREDDIN's (1910) 13 species (Tab. 1), only the recent unveiling of HERRICH-SCHÄFFER's (1844) *Ochlerus* types have somewhat dealt with the confusing history of the genus (SIMÕES & CAMPOS, 2014) and brought the total number to 17 species (Tab. 1). Solving taxonomic issues such as the identity of the species of *Ochlerus* is also of interest to crop protection, since the genus has been known for its possible role as vector of the parasitic *Phytomonas* spp. trypanosomatids (DOLLET et al. 1993, CAMPOS & GRAZIA 2006, GITAU et al. 2009).

Arguably the longest and most detailed paper to date on *Ochlerus*, Gustav Breddin's work in 1910 was a posthumous publication due to his untimely passing away in 1909 while finishing the descriptions (SCHRÖTER 1910). The death of the author resulted in specimens without proper identification of holotypes and species names. Even though the designation of holotypes was not common practice at that time, Breddin would have probably made a better identification of the species in their respective labels. However, Breddin had already finished most of the descriptions and drawings of genitalia, and mentioned what collections the specimens should be deposited. Despite having found out that the institutions to where each specimen was sent do not exactly match what Breddin indicated, we discovered that most of the specimens were deposited at the Natural History Museum in Vienna, Austria, and mainly at the Senckenberg Deutsches Entomologisches Institut at Müncheberg,

Germany, which hosts most of Breddin's own collection since 1910 (HORN et al. 1990).

Through careful examination of the specimens and by matching label information, drawings and descriptions, we managed to define several of the type specimens from the species Breddin described, albeit not managing to find all males and females types. Thus, a review of the specimens which Breddin used as basis for his paper is given, followed by a brief discussion on the reasons for type designation. Also, we found out that the male and female of *Ochlerus tenuicornis* BREDDIN, 1910 are not conspecific. This last issue led us to describe a new species for the genus.

## 2. Material and Methods

Specimens belong to the American Museum of Natural History (AMNH), the Carnegie Museum of Natural History (CMNH), Joseph E. Eger collection (JEE), the National Museum of Natural History (USNM), the Naturhistorisches Museum Wien, Vienna, Austria (NMW), and the Senckenberg Deutsches Entomologisches Institut at Müncheberg, Germany (SDEI); acronyms, in brackets, according to EVENHUIS (2014), except for JEE. We only had photographic access to the male syntypes of *Ochlerus communis* BREDDIN, 1910 and of *Ochlerus signoreti* BREDDIN, 1910 deposited at the NMW. The whereabouts of the female types of these two species and the male of *Ochlerus stylulatus* BREDDIN, 1910 was not discovered, and information suggests that the one male syntype of *O. communis* was lost in the bombardment of the Hamburg Museum during World War II (WEIDNER 1972, STEPHAN M. BLANK & FRANK WIELAND *pers. comm.*). The other missing syntypes may be deposited at the Forschungsinstitut und Naturmuseum Senckenberg at Frankfurt am Main (SMF), however we could not access the material due to logistical issues. Photographs of loaned specimens were taken and composed with a Nikon AZ100M microscope.

## 3. Results and Discussion

### 3.1. Review of the syntypes

#### 3.1.1. *Ochlerus bergrothi* BREDDIN, 1910 (pp. 624–625) (figs 1, 16)

**Type material** (examined): Male, here designated as lectotype, deposited at the SDEI; 'San Esteban | E. Simon [col.] | iii.[18]88 | coll. Breddin | Barber revid. 1933 | DEI Müncheberg HEMI-00022'. Labels added: 'Lectotype *Ochlerus bergrothi* Breddin, 1910'.

**Type locality:** San Esteban, Carabobo, Venezuela.

**Comments:** The specimen is in fairly good condition and its wings are extended. Although not specified by Breddin nor available on the labels, the country and department of the type locality can be retraced in REUTER (1891).

3.1.2. *Ochlerus bistillatus* BREDDIN, 1910 (pp. 618–619)  
(figs 2, 17)

**Type material** (examined): Lectotype ♀, designated by Gaedike (1971), deposited at the SDEI; ‘Bolivia | *Ochlerus bistillatus* | coll. Breddin | Lectotypus | des. M. Gaedike 1968 | DEI Müncheberg Hemi - 00030’, labels added: ‘Lectotype *Ochlerus bistillatus* Breddin, 1910’; 1 paralectotype ♀, designated by Gaedike; ‘Peru, Amaz. | *Ochlerus bistillatus* | coll. Breddin, Paralectotypus | des. M. Gaedike 1968 | DEI Müncheberg; Hemi - 00031’ (SDEI), labels added: ‘Paralectotype *Ochlerus bistillatus* Breddin, 1910’.

**Type locality:** Bolivia.

**Comments:** Two females were found in the SDEI collection, as described by Breddin.

GAEDIKE’S (1971) type designations seem to be in accordance with Breddin’s descriptions. The lectotype is in a better state of preservation.

3.1.3. *Ochlerus communis* BREDDIN, 1910 (pp. 616–617)  
(figs 3, 18)

**Type material** (photograph examined): 1 male, here designated as lectotype, deposited at the NMW; ‘*marginatus* F. det Mayr. | *Shtf.* Labels added: ‘Lectotype *Ochlerus communis* Breddin, 1910’.

**Type locality:** Unknown.

**Comments:** BREDDIN (1910) based his description on five males, deposited at the NMW (4 specimens) and the Hamburg Museum (one specimen). In addition, he associated one female deposited at the NMW, but he indicated the identification as doubtful. We were able to find one male deposited at the NMW. The original description and, mainly, the drawing of the female genitalia of *O. communis*, point to a synonymy with *Ochlerus cinctus* SPINOLA, 1837. In fact, Breddin himself stated that: “[It is] A common species in old collections, and perhaps identical to ‘*O. marginatus*’ Fab.”. However, despite being correct about the species being similar to *O. cinctus* (*Cimex marginatus* is a preoccupied name according to KIRKALDY, 1909), we cannot be sure if they are conespecific, as *O. cinctus* is only known from females and we could not find the female syntype of *O. communis*.

3.1.4. *Ochlerus cotylophorus* BREDDIN, 1910  
(pp. 621–622)  
(figs 4, 19)

Breddin based his description on females from Marcapata, Peru, but we cannot be sure if they are in the SDEI collection. Three specimens from Colombia and Ecuador were found to match the illustration of the genitalia and the description of *O. cotylophorus*.

**Material examined:** 1 female, deposited at the SDEI; ‘Coca (Ecuad.) R. Haensch S. | coll. Breddin | DEI Müncheberg HEMI-00025’, labels added: ‘*Ochlerus cotylophorus* det. Simões & Campos, 2015’; 1 female, **COLOMBIA**, **Province unknown:** Esmeralda, ‘Columbia Esmeralda | coll. Breddin | *Ochlerus cinctus* Spin. | det. HG Barber = *marginatus* Fab. | DEI Müncheberg HEMI-00020’ (SDEI), labels added: ‘*Ochlerus cotylophorus* det. Simões & Campos, 2015’; 1 female, **COLOMBIA**, ‘Columbien, coll. Breddin | Barber revid. 1933 | DEI Müncheberg HEMI-00021’ (SDEI), labels added: ‘*Ochlerus cotylophorus* det. Simões & Campos, 2015’.

**Type locality:** Peru.

**Comments:** Across the types of *Ochlerus* described by Breddin, there are indications to poorly matched and/or erroneous labels for some species (see *O. profanus* and *O. rusticus*). That may have been the case for *O. cotylophorus* as well. There is a fourth specimen from Peru which was found next to these other three and may be one of the syntypes. It has a matching general morphology, despite the fact that it lacks the abdomen; since the latter is a diagnostic structure we decided to not include it as a lectotype or syntype.

3.1.5. *Ochlerus dentijugis* BREDDIN, 1910 (pp. 623–624)  
(figs 5, 20)

**Type material** (examined): Male, here designated as lectotype, deposited at the SDEI; ‘Peru Amaz. | *Ochlerus profanus* | coll. Breddin | DEI Müncheberg HEMI-00027’, labels added: ‘Lectotype *Ochlerus dentijugis* Breddin, 1910’.

**Type locality:** Peru.

**Comments:** The diagnostic feature of the lateral projection on the mandibular plates and the shape of the pygophore, much different from the other species, lead us to the conclusion that this specimen is a syntype of *O. dentijugis*. Breddin stated that the specimen on which he based his description originated from Colombia, however the label pinned with the syntype states otherwise, again leading to the possibility that some labels are mixed and/or misplaced.

3.1.6. *Ochlerus handlirschi* BREDDIN, 1910 (pp. 622–623)  
(figs 6, 21)

**Type material** (examined): Female, here designated as lectotype, deposited in the SDEI; 'Cozumel Yucatan 1882 | coll. Breddin | DEI Müncheberg HEMI-00019', labels added: 'Lectotype *Ochlerus handlirschi* Breddin, 1910'.

**Type locality:** Cozumel, Yucatán, Mexico.

**Comments:** Although it should have been deposited in the NMW (BREDDIN, 1910: 623) a sole syntype of *O. handlirschi* could be located in the SDEI.

This easily diagnosable species, due to the shape of the posterior margin of the gonocoxites 8, has had its position in *Ochlerus* questioned by CAMPOS & GRAZIA (2006).

3.1.7. *Ochlerus incisulus* BREDDIN, 1910 (pp. 628–629)  
(figs 7–8, 22–23)

**Type material** (examined): Lectotype ♂, designated by Gaedike (1971), deposited at the SDEI; 'Mérida Venez. | ♂ | Typus | *Ochlerus incisulus* ♂ Type Bredd[in] | coll. Breddin | Lectotypus | Des. H. Gaedike 1968 | DEI Müncheberg HEMI-00033', labels added: 'Lectotype *Ochlerus incisulus* Breddin, 1910'; 1 female paralectotype; 'Mérida | Venezuela 1884 | ♂ | Typus | *Ochlerus incisulus* ♀ Type Bredd | Paralectotypus | Des. H. Gaedike 1968 | DEI Müncheberg HEMI-00034' (SDEI), labels added: 'Paralectotype *Ochlerus incisulus* Breddin, 1910'.

**Type locality:** Mérida, Mérida, Venezuela.

**Comments:** Breddin described the species based on a male and a female. The syntypes are deposited in the SDEI collection, although the female should have gone to the NMW (BREDDIN, 1910: 629).

Again, GAEDIKE's (1971) type designations are in accordance with Breddin's descriptions.

3.1.8. *Ochlerus notatulus* BREDDIN, 1910 (pp. 627–628)  
(figs 9, 24)

**Type material** (examined): Female, here designated as lectotype, deposited at the NMW; '*Ochlerus notatulus* Type Bredd. | Brasilien', labels added: 'Lectotype *Ochlerus notatulus* Breddin, 1910'; 1 female, here designated as paralectotype, 'Brasilien | coll. Breddin | DEI Müncheberg HEMI-00024' (SDEI), labels added: 'Paralectotype *Ochlerus notatulus* Breddin, 1910'; 1 female, here designated as paralectotype, labels: 'Brasil | Coll. Signoret | *sordidus* det. Signoret coll. Breddin | DEI Müncheberg HEMI-00032' (SDEI), labels added: 'Paralectotype *Ochlerus notatulus* Breddin, 1910'.

**Type locality:** Brazil.

**Comments:** According to Breddin, the specimens should have been deposited at the NMW (BREDDIN, 1910: 628). Apparently only one of these was sent to the museum, while two are deposited in the SDEI. The NMW syntype was chosen as lectotype due to better preservation and having more complete appendices.

3.1.9. *Ochlerus profanus* BREDDIN, 1910 (pp. 619–620)  
(figs 10, 25)

**Type material** (examined): Female, here designated as lectotype, deposited at the SDEI; 'Peru Amaz. | coll. Breddin | DEI Müncheberg HEMI-00029'. 1 female, here designated as paralectotype, 'Bahia Felder 853 | *marginatus* det. Stal | coll. Breddin | DEI Müncheberg HEMI-00016'.

**Type locality:** Marcapata, Peru.

**Comments:** Out of the examined specimens from the SDEI collection, three were determined to either belong to *O. profanus* or *O. rusticus*. Two of these have the same locality labels (i.e. 'Peru, Amaz.') and would fit with the type locality of *O. profanus*, as described by BREDDIN (1910). However, upon close inspection of the genitalia and general morphology, it is clear that these two specimens are not conspecific, with one of them (collection label HEMI-00029) matching Breddin's description of *O. profanus* and the second (collection label HEMI-00023) matching that of *O. rusticus*, even though GAEDIKE (1971) labeled it as *O. profanus*. The third specimen (collection label HEMI-00016) also fits with the description of *O. profanus*, but is labeled as provenient from Bahia, Brazil. Thus, our conclusion on this matter is that the paralectotype of *O. profanus* likely had its labels changed with the lectotype of *O. rusticus*. However, we decided on keeping the labels in the same specimens and simply added new labels with our identification. Type specimens for *O. profanus* var. *praetextatus* were not found.

3.1.10. *Ochlerus rusticus* BREDDIN, 1910 (pp. 620–621)  
(figs 11, 26)

**Type material** (examined): Female, here designated as lectotype, deposited at the SDEI; 'Peru Amaz. | *Ochlerus profanus* | coll. Breddin | Typus | Syntypus | DEI Müncheberg HEMI-00023'.

**Type locality:** Bahia, Brazil.

**Comments:** See comment section in *O. profanus*. The probably misplaced labels were kept in the specimens, with new labels with our identification added to the lectotype.



3.1.11. *Ochlerus signoreti* BREDDIN, 1910 (pp. 617–618)  
(figs 12, 27)

**Type material** (photograph examined): Male, here designated as lectotype, deposited at the NMW; ‘Cayenne Coll. Signoret | *coriaceus* det. Signoret | *Ochlerus signoreti* ♂ Type Bredd.[in]’ | Labels added: ‘Lectotype *Ochlerus signoreti* BREDDIN, 1910’.

**Type locality:** Cayenne, Cayenne, French Guiana.

**Comments:** Breddin described *O. signoreti* male and female syntypes. Both should have been deposited at the NMW, but only a male syntype was retrieved.

3.1.12. *Ochlerus stylulatus* BREDDIN, 1910 (pp. 629–631)  
(figs 13, 28)

**Type material** (examined): Female, here designated as lectotype, deposited at the SDEI, Müncheberg, Germany; ‘Peru Amaz. | coll. Breddin | DEI Müncheberg HEMI-00028’ | Labels added: ‘Lectotype *Ochlerus stylulatus* BREDDIN, 1910’.

**Type locality:** Marcapata, Peru.

**Comments:** Only the one female syntype was found at the SDEI. The male should have been deposited in Breddin’s own collection.

As drawn by Breddin, the right plate of the gonocoxites 8 was removed by the author. Since the male syntype was not found in the collections which we could examine the specimens, it may very well be deposited at the Senckenberg Museum at Frankfurt (SMF) (Stephan M. Blank, *pers. comm.*).

3.1.13. *Ochlerus tenuicornis* BREDDIN, 1910 (pp. 626–627)  
(figs 14, 29)

**Type material** (examined): Female holotype, deposited at the SDEI; ‘Venezuela | coll. Breddin | Barber revid. 1933 | Holotypus | DEI Müncheberg HEMI-00035’.

**Type locality:** Venezuela.

**Comments:** Although one male syntype should have been deposited at the Hamburg Museum (BREDDIN, 1910: 627), the two syntypes (one male and one female) are housed at the SDEI. These specimens happen to be not conspecific.

Breddin himself doubted the identification of the associated male, since the females and the male are from distant localities and bear only general similarities, such as the shape of the pronotum. Thus, the male paralectotype

(figs 15, 30) is transferred to *Ochlerus breddini* spec. nov. described below.

3.1.14. *Ochlerus breddini* SIMÕES & CAMPOS spec. nov.  
(figs 15, 30–43)

**Etimology:** The name of the species is an homage to the late Gustav Breddin, a researcher who made significant contributions to *Ochlerus* and who described most of its currently known species.

**Diagnosis:** Body light to dark brown, ventral facies yellow speckled. Rostrum no surpassing urosternite V. Antero-lateral angles of the pronotum slightly produced laterad with a rounded apex. Small yellow maculae laterad to apex of radial veins. For a more accurate diagnosis, see description of genitalia.

**Type material:** Holotype, ♂, BOLIVIA, Santa Cruz: El Refugio Los Volcanes, 3400–4200 ft., 16–20-IX-2012, P. Skelley, J. Hamel, J. Wappes & T. Bonaso cols. [-17.4525; -63.6502], S 18°06' W 063°36' (JEE).

**Type locality** (examined): Tipuani, La Paz, Bolivia.

**Distribution:** BOLIVIA (*Cochabamba, La Paz, Santa Cruz*), ECUADOR (*Pastaza*), PERU (*Loreto, Ucayali*).

**Paratypes:** BOLIVIA, Cochabamba: 3 ♀, Carrasco (El Sacta) 220 m, 26.X.02, Morris & Wappes cols. [-17.3833; -63.1500] (JEE); 1 ♀, Cristal-Mayu, Prov. Chapare, Rio Cristal Mayu 50 mi NE Cochabamba, 5.XI.1944, L. Pena col. [-17.0065; -65.6413], J. C. Lutz Collection 1961, *Ochlerus* sp. LHR’84, Loan from USNMH 2068402, USNM (USNM); 1 ♂, Cristal-Mayu, Prov. Chapare, 4.IV.1950, Luis E. Pena col. [-17.0065; -65.6413], J. C. Lutz Collection 1961, *Ochlerus* sp. LHR’84, Loan from USNMNH 2068402, USNM (USNM); 1 ♀, Cristal-Mayu, Prov. Chapare, 12.IV.1950, Luis E. Pena col. [-17.0065; -65.6413], Loan from USNMNH 2068402, USNM (USNM); 1 ♂, Cristal-Mayu, Prov. Chapare, 12.IV.1950, Luis E. Pena col. [-17.0065; -65.6413], J. C. Lutz Collection 1961, *Meland. circummac.*, Loan from USNMNH 2068402, USNM (USNM); 1 ♀, Sajta, Prov. Chapare, XI.1993, collector unknown [coordinates unknown], Drake Collection, Loan from USNMNH 2068402, USNM (USNM). La Paz: 1 ♂, syntype of *Ochlerus tenuicornis* Breddin, 1910, Tipuani, 01.X.1991, A. V. Limihardt col. ded. [-15.5500; -68.0000]; 1 ♂ and 1 ♀, Uyapi (Guanay), X.1993, G. Arriagada col. [-15.4167; -67.7667] (JEE). Santa Cruz: 1 ♀, Buena Vista, Prov. Ichilo, 400 m, III.1960 [-17.4500; -63.6667], 66 spec. (CMNH); 1 ♂, 3–5 km SSE of Buena Vista ±440 m, 12.V.2000, W. B. Warner col. [-17.4525; -63.6502], 17°29'96"S, 63°39'13"W, *Ochlerus* sp. #3 det. J. E. Eger, 2013 (JEE); 2 ♂ and 4 ♀, 3–5 km SSE of Buena Vista ±440 m, 12.V.2000, W. B. Warner col. [-17.4525; -63.6502], 17°29'96"S,

63°39'13"W (JEE); 1 ♀ 5 km SSE of Buena Vista, Hotel Flora & Fauna 440 m, 10-22.X.2004, J. E. Eger col. [-17.4525; -63.6502], W63°39.128' S17°29.925', Coll. at UV, MV and Incandescent Lights (JEE); 1 ♂, 5 km SSE of Buena Vista, Hotel Flora & Fauna 440 m, 18-22.X.2004, J. E. Eger, R. F. Morris & J. E. Wappes cols. [-17.8000; -63.1667], W63°39.128' S17°29.925', Coll. at UV, MV and Incandescent Lights (JEE); 3 ♀, Buena Vista, vic. Flora & Fauna Hotel, 22-26.X.2002, Morris & Wappes cols. [-17.8000; -63.1667] (JEE); 1 ♀, Buena Vista, Flora & Fauna Hotel, 14-26.XI.2003, Morris, Nearn & Wappes cols. [-17.4525; -63.6502] (JEE); 1 ♂ and 1 ♀, El Refugio de Los Volcanes 3400-4200 ft, 16-20.IX.2012, P. Skelley, J. Wappes & T. Bonaso cols. [-18.1000; -63.6000], S 18°06' W 063°36' (JEE); 1 ♀, Potrerillos de Guendá, 40 km NW of Santa Cruz de la Sierra 350-400 m, P. Skelley, J. Wappes & T. Bonaso cols. [-17.6666; -63.4500] (JEE); 1 ♀, Potrerillos del Guendá, 40 km NW of Santa Cruz de la Sierra, 22-XI to 12.XII.2005, B. K. Dozier col. [-17.6666; -63.4500], 17°40.3'S 063°27.4'W (JEE). ECUADOR, Pastaza: 1 ♂ Ashuara Village, Rio Macuma 10 km from Rio Morona 300 m, 5-16.VI.1971, B. Malkin col. [-2.6858; -77.4891], AMNH (AMNH); 4 ♂, Puyo, Cuisimi on Rio Cuisimi 150 km SE Puyo 350 m, 15-31.V.1971, B. Malkin col. [-1.4837; -78.0026], AMNH (AMNH). PERU, Loreto: 1 ♂, Yagua Indian Village, Headwaters Rio Loreto, Yacu, 21.IV-1.V.1970, B. Malkin col. [-3.8945; -71.9716], AMNH (AMNH). Ucayali: Middle Rio Ucayali, 13.X.1923, collector unknown [-10.0005; -74.0794], F 6116, H. Bassler Collection Acc. 33591, AMNH (AMNH).

**Description:** Medium sized (around 14.4 mm); body dark brown to black. Head longer than wide, matching inclination of pronotum; dorsal surface wrinkled with 1+1 evanescent yellow lines parallel to eyes and reaching anterior margin of pronotum. Clypeus ending before anterior margin of eyes. Apex of mandibular plates acute sometimes ventrally declivous, subequal to or slightly surpassing apex of clypeus; lateral margins subrectilinear slightly elevated. Eyes yellow with black maculae. Ocelli small behind eyes, colored yellow, brown or red. Antennifer tubercle without lateral processes. Antennae five-segmented, segment I slightly wider than following segments. Bucculae subparallel, elevated, with acute tooth-like anterior angle; evanescent posteriorly. Rostrum long and slender, segment II longest, segment IV sometimes reaching urosternite VII.

Pronotum punctured, about twice as wide as long, declivous before humeral angles. Anterior margin shallowly concave, anterolateral margins subrectilinear, sometimes outlined. Anterolateral angles produced laterad, acute or truncate, base laterad of eyes. Cicatrices ovoidal, placed close to anterior pronotal margin. Scutellum relatively big, as long as wide at the base; basal angles strongly depressed, depression evanescent after first fifth; lateral margins of posterior half (after frena) subparallel, convergent at rounded apex; reaching imaginary line of apex of corium. Hemelytra slightly exceeding

abdominal apex; corium concolor with small irregular yellow maculae; radial vein with yellow macula apically laterad; membrane with 13 subparallel veins evanescent at apex. Prosternum and metasternum flat, mesosternum and metasternum with longitudinal carina. Metapleural evaporatorium concolor; ostiolar plate reaching half the width of metapleural evaporatorium; peritreme, in spout, reaching 1/2 of ostiolar plate. Legs concolor except for lighter tarsi; tibiae dorsally sulcated; dorsal surface of female posterior tarsi plain or sulcate.

Urosternites II to VI subequal; urosternite VII longer medially. Spiracles black, present at urosternites II to VII, partially covered by metasternum on urosternite II. Tricobothria posterior and ectad to spiracles; base brown or black.

**Male:** Dorsal rim of pygophore excavated; with lobular basal projections. Head of parameres laminar, excavated and convergent. Inner margins of postero-lateral projections v-shaped. Proctiger wide across whole length. Vesica with ax-like ventral projection.

**Female:** Sutural margins of gc8 completely juxtaposed; posterior margins angled, subrectilinear; external angles positioned laterad to spiracles of la8. Spiracles on la 8 completely exposed. Gc9 trapezoidal, with median carina. La9 lobular, projected posteriorly. Thickening of g9 club-like, reaching half of total length of g9.

**Measurements:** (n = 8) Total length  $1.44 \pm 0.06$  (1.31–1.51); head length  $0.26 \pm 0.01$  (0.24–0.28), anteocular length  $0.12 \pm 0.01$  (0.11–0.13), width  $0.31 \pm 0.01$  (0.29–0.33), interocular distance  $0.15 \pm 0$  (0.14–0.15); length of antennal segments: I  $0.1 \pm 0.01$  (0.09–0.11), II  $0.11 \pm 0.01$  (0.1–0.11), III  $0.2 \pm 0.02$  (0.16–0.24), IV  $0.27 \pm 0.01$  (0.25–0.29), V  $0.27 \pm 0.01$  (0.25–0.28); length of rostral segments: I  $0.15 \pm 0.02$  (0.13–0.19), II  $0.26 \pm 0.02$  (0.23–0.29), III  $0.22 \pm 0.01$  (0.2–0.24), IV  $0.2 \pm 0.02$  (0.15–0.21); pronotal length  $0.4 \pm 0.02$  (0.36–0.43), width  $0.79 \pm 0.04$  (0.74–0.85); scutellar length  $0.66 \pm 0.02$  (0.63–0.69), width  $0.53 \pm 0.02$  (0.51–0.56), width at end of frenum  $0.3 \pm 0.02$  (0.28–0.33); abdominal width  $0.9 \pm 0.04$  (0.84–0.96).

**Comments:** The female genitalia resembles that of *O. profanus*, albeit much larger. In some specimens, the parameres overlap.

#### 4. Final Considerations

Despite the uncertainty to respective whereabouts, most of the missing specimens may still be found in the aforementioned collections should a hemipterologist examine them. We also conclude that the death of Breddin left a few gaps in the type specimen organization, but in the big picture there were not as many mistakes as we could expect from an incomplete labeling process.

The decision on where the misdeposited specimens should be sent will be left for the respective curators and may be addressed in the near future. Finally, we hope that this study can help in the identification of specimens of *Ochlerus*, as well as in other studies delving into Breddin's posthumous works.

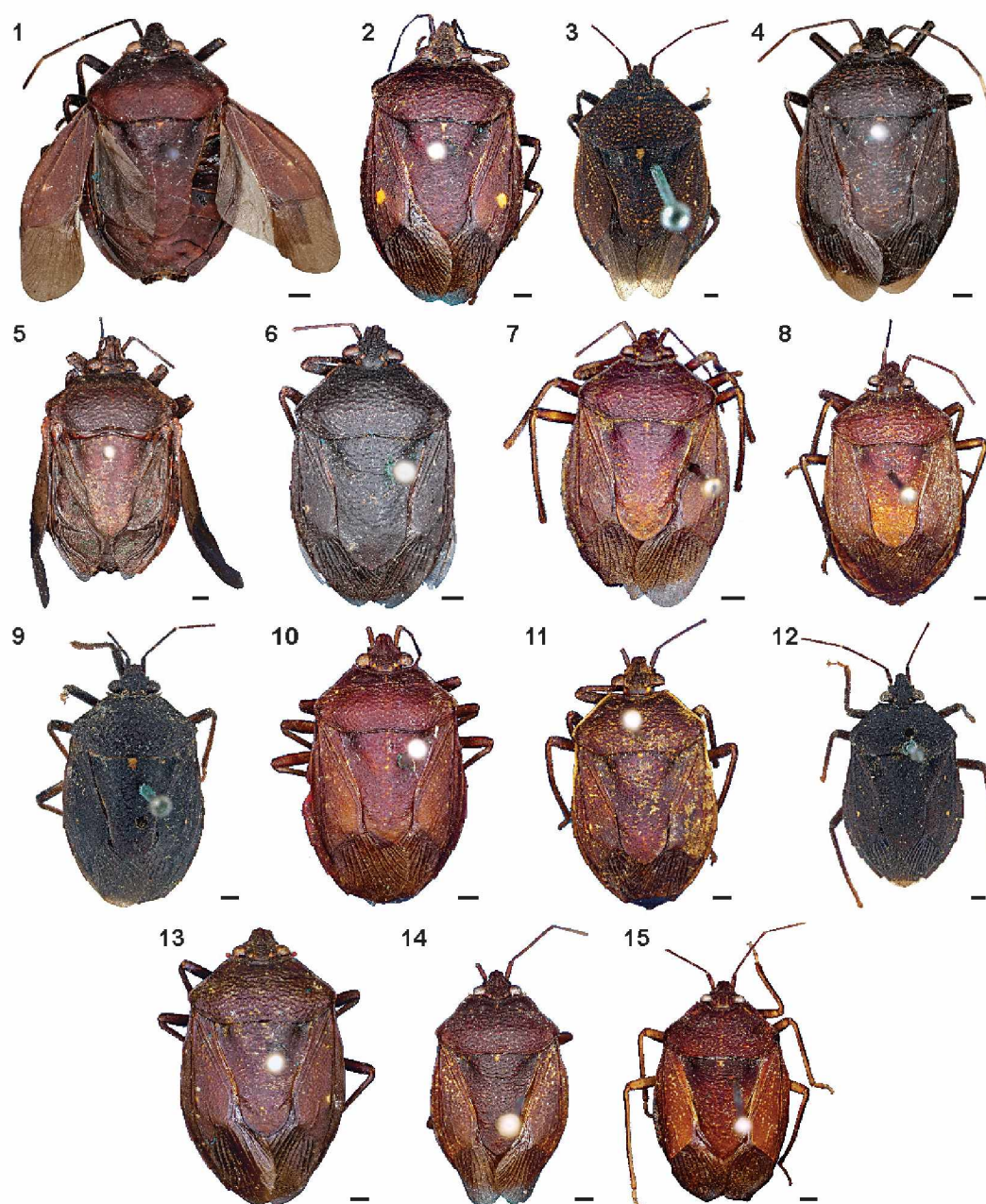
## 5. Acknowledgements

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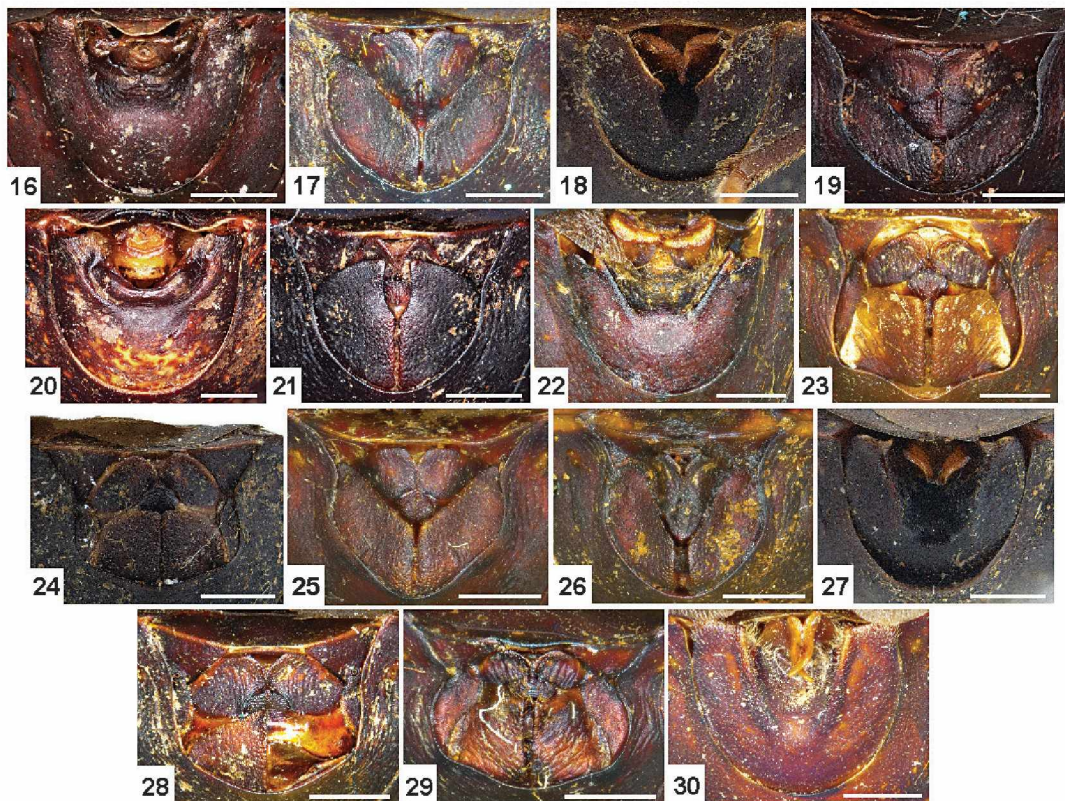
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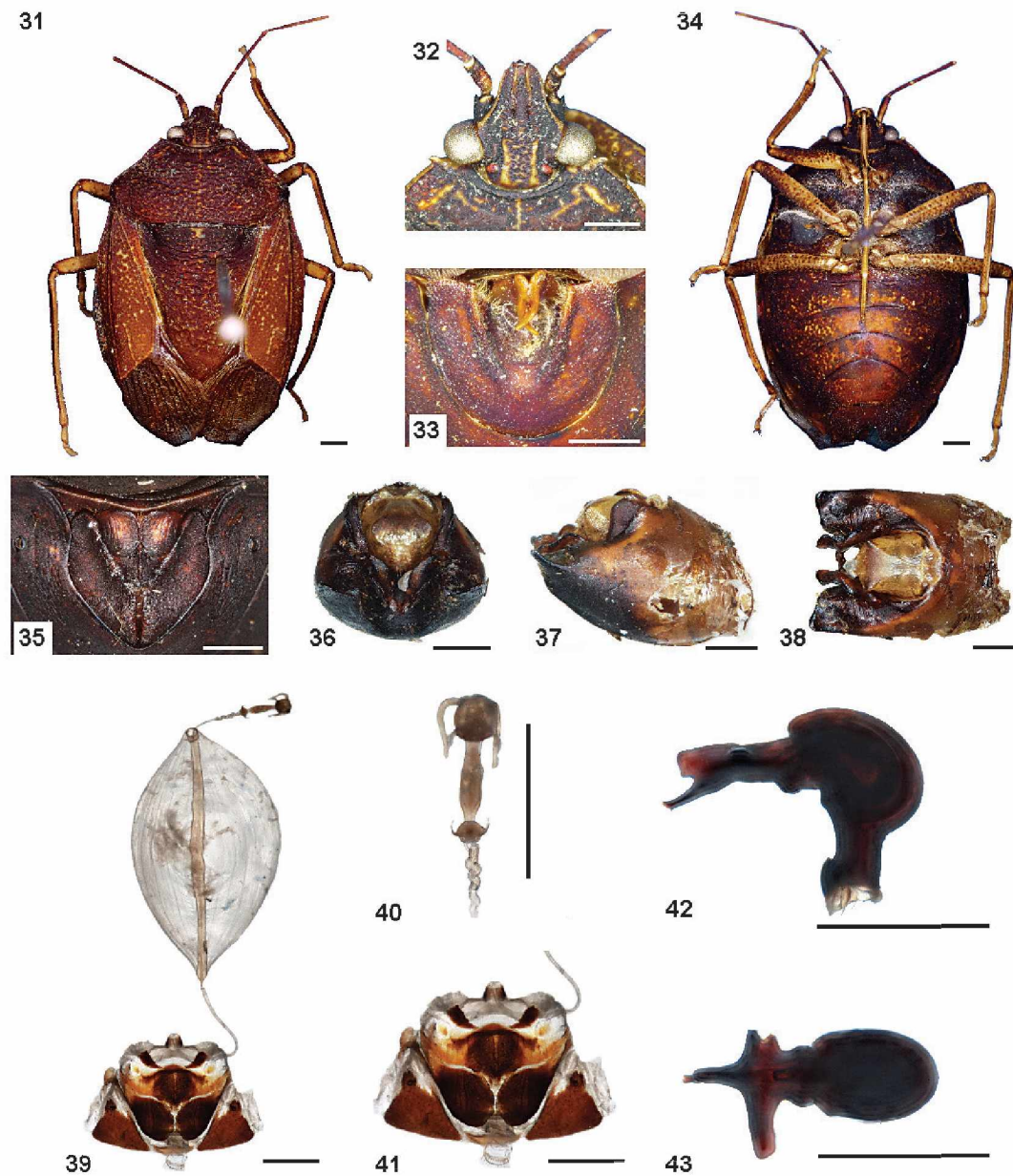


Figs 1–15: Type material of the species of *Ochlerus* described by Breddin, dorsal view. 1: *O. bergrothi*, ♂; 2: *O. bistillatus*, ♀; 3: *O. communis*, ♂; 4: *O. cotylophorus*, ♀ (voucher); 5: *O. dentijugis*, ♂; 6: *O. handlirschi*, ♀; 7: *O. incisulus*, ♂; 8: *O. incisulus*, ♀; 9: *O. notatulus*, ♀; 10: *O. profanus*, ♀; 11: *O. rusticus*, ♀; 12: *O. signoreti*, ♂; 13: *O. stylulatus*, ♀; 14: *O. tenuicornis*, ♀; 15: *O. breddini* spec. nov., ♂. Scale bars: 1 mm.





Figs 16–30: Type material of the species of *Ochlerus* described by Breddin, external genitalia, posterior view: 16: *O. bergrothi*, ♂; 17: *O. bistillatus*, ♀; 18: *O. communis*, ♂; 19: *O. cotylophorus*, ♀ (voucher); 20: *O. dentijugis*, ♂; 21: *O. handlirschi*, ♀; 22: *O. incisulus*, ♂; 23: *O. incisulus*, ♀; 24: *O. notatulus*, ♀; 25: *O. profanus*, ♀; 26: *O. rusticus*, ♀; 27: *O. signoreti*, ♂; 28: *O. stylulatus*, ♀; 29: *O. tenuicornis*, ♀; 30: *O. breddini* spec. nov., ♂. Scale bars: 1 mm.



Figs 31–43: General morphology and genital structures of *Ochlerus breddini* sp. nov.: 31: Body, dorsal view; 32: Head, dorsal view; 33: External male genitalia, posterior view; 34: Body, ventral view; 35: External female genitalia, posterior view; 36: Pygophore, posterior view; 37: Pygophore, lateral view; 38: Pygophore, dorsal view; 39: Female genital plates and internal structures; 40: *Pars intermedialis* and *capsula seminalis*; 41: Genital plates and receptaculum seminis; 42: *Phallus*, lateral view; 43: *Phallus*, ventral view.

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