

**Taxonomic and nomenclatorial revision within the Neotropical genera of the subtribe  
Odontochilina W. Horn in a new sense - 11.  
The genus *Cenothyla* Rivalier, 1969 (Coleoptera: Cicindelidae)**

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**Taxonomy, nomenclature, new combination, new status, new species, Coleoptera, Cicindelidae, Odontocheilina, *Cenothyla*, Amazon Basin**

**Abstract.** Results of a taxonomic and nomenclatorial revision of the genus *Cenothyla* Rivalier, 1969 with type species *Cicindela consobrina* Lucas, 1857 is presented with a brief history and lectotype designations in relevant taxa. The revision has confirmed that *Cenothyla* is clearly a delimited genus separated from the related genus *Odontocheila* Laporte de Castelnau, 1834 by the shape of the aedeagus, namely by the characteristic structure of the internal sac which in *Cenothyla* lacks any trace of a flagellum, and contains unique sclerites. Three new species are described as new for science, and one new combination is made. Consequently, the genus now comprises seven species: *C. consobrina* (Lucas, 1857), *C. postica* (Chaudoir, 1860) stat. restit., *C. posticoides* sp. nov., *C. fulvothoracica* sp. nov., *C. varians* (Gory, 1833), *C. rietscheli* (Wiesner, 2007) comb. nov. and *C. klichai* sp. nov. It is concluded that the replacement of the name *Cenothyla varians* (based on *Cicindela varians* Gory, 1833), with the first available synonym *Cenothyla cognata* (based on *Odontocheila cognata* Chaudoir, 1843) by Cassola (1999) was invalid as in contradiction to Art. 23.9.5 (ICZN 1999). Illustrations of the habitus, diagnostic characters and variability of all species are presented in colour photographs.

## INTRODUCTION

This paper is a continuation of the ongoing taxonomic revision of ten Neotropical genera of the subtribe Odontocheilina W. Horn, 1899 by the author. The aim of this series of papers (see Moravec 2012a,b,c, 2013 and 2014, Duran & Moravec 2013, Moravec & Duran 2013 and Moravec & Brzoska 2013, 2014a,b,c) is to publish significant taxonomic and nomenclatorial changes or descriptions of new taxa to be available before the completion of the final comprehensive publication.

Regarding the subtribe Odontochilina, as previously discussed by Moravec (2012a,b), the subtribe is in this series of papers defined exclusively for the Neotropical genera, and in the present sense separated from the subtribe Prothymina W. Horn, 1910 sensu Rivalier (1969, 1971). The reason for such a classification is that in contrast to the characters given by Rivalier (1969, 1971) for his wide concept of the subtribe Prothymina, many species of the Neotropical Odontochilina placed within Prothymina by Rivalier, possess a setal vestiture, developed to various degrees.

In this paper, results of the revision of the genus *Cenothyla* Rivalier, 1969 are presented.

## HISTORY

The genus *Cenothyla* with the type species *Cicindela consobrina* (Lucas, 1857) was established by Rivalier (1969) as characterized by a very different internal sac of the aedeagus lacking a flagellum and thus diagnostically distinguished from the genus *Odontocheila* Laporte de Castelnau, 1834. *Cenothyla* was maintained as the separate genus also by Rivalier (1971) and the generic status was accepted by consequent specialists in Cicindelidae, such as Cassola (1999, 2001), Wiesner (1992), Rodriguez, Joly & Pearson (1994), Pearson, Buestán & Navarrete (1999), Pearson, Guerra & Brzoska (1999), Naviaux (2002) and others.

Pearson, Buestán & Navarrete (1999) and Pearson, Guerra & Brzoska (1999) noted that preliminary analysis of mtDNA by Vogler & Pearson (1996) indicated that the genus *Cenothyla* is not sufficiently distinct to justify generic status and likely should be returned to *Odontocheila*. Subsequently, Lorenz (1998a,b, 2005a,b) and Erwin & Pearson (2008) have listed *Cenothyla* as a subgenus of *Odontocheila*. Nevertheless, there is no definite result in Vogler & Pearson (1996) regarding *Odontocheila* versus *Cenothyla*, the authors only noted: “The *Pentacomia/Odontocheila* group is paraphyletic and includes small genera such as *Cenothyla* and *Cheilonycha*”. Pons & Vogler (2006) mentioned: “Most of the analysis also retrieved the monophyletic groups within Prothymina: (1) *Odontocheila* plus *Cenothyla*, (2) *Pentacomia* sp. plus *Cheilonycha*”. Owing to the primarily methodical nature of their paper, the exact quality of samplings within the genera is not obvious, nor do the results support the suggestion to connect these genera, of which *Odontocheila* is paraphyletic among the “*Odontocheila* plus *Cenothyla*” monophyletic group. It is not clear if the sample of *Cenothyla consobrina* from Napo, Ecuador used for the molecular test by Vogler & Pearson (1996) was previously studied also regarding its genitalia or was identified as such for its external characters only. Specimens of this and other species of *Cenothyla* have been commonly confused in collections with *Odontocheila trilbyana* Thomson, 1857. They are externally very similar and often of a sympatric or even syntopic occurrence. Pearson & Vogler (2001) mentioned *Cenothyla* both as a genus (p. 134 and 162) and as a subgenus of *Odontocheila* (p 283).

Notwithstanding, I believe that any results of molecular tests must be always evaluated by comparison with other morphology, and that in the case of *Cenothyla* the characters of the aedeagus and internal sac are sufficiently diagnostic for the generic separation.

Consequently, *Cenothyla* is here maintained as a separate genus, related to *Odontocheila* Laporte de Castelnau, 1834, but distinctly delimited from it by the shape of the aedeagus and a characteristic structure of the internal sac which lacks any trace of a flagellum, and possesses sclerites of a shape which does not occur in *Odontocheila* and are unique within the subtribe *Odontocheilina*.

As a result of the revision presented here, the genus *Cenothyla* comprises seven species: *C. consobrina* (Lucas, 1857), *C. postica* (Chaudoir, 1860) stat. restit., *C. posticoides* sp. nov., *C. fulvothoracica* sp. nov, *C. varians* (Gory, 1833), *C. rietscheli* (Wiesner, 2007) comb. nov. and *C. klichai* sp. nov.

Regarding the history of the nomenclature of *Cenothyla varians* (Gory, 1833), see under this species here.

## MATERIAL AND METHODS

Body length is measured without labrum and is the distance from the anterior margin of the clypeus to the elytral apex (including the sutural spine). The width of the pronotum includes the lateral margins of the proepisterna (as both the proepisterna and the notopleural sutures are visible from above). The width of the head is measured across the eyes, the distance between their outer margins. The term “aedeagus” here refers to the median lobe of the organ (without parameres). All dimensions of aedeagi are measured (and primarily figured) in their left lateral position where the basal portion (with basal orifice) points to the right and the left lateral outline (with dorsoapical orifice) faces dorsally, provided that the ventral outline of the median portion is settled in its vertical position, and both upper and lower walls of the dorsoapical orifice are in the same line. The treatment and mounting of the aedeagi, in order to observe the structure of the internal sac, followed the usual procedure as modified and the terms explained by Moravec (2002, 2010). The position of the aedeagus is very important for the real shape of the apex of the aedeagus and sclerites forming the structure of the internal sac. The shape of the sclerites depends both on their positioning within the internal sac, as well as on the position of the internal sac within the aedeagus - the sclerites can be variously swung, and the whole internal sac inside the aedeagus can be turned, and consequently, the appearance of the structure may be changed.

The colour photographs of the habitus and diagnostic characters, including aedeagi, were taken with a Nikon Coolpix 990 digital camera through an MBS-10 binocular stereo microscope.

The morphological terminology is mostly adopted from Torre-Bueno dictionary (Nichols 1989), those describing the surface macrosculpture partly from Harris (1979), but many terms were proposed by Moravec (2002, 2007, 2010).

Labels are cited in the following manner: lines on the same label are separated by slash /, separate labels are indicated by double-slash //; each specimen or a series of specimens are separated by a full stop. The colour of the label and mode of writing appear in square brackets (in type specimens only, while in other specimens the citation is mostly restricted to locality labels). Words printed in labels in full capital letters are transcribed as normal letters here (capitals are used in abbreviations only). It should be noted that a date on some labels with the name of a museum collection denotes the year in which the specimen was accessioned (donated) to the recent collection (e.g. MNHN, BMNH), mostly not the year in which it was collected.

The list (catalogue) under the species name in the descriptive part is selective. It means that it gives the original name combination, as well as the first publication of all subsequent taxonomic or nomenclatorial acts concerning the taxon, and of only available names.

Following abbreviations of type status are used in the descriptions and captions below the illustrations: HT = holotype; PT = paratype, AT = allotype; LT = lectotype, PLT = paralectotype.

Abbreviations for the collections:

ASUT Arizona State University, Tempe, U.S.A.

BMNH The Natural History Museum London, U.K.;

- COSJ Collection Ondřej Šafránek, Jiřetín pod Jedlovou, Czech Republic;  
 CCJM Collection Cicindelidae Jiří Moravec, Adamov, Czech Republic;  
 CJVB Collection Jan Vybíral, Židlochovice u Brna, Czech Republic;  
 CMJO Collection Milada Jančíková, Olomouc, Czech Republic;  
 CMKP Collection Miroslav Klícha, Praha, Czech Republic;  
 CMNH Carnegie Museum of Natural History, Pittsburgh, U.S.A.;  
 CPVP Collection Petr Votruba, Praha, Czech Republic;  
 DBCN Insect Collection of David W. Brzoska, Naples, Florida, U.S.A.;  
 CDCL Collection Charles Dheurle, Langres, France;  
 FSCA Florida State Collection of Arthropods, Department of Agriculture, Gainesville, Florida, U.S.A.;  
 INPA Instituto de Pesquisas da Amazonia, Manaus, Brazil;  
 IRSNB Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium;  
 JWCW Collection Jürgen Wiesner, Wolfsburg, Germany;  
 KCBC collection Arnošt Kudrna, České Budějovice, Czech Republic;  
 MFNB Museum für Naturkunde der Humboldt-Universität, Berlin, Germany;  
 MNHN Muséum national d'Histoire naturelle, Paris, France;  
 MPEM Museu Paraense Emilio Goeldi, Belem, Brazil;  
 NHMK Natural History Museum, University of Kansas, Lawrence, Kansas U.S.A.;  
 RLHC Collection Ronald L. Huber, Bloomington, Minnesota, U.S.A.;  
 SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany;  
 USNM Smithsonian Institution, Entomology, Washington DC, U.S.A.

#### TAXONOMY

Note: the spelling “*Odontochila*” is an unjustified emendation by Agassiz (1846), of the genus-group name *Odontocheila* Laporte de Castelnau, 1834.

#### Genus *Cenothyla* Rivalier, 1969

*Cenothyla* Rivalier, 1969: 217.

*Odontocheila* subgen. *Cenothyla*: Lorenz 1998a: 35, 1998b: 63.

**Type species.** *Cicindela consobrina* Lucas, 1857 (by original designation).

**Differential diagnosis.** Body small to large, 9.20–14.7 mm long, appearance virtually indistinguishable from several species of the genus *Odontocheila*, namely from a few species which possess punctate-setose areas on the metasternum. However, the genus *Cenothyla* is principally distinguished from *Odontocheila* by its narrower shape of the aedeagus and particularly by the characteristic structure of the internal sac which is in all species of *Cenothyla* almost uniform and without any trace of a flagellum. It contains a very thin arciform piece, large, strongly chitinized oblong ventral sclerite with a short vermiform appendage at its base, and a dorsal sclerite which may resemble a spur, but is in fact a membranous piece folded in middle as clearly obvious in right lateral aspect of most examined aedeagi.

In contrast, *Odontocheila* is clearly delimited genus characterized by a voluminous aedeagus the internal sac of which contains a convoluted flagellum consisting of a bulbous base and very long, multicoiled flagelliform part protruding from dorsoapical orifice. Moreover, the analogous characteristic ventral sclerite within the internal sac in *Odontocheila* differs in its voluminous, oval to reniform shape (Fig. 131). By the complex of both the external and internal characters, the genus *Cenothyla* is clearly delimited also from the genus *Pentacomia* Bates, 1872 and all its subgenera.

**Biology and distribution.** All species of *Cenothyla* occur in the Amazonian rainforests spreading along the numerous tributaries of the vast Amazon Basin, or at borders of the area, which according to verified specimens includes French Guyana, Surinam, Ecuador Peru, Bolivia and Brazil. Adults have diurnal activity, usually flying along shady and wet, paths and small openings on the forest floor, also near river edges; during the night they are hidden sitting underneath foliage of low vegetation.

**Remarks.** The schematic drawing of the aedeagus for the type species *C. consobrina* (Lucas, 1857) and for *C. varians* (Gory, 1833) by Rivalier (1969, Figs. 13c,v) (no origin given by him) and inaccurate drawing of sclerites within the internal sac show obviously a deformed aedeagi and internal sacs by wrong treatment when he extracted the internal sacs from the aedeagi and mounted them between two glasses; the voluminous ventral piece drawn for *C. consobrina* by Rivalier (1969, Figs. 13c) was flattened, thus showing a deformed, widened shape, and the basal arcuate-bent thin piece illustrated by Rivalier for both these species in fact does not exist and was drawn by him under an illusion. A brown glue used by Rivalier for these mountings (deposited in MNHN as “Lame” and numbered according to labels attached to relevant specimens) has penetrated inside the mountings and after it dried it caused a heavy damage or mostly entire destruction of the internal sac, so the mountings are now unusable for any research. Unfortunately, this problem also affects aedeagi (also of type specimens) of most other species of tiger beetles treated by Rivalier (see also Moravec 2010).

#### KEY TO SPECIES OF THE GENUS *CENOTHYLA*

(lateral and anterior area of metasternum always punctate-setose;  
labrum of old specimens usually irregularly dark-tarnished and coloration of appendages  
often faded)

- 1 Ventral area including abdomen metallic-black ..... 4
- Abdomen, metatibiae and metatarsi testaceous, or also metasternum testaceous ..... 2
- 2 Abdomen, metasternum, metepisterna, tibiae, mesotarsi, metatarsi and labrum testaceous; palpi with only terminal palpomeres black-darkened; female unknown ..... *C. fulvothoracica* sp. nov.
- Abdomen, metatibiae and metatarsi testaceous, metasternum black ..... 3
- 3 Aedeagus with rather short apex; body dorsally more iridescent, femora in male usually somewhat darkened, in female almost black; both penultimate and terminal palpomeres of maxillary palpi black (faded in old specimens) ..... *C. postica* (Chaudoir)
- Aedeagus with prominently elongated apex; all leg segments testaceous (tarsi with reddish iridescence, particularly more intense on protarsi); palpi yellow-ochre except for brownish-darkened terminal palpomeres ..... *C. posticoides* sp. nov.

- 4 Metatarsi metallic-black, body usually not reaching 12 mm ..... 5  
 - Metatarsi and metatibiae pale yellow to ochre-testaceous; both penultimate and terminal palpomeres of maxillary palpi black; aedeagus with only moderately elongated and slightly ventrally directed apex; body larger, 11-14.7 mm ..... *C. consobrina* (Lucas)
- 5 Aedeagus narrowed into almost straight and usually slightly dorsally turned apex; labrum predominantly testaceous, only exceptionally with black-darkened basomedian area; humeral macula rather elongate and present in both sexes; surface of abdominal ventrites with indistinct, sparsely scattered microsetae .....  
 ..... *C. rietscheli* (Wiesner) comb. nov.
- Aedeagus with moderately ventrally directed apex ..... 6
- 6 Body small, length of males up to 9.60 mm, females up to 10.2 mm; surface of abdominal ventrites glabrous; labrum predominantly testaceous, rarely with black-darkened limited basomedian area; elytral antepical macula in male mostly prolonged as a thin stripe along apical margin towards suture, humeral macula absent in female; aedeagus both dorsally and ventrally rather abruptly constricted into narrow, moderately elongate subcylindric, ventrally directed apex ..... *C. varians* (Gory)
- Body larger, length of males surpassing 10.3 mm, females up to 11.8 mm; surface of abdominal ventrites rather densely covered with microsetae; basomedian area of labrum always metallic-black; elytral antepical macula in both sexes small, never prolonged towards suture; humeral macula present in both sexes; aedeagus dorsally conically attenuated into rather short, moderately ventrally directed apex ..... *C. klichai* sp. nov.

### *Cenothyla consobrina* (Lucas, 1857)

(Figs. 1, 10-24)

*Cicindela consobrina* Lucas, 1857: 37.

*Odontochila consobrina*: Fleutiaux 1892: 122.

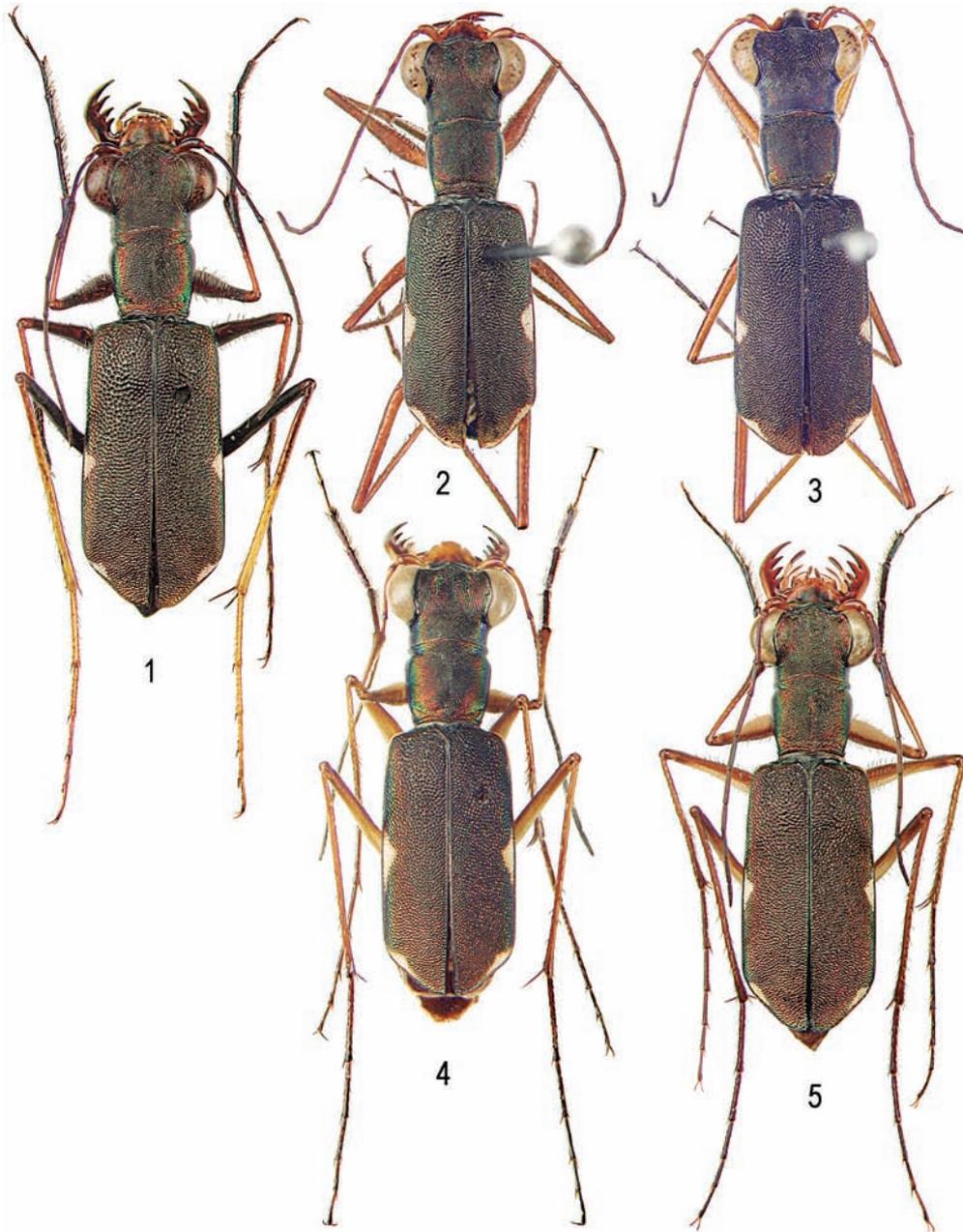
*Cenothyla consobrina*: Rivalier 1969: 217, 218, fig. 13.

*Odontocheila (Cenothyla) consobrina consobrina*: Lorenz 1998a: 36.

**Type locality.** Peru: Mission de Sarayacu on the Ucayali (= Oucayale) River, 6°47'S, 75°07'W (Pampas del Sacramento area).

**Type material.** Lectotype (designated here) ♂ in MNHN, labelled: "10 / 47" [rounded, handwritten, on its dorsal side plain-green] // "Muséum Paris / Amerique du Sud / De Castelnau 1847" [printed/handwritten] // Lectotype / *Cicindela / consobrina* Lucas, 1857 / design. Jiří Moravec 2014" [red. printed] // "Cenothyla / consobrina (Lucas, 1857) / det. Jiří Moravec 2014" [printed]. Paralectotypes. 2 ♂♂ in MNHN with same labels as in lectotype; one of them with: "1481 / Rivalier" [handwritten, referring to separately mounted aedeagus]. 1 ♂ in MNHN with same first rounded label as in lectotype and: "Muséum Paris / Pérou / Pampas del Sacramento / De Castelnau 1847" [printed]. All paralectotypes labelled: "Revision Jiří Moravec 2014: / Paralectotype / *Cicindela / consobrina* Lucas, 1857" [red, printed] // "Cenothyla / consobrina (Lucas, 1857) / det. Jiří Moravec 2014" [printed].

**Other material examined.** Historical data. 1 ♀ in MNHN: with same labels as in lectotype and: "Cicindela / consobrina Lucas" [handwritten]. 4 ♂♂, 4 ♀♀ in MNHN: "Muséum Paris / Pérou / Pampas del Sacramento / De Castelnau 1847". 1 ♂ in MNHN: "Pebas / Amazonas / M. de Mathan / 1880" // "Muséum Paris / Coll. R. Oberthür" // édeage / 1467 / Rivalier" [referring to separately mounted aedeagus]. 1 ♀ 1 ♂ in MNHN: "Canelos / Ecuador" // "Ex Museo / H.W. Bates / 1892" // "Consobrina / Lucas" // "1482 / Rivalier" [referring to separately mounted aedeagus]. Other data. 2 ♂♂ in BMNH: "Ecuador Napo / Muyuna, 500 m. / 5k. W of Tena / M. Cooper". 1 ♂ in BMNH: "47503" // "Ecuador". 1 ♂ in BMNH, 1 ♂ in SDEI: "Coca / (Ecuador) / R.B.Haensh". 1 ♂ in SDEI: "Pebas / Amazon". 1 ♂ in MFNB: "Amazonas". 1 ♂ in MNHN: "Pérou / Pebas". 1 ♀ in MNHN: "Amazonas / Pebas". 1 ♀ in SDEI: "Napo / Ecuador". 1 ♂ in SDEI: "Aguano / Ecuador". 1 ♂ in SDEI: "Archidona / Ecuador". 1 ♂ in SDEI: "Petras Ob. / Amazon". 1 ♂ in SDEI: "Donckier / Oberthür" [no locality]. 1 ♂ in CMNH: "Ecuador: Napo / Sacha nr Lago / Agrilo, June 1983 / J. Boos". 1 ♀ in CMNH: *ibid.*, except for: "10.Aug.1983". "Explornapo Camp, Peru / VII-1991 / S. Timme" // "rain forest". 8 ♂♂, 4 ♀♀ in DBCN: "Peru-Loreto / Explornapo Camp / Acer - Río Sucusari / D. Brzoska 17-18-IV-1995". 1 ♂, 2 ♀♀ in DBCN: *ibid.*, except for: "forest trail / 03°15'50''S, 72°55'06''W / D. Brzoska 20-10-2000". 4 ♂♂, 6 ♀♀ in DBCN, 1 ♂, 1 ♀ in CCJM: "Ecuador-Napo / Yuturi Lodge-Yuturi R. / 00°32.9'S; 76°02.3'W / D. Brzoska 19-21-III-1999". 1 ♂ in ASUT: "Ecuador - Napo - Yusuní / Puce BS 3/23-25/95 / 76°23'W 0°40'S, 250m / M.Bass & N.Pitman (A.Forsyth)". 1 ♂ in RLHC: "PERU: Loreto / 200km N Iquitos /



Figs. 1-5. Habitus of *Cenothyla*: 1- *C. consobrina* (Lucas), ♂, 12.7 mm, LT (MNHN); 2- *C. varians* (Gory), ♂, 9.3 mm, LT (MNHN); 3- *C. varians* (Gory), ♀, 9.9 mm, PLT (MNHN); 4 - *C. rietscheli* (Wiesner) comb. nov., ♂, 10.2 mm, PT (JWCW); 5- *C. klichai* sp. nov., 10.5 mm, HT (MNHN).

17 July 1987 / D.L. Pearson". 1 ♂ in CMKP: "Peru - Iquitos / Sinchucui River / 2-3.XII.1994 / Kliche M. lgt." // "Shady and / wetly path / in a jungle". 1 ♂ in CCJM: "Ecuador, prov. Pastaza / Arajuno, 750 m / 3-10.XII.2000 lgt. V. Kabourek". 1 ♂ in JWCW, 1 ♀ in RLHC: "Ecuador, Sucumbios / Panacocha / D. L. Pearson, 17.I.1996". 1 ♂ in JWCW: "Ecuador, Napo Distr. / Loreto / 17.II-14.III.1996 J. Strnad leg.". 1 ♀ in JWCW, 1 ♂ in RLHC: "Ecuador, Napo / Jatun Sacha / 30.X.1996 V. Nuñez". 1 ♂ in RLHC: "Ecuador: "ECUADOR: Napo / Limoncocha / 5.July 1971 / D.L. Pearson". 1 ♂ in RLHC: *ibid.*, except for: "14.July 1971". 1 ♂ in RLHC: *ibid.*, except for: "28. Dec.1971". 1 ♀ in RLHC: *ibid.*, except for: "16.Feb.1972". 1 ♂ in RLHC: *ibid.*, except for: "21.Oct.1979". 1 ♂ in RLHC: *ibid.*, except for: "29.June 1973 W. Fitch". 1 ♂ in RLHC: "ECUADOR: Prov. Oriente / Lake Taracoa, trail / fin Napo R., 9 Apr 1978 / Wayne Fitch". 1 ♂ in ASUT: "Ecuador: Napo / 39 km s. Pompeya / 3 Oct.1994 (220 m) / D. L. Pearson". 1 ♂ in ASUT, 1 ♂, 1 ♀ in RLHC: "Ecuador: Napo / 100 km e Coca / 18.Sept.1992 / D. L. Pearson". 1 ♂ in RLHC: *ibid.*, except for: "14.Sept.1992". 1 ♀ in ASUT: "Napo / Bella Rosa / 12-VI.98"[partly illegible]. 1 ♂ in BMNH: "Ecuador Yusuni Nat. Park / Tiputini Research Station / 21.XI-04.XII.2013 FIT bycatch / T. L. Erwin & B.H. Garner / BMNH {E}2013-193".

**Redescription.** Body (Fig. 1) medium-sized to large, 11.0-14.7 (LT 12.7) mm long, 3.20-4.50 (LT 3.90) mm wide (females usually distinctly larger than males), dorsal surface dark copper with brighter reddish-cupreous sublateral areas, passing to iridescent-green to blue narrow lateral areas; elytral white maculation consisting of three maculae in male (humeral macula entirely absent in female).

Head (Fig.12) large, only slightly narrower than body, 3.20-4.20 mm wide; all head portions glabrous.

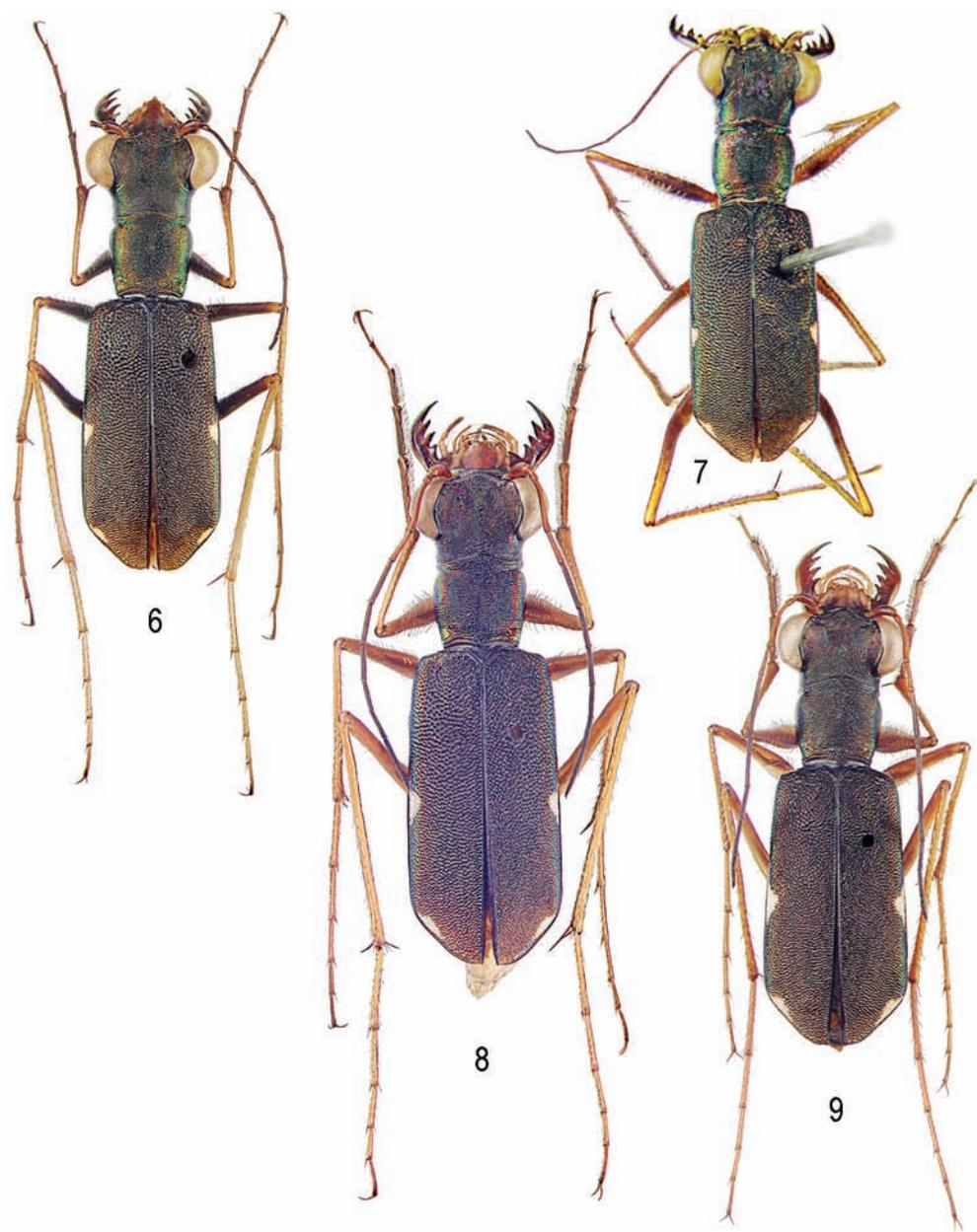
Frons with moderately triangular anterior margin, steeply sloped towards clearly separated clypeus; anterior juxtaclypeal and lateral areas smooth, almost black or with green and violaceous lustre; median area of blunt frons-vertex fold fluently passing to vertex, black-copper with reddish, rarely green-blue iridescence, covered with very fine vermicular rugae mostly transversely arranged; supraantennal plates elongate-triangular, smooth and shiny violet-green, their apices forming a part of rather sharp frons-vertex lateral edges.

Vertex flat in middle; anteromedian area including the frons-vertex fold covered with mostly transversely arranged, vermicular to wavy rugae; narrow median area vermicular-rugulose, rugae divergent in middle and passing posteriad, irregularly wavy, becoming longitudinal-wavy and finer on posterior area; sublateral areas are with parallel-wavy or zigzag-wavy or very irregular rugae which are more parallel and divergent posteriad; large juxtaorbital areas more distinctly longitudinally parallel-striate, passing onto temples; surface of occipital area very finely asperate.

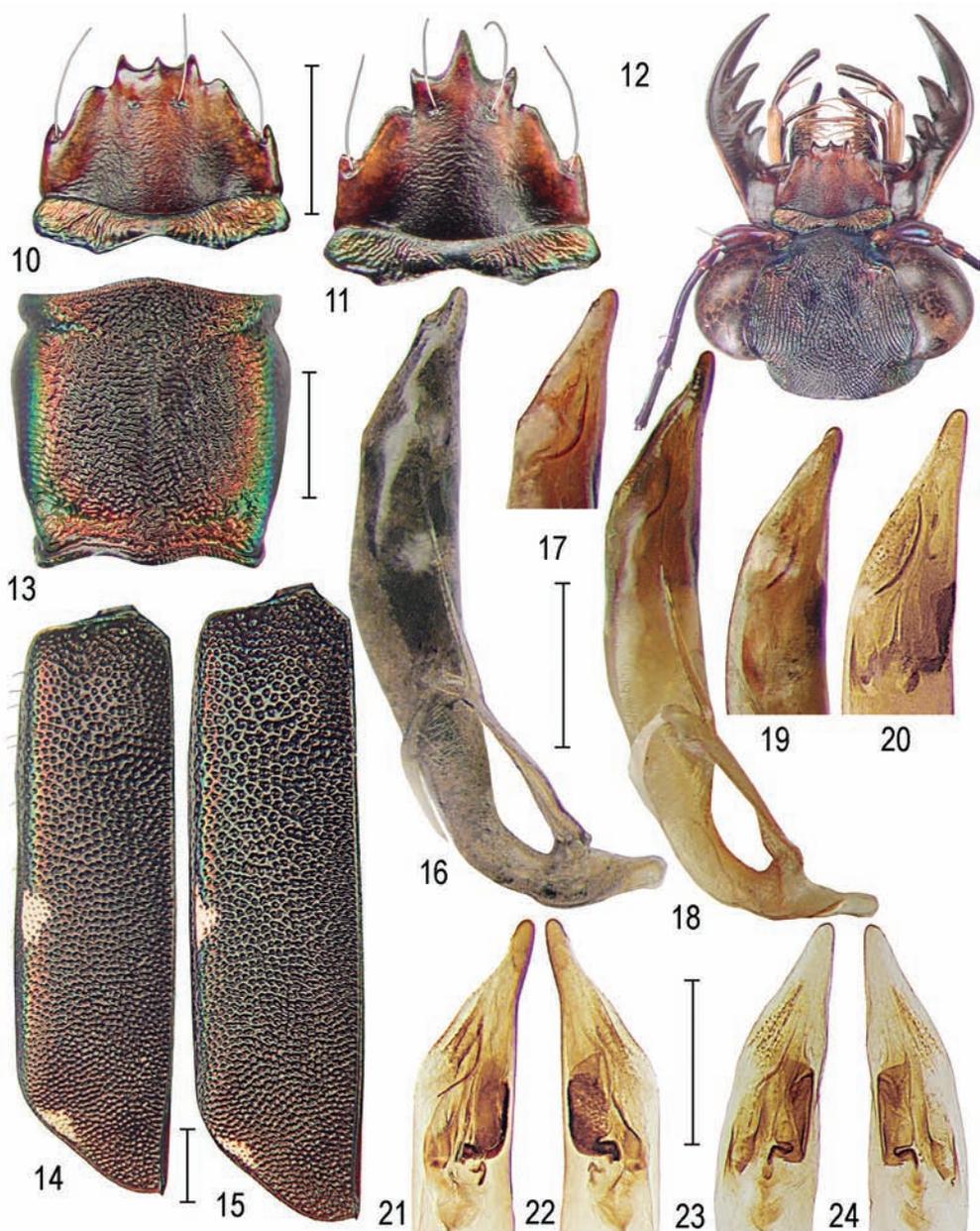
Clypeus reddish-cupreous, usually with iridescent green or green-blue lustre on anterior and lateral areas, rather distinctly irregularly rugulose.

Genae metallic black with violaceous or green lustre, almost smooth or very indistinctly shallowly striate, more distinctly on postgenal areas.

Labrum 4-setose, in both sexes ochre to reddish-testaceous with metallic-black basomedian area which is usually very large, in female mostly prevailing (labrum in old specimens usually darkened); male labrum (Fig. 10) rather long, 0.90-1.05 mm long, 1.30-1.60 mm wide, with mostly acute basolateral teeth, anterior margin moderately constricted towards rounded lateral teeth, and three acute or subacute anterior teeth (median tooth usually somewhat smaller); female labrum (Fig. 11) much longer, length 1.45-1.60 mm, width 1.70-1.85 mm, similarly shaped but tridentate median lobe with distinctly protruding median tooth.



Figs. 6-9. Habitus of *Cenothyla*: 6- *C. postica* (Chaudoir), ♀, 12.1 mm, PLT (MNHN); 7- *C. postica* (Chaudoir), ♂, 11.4 mm, LT (MNHN); 8- *C. fulvothoracica* sp. nov., ♂, 12.2 mm, HT (DBCN, later NHMK); 9- *C. posticoides* sp. nov., ♂, 10.7 mm (MNHN).



Figs. 10-24. *Cenothyta consobrina* (Lucas): 10-11: labrum (10- ♂, LT; 11- ♀, “Amerique du Sud / De Castelnau 1847” (MNHN); 12- head, ♂, LT; 13- pronotum, ♂, LT; 14-15: elytron (14- ♂, LT; 15- ♀, “Amerique du Sud de Castelnau 1847” (MNHN); 16-24: aedeagi or their apical parts (16- LT; 17- “Pampas del Sacramento, De Castelnau 1847”, PLT (MNHN); 18- Ecuador, Yusuni N.Park (BMNH); 19- Peru, Loreto, Aceer Rio Sucusari (DBCN); 20- Amazonas, (MFNB); 21-22- Ecuador, Yusuni N.Park (BMNH); 23-24- PLT (MNHN). Bars = 1 mm.

Mandibles (Fig. 12) normally shaped with arcuate lateral margins, each mandible with four teeth (and basal molar), subsymmetrical, the three inner teeth becoming gradually smaller towards the basal molar but teeth of right mandible more robust; coloration dark reddish-brown except for indistinct narrow, ivory-yellow lateral stripe.

Palpi (Fig. 12) normally shaped with elongate terminal palpomeres; maxillary palpi ochre-yellow to ochre with both penultimate and terminal palpomeres in both sexes black; labial palpi with terminal palpomere black, penultimate (longest) palpomere ochre-testaceous or usually black-darkened, elongate, moderately and gradually dilated towards 0.20-0.25 mm wide apex.

Antennae rather long, in male reaching or slightly surpassing elytral half, in female somewhat shorter; scape with only apical seta, metallic black (in old specimens faded to black-brown) with strong blue or violaceous-blue lustre, basal and ventral area usually much paler, ochre-testaceous; pedicel concolorous with scape, sometimes with paler apical belt; antennomeres 3-4 black with strong purple or violaceous lustre, often with darker apices, covered with usual, sparse indistinct setae; antennomeres 5-11 smoky-black with normal micropubescence.

Thorax. Pronotum (Fig. 13) as long as wide or very slightly longer, length 1.90-2.20 mm, width 1.85-2.10 mm, dark cupreous in middle with strong, bright reddish-cupreous sublateral areas passing to iridescent green-blue lateral areas and violaceous juxtannotopleural areas; sulci well pronounced (anterior sulcus deep only laterally); anterior lobe notably wider than the posterior, its anterior margin in middle prolonged anteriorly, rather coarsely and densely irregularly vermicular-rugulose; disc with moderately convex lateral margins (including dorsally visible proepisterna), usually gradually attenuated towards posterior sulcus, but indistinct notopleural sutures running mutually subparallel; median line indistinct, often partly merging with surface sculpture; discal surface densely but rather coarsely irregularly wavy to vermicular-rugulose; more transverse but shallower rugae on lateral areas reaching notopleural sutures; posterior lobe with distinct basal rim, surface irregularly covered with coarser vermicular to transverse-wavy rugae, dorsolateral bulges moderate; whole dorsal surface glabrous; proepisterna and mesepisterna smooth and glabrous, shiny metallic-black, metepisterna concolorous, with usual, deep impression at metepimeron; female mesepisternal coupling sulci in form of a deeper longitudinal-sinuuous sulcus within the usual longitudinal furrow, thus only slightly differing from much shallower and almost uniform furrow in male mesepisternum; ventral sterna shiny metallic-black, rarely with feeble bluish iridescence; prosternum and mesosternum smooth and glabrous; metasternum with punctate-setose lateral areas, punctures rather sparse, but markedly deep, distributed also on narrow anterior area, setae arising from the setigerous punctures are white, rather short and stiff.

Elytra (Figs. 14-15) elongate, length 6.70-9.00 mm, with rounded to subangular humeri (more subangular in female), lateral margins almost parallel, in female slightly convex in middle, anteapical angles in both sexes arcuate, then obliquely running towards apices which are towards indistinct sutural spine almost subacute in male, rounded in female; microserrulation indistinct and very irregular; elytral dorsal surface almost regularly convex on posterior half of elytral disc, humeral impressions rather deep, together with moderate to deep discal impression clearly delimiting rather distinct basodiscal convexity; anteapical and apical impressions moderate, remaining elytral surface almost even; elytral surface distinctly punctate with mostly regular intervals on whole elytral length, but punctures conspicuously

larger within humeral impressions and particularly on lateral areas of basodiscal convexity and within the discal impression where their intervals are thinner, but very rarely anastomosing, becoming smaller on posterior elytral half, smallest and more irregular along elytral sutures but still rather large on lateral areas, much smaller and very irregular on elytral apices appearing as with carinate intervals, but appearance of the sculpture varies depending on angle of illumination; elytral surface glabrous except for a few usual hairlike sensory setae indistinctly scattered mostly on basal area, and a few others adjacent to epipleura and apical margins; elytral coloration black-copper on elytral disc, brighter reddish-cupreous on sublateral areas, passing to iridescent-green on lateral areas, while juxtaepipleural area is violaceous; white elytral maculation consists in male of three maculae, but humeral macula is barely visible from above, and is entirely absent in female; other maculae present in both sexes: lateral-median macula irregularly triangular (wider in male), and anteapical macula somewhat elongate or elongate-triangular.

Legs. Coxae metallic-black, pro- and mesocoxae often with violaceous or green lustre, densely setose, metacoxae with densely setose lateral margin; trochanters glabrous (except for usual apical seta on pro- and mesotrochanters), brownish to black-brown, metatrochanters darker; femora mostly metallic-black (also in LT), or pro- and mesofemora with tawny brown to paler basal half and ventral area, always with testaceous apices; exceptionally femora testaceous entirely; femoral surface covered with dense irregular rows of short to mediocre-long, erect and semierect white setae which are much sparser on metafemora; protibiae metallic-black with blue, or violaceous lustre, except for testaceous apical half, mesotibiae ochre-testaceous with brownish apical quarter, metatibiae entirely yellow-ochre; surface of tibiae covered with rows of scattered semierect, whitish setae which are much stiffer than those on femora, apical half of protibiae and mesotibiae covered with dense whitish to greyish setose pad; protarsi metallic black often with blue or violaceous lustre, first three protarsomeres in male distinctly dilated, with usual, dense greyish-white pad of short setae; mesotarsi black-brown, while metatarsi entirely pale yellow-testaceous, claws dark testaceous to black-brown.

Abdomen. Ventrites dark metallic black; surface glabrous, their posterior margins with usual a few, long hairlike sensory setae.

Aedeagus (Figs. 16-24) elongate and straight with arcuately bent base, 3.50-3.85 mm long, 0.60-0.70 mm wide, apical part conically attenuated towards narrow, moderately long and blunt apex; internal sac (Figs. 21-24) characteristic of the genus *Cenothyla* lacking any trace of flagellum, containing very thin arciform piece, large, strongly chitinized oblong ventral sclerite with a short vermiform appendage at its base, and characteristic dorsal folded sclerite which may resemble a spur.

**Variability.** As mentioned in the redescription, a few adults have paler pro-and mesofemora (namely those from Napo, Ecuador), and also the black-darkened longest palpomeres of labial palpi occurs in a number of adults. The apex of aedeagus is in some males slightly more prolonged.

**Differential diagnosis.** *Cenothyla consobrina* is the largest species of the genus, distinguished from all other species of *Cenothyla* by its black abdomen combined with pale

yellow-testaceous metatibiae and metatarsi. It shares the pale ochre-testaceous coloration of its metatibiae and metatarsi with a few species of *Odontocheila*, but *C. consobrina* is immediately distinguished by the distinctly punctate-setose lateral and anterior areas of its metasternum, and of course by the aedeagi. A number of specimens in MFNB identified by Horn and Mandl as "*Odontochila*" *consobrina* proved to be in fact *Odontocheila marginilabris* (Erichson, 1847), which can be immediately distinguished from *Cenothyla consobrina* by its black metatarsi and other external and internal characters, so the circumstances of such confusion are unknown.

**Biology and distribution.** The type locality, mentioned in the original description by Lucas (1857) as "mission Sarayacu", is a Franciscan mission in the department of Loreto, north-eastern Peru (6°47'S, 75°07'W). It is situated at the river Ucayali (= Oucayale), one of the Amazon tributaries. Most other specimens come from the Ecuadorian province of Napo, those from Pebas come from rainforests of Peruvian Amazonia. The locality Jatun Sacha is a biological reserve and station in the Ecuadorian Amazon tropical rainforest of the upper Napo River. Panacocha Lake in the Ecuadorian lower Amazon lies between the Cuyabeno National Reserve and the Yasuni National Park. Limoncocha is a town and lake within the Limoncocha Biological Reserve in the Ecuadorian province of Sucumbios, lying between the rivers Coca and Aguatico.

As a biology, Pearson, Buestán & Navarrete (1999) wrote that this species inhabits primary terra firma forest below 900 m.a.s.l throughout the Oriente of Ecuador; these authors listed a great number of specimens from Ecuador, but most of them have not been examined by me. No specimen from Colombia listed by these authors (and by Horn 1910) was found by me in collections. *C. consobrina* is evidently absent in Bolivia as it was not mentioned from the country by Pearson, Guerra & Brzoska (1999).

**Remarks.** The male syntype in MNHN designated here as the lectotype in order to increase stability of the taxon, evidently belongs to the type series by Lucas (1857) who mentioned only male sex in his original description. One of the paralectotypes has, besides the rounded label: "10/47" (universal for all other syntypes) additional printed label "Muséum Paris / Pérou / Pampas del Sacramento / de Castelnau 1847", but the pampas are in the same area of the type locality and within the journey by Laporte de Castelnau in 1847.

### ***Cenothyla postica* (Chaudoir, 1860) stat. restit.**

(Figs. 6-7, 25-42)

*Odontochila postica* Chaudoir, 1860: 321 (53).

*Odontocheila postica*: Bates 1869: 290.

*Odontochila postica*: Fleutiaux 1892: 123.

*Odontochila consobrina postica*: Horn 1910: 201.

*Cenothyla consobrina postica*: Rivalier 1969: 218.

*Odontocheila* (*Cenothyla*) *consobrina postica*: Lorenz 1998a: 36.

**Type locality.** "Amazones"

**Type material.** Lectotype (designated here) ♂ in MNHN, labelled: "Muséum Paris / Coll. Chaudoir 1874" [greenish, printed] // "Type" [red, printed] // "1486 / Rivalier" [handwritten, referring to separately mounted aedeagus] //

“postica / Chaud. / Amazonas / Bates” [large yellowish-tarnished label with black frame, handwritten] // “Lectotype / Odontochila / postica Chaudoir, 1860 / design. Jiří Moravec 2014” [red, printed]. Paralectotypes. 1 ♂ in MNHN: “Muséum Paris / Coll. Chaudoir 1874” [greenish, printed] // “édeage / 1475 / Rivalier” [handwritten]. 1 ♀ in MNHN with same first label. The paralectotypes labelled: “Revision Jiří Moravec 3014: / Paralectotype / Odontochila / postica Chaudoir, 1860” [red, printed]. All type specimens labelled: “Cenothyla / postica (Chaudoir, 1860) / stat. restit. / det. Jiří Moravec 2014” [printed].

**Other material examined.** Historical data. 1 ♂ in MNHN: “S Paulo / Amaz.” [handwritten] // “Ex Musaeo / H.W. Bates / 1872” [printed] // “postica Ch. / Bull Mosc 1860 321” [yellow-tarnished, handwritten] // “Muséum Paris / 1952 / Coll. R. Oberthür” [greenish, printed]. 1 ♀ in BMNH: “Amazonas / 90” // “F. Bates Coll. / 1911-248”. 1 ♂ in MNHN: “Amazonas / St. Paulo / d’Olivencia / Hahnel”. Other data. 1 ♂ in ASUT: “Ecuador: Morona Santiago / Amuantai (300 m) / 23.Jan.1996 / D. L. Pearson” // “Primary / forest”. 2 ♂♂ in BMNH: “Sao Paulo”. 1 ♂ in BMNH: “Upper Amaz.”. 1 ♀ in BMNH: “Brazil”. 1 ♂ in BMNH: “Matto Grosso”. 1 ♂ in SDEI: “Peru / AE [illegible]” // “O. postica / compar. to type”. 1 ♀ in RLHC: “Ecuador: Pastaza / Kapawi (300m) / 24.I.1996 / D.L. Pearson” // “Primary forest”.

**Redescription.** Body (Figs. 6-7) medium-sized, 11.2-12.3 (LT 11.4) mm long, 3.50-3.90 (LT 3.50) mm wide, body as in *C. consobrina*, but lateral margins with more vividly green iridescence (particularly in males); elytra with three whitish maculae (small humeral macula present also in female).

Head (Figs. 25-26) as in *C. consobrina*, 3.40-3.65 mm wide; more notably narrower than body and in male with more intense greenish iridescence on lateral areas.

Frons, vertex, clypeus and genae as in *C. consobrina*.

Labrum as in *C. consobrina*, but labrum in male somewhat shorter, and in both sexes much paler, ochre-testaceous with more or less distinctly black-darkened basomedian area; male labrum (Figs. 27-28) 0.85-0.95 mm long, 1.40-1.55 mm wide; female labrum (Fig. 29) much longer, length 1.50 mm, width 1.55 mm.

Mandibles (Figs. 25-26) as in *C. consobrina*, but notably paler, in male predominantly reddish-testaceous, much darker in female.

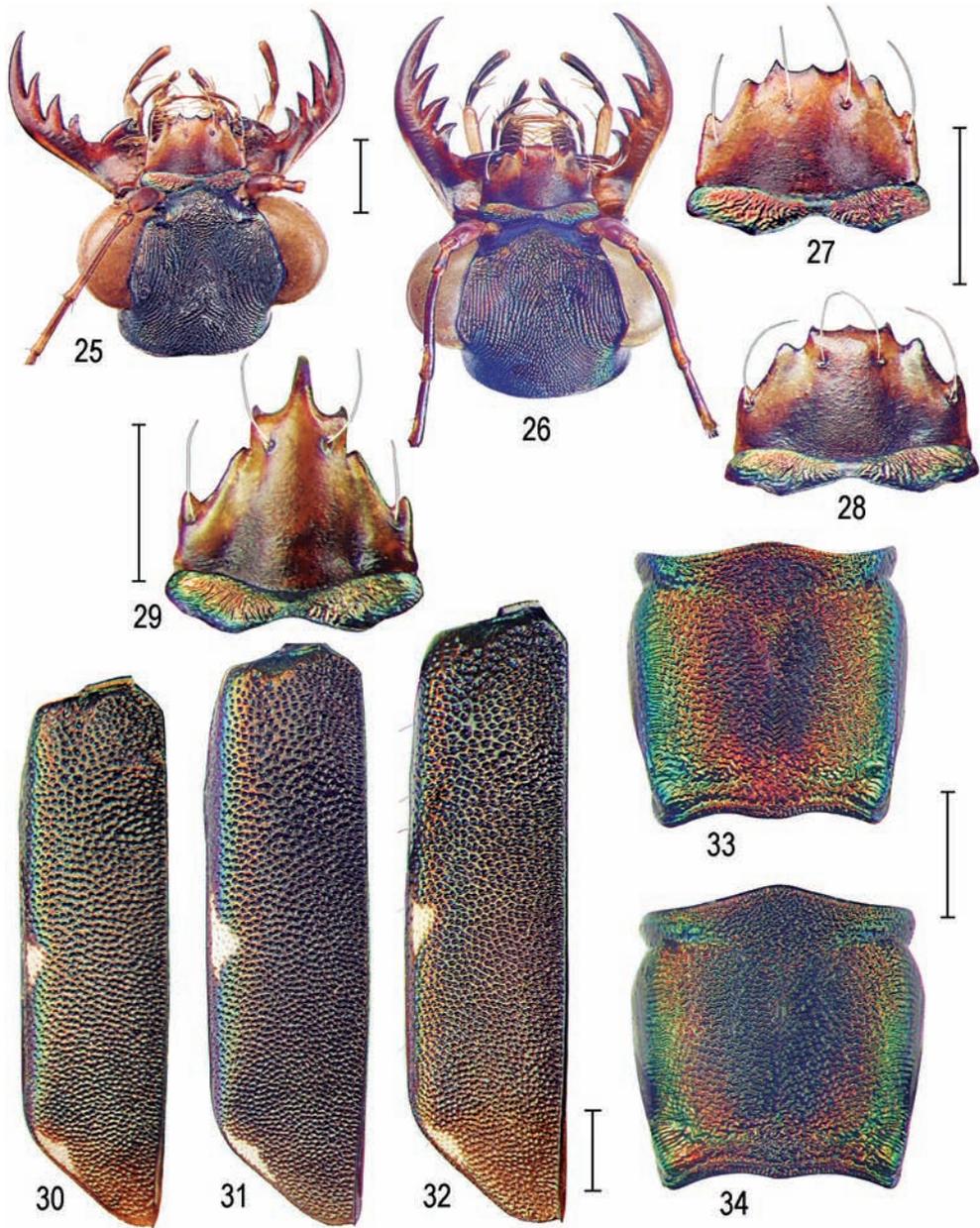
Palpi (Figs. 25-26) shaped as in *C. consobrina*, maxillary palpi ochre-yellow with penultimate and terminal palpomeres in both sexes black (faded to brown in old specimens), labial palpi with terminal palpomere black, but penultimate (longest) palpomeres yellow-ochre, only very rarely indistinctly black-darkened on their glabrous side.

Antennae as in *C. consobrina*, but notably paler, scape with wider testaceous ventral area, antennomeres 3-4 metallic black-brown to black, conspicuously maculate with purple-reddish to ochre-testaceous apical areas.

Thorax as in *C. consobrina*, but pronotum (Figs. 33-34) with lateral margins more convex, slightly longer than wide, length 2.25-2.45 mm, width 2.20-2.35 mm, lateral areas more intense iridescent-green and surface sculpture much finer; ventral and lateral thoracic sterna as in *C. consobrina* including the deep punctures of the punctate-setose areas on metasternum.

Elytra (Figs. 30-32) shaped and punctate as in *C. consobrina*, but more vividly coloured, particularly in male, 6.40-7.60 mm long; elytral maculation as in *C. consobrina*, but humeral macula present also in female, in both sexes small, invisible from above.

Legs as in *C. consobrina*, but generally much paler; pro- and mesocoxae black-brown with green lustre, densely setose, metacoxae metallic-black, densely setose on lateral margin; trochanters yellow to ochre-testaceous, metatrochanters darker; femora in male



Figs. 25-34. *Cenothyla postica* (Chaudoir): 25-26: head (25- ♂, LT; 26- ♂, Sao Paulo (MNHN)); 27-29: labrum (27- ♂, LT; 28- ♂, Sao Paulo (MNHN); 29- ♀, ex Chaudoir, PLT (MNHN)); 30-32: elytron (30- ♂, LT; 31- ♂, "Amazons, 90" (MNHN); 32- ♀, ex Chaudoir, PLT (MNHN)); 33-34: pronotum: (33- "Amazons, 90" (MNHN); 34- ♀, ex Chaudoir, PLT (MNHN)). Bars = 1 mm.

ochre-testaceous, but also with limited black areas, in female much darker, almost black, all tibiae ochre-testaceous (metatibiae yellow-ochre) with only black-darkened apical area on metatibiae; protarsi metallic-black, mesotarsi ochre to brownish-testaceous, metatarsi yellow-ochre.

Abdomen (Fig. 35) ochre- to reddish-testaceous, surface of ventrites nearly glabrous, with only occasional microsetae (and usual hairlike sensory setae at margins of the ventrites).

Aedeagus (Figs. 36-42) similar to that in *C. consobrina* and of a similar variability, but the moderately elongated apex is generally blunter; internal sac (Figs. 40-41) virtually identical with that in *C. consobrina*, but especially in right lateral view (Fig. 41) the dorsal sclerite clearly obvious as folded in middle, thus without any filiform spiny projection as seemingly indicated in left lateral view (Fig. 40).

**Variability.** Only in the coloration, particularly of the femora, mentioned in the description.

**Differential diagnosis.** *Cenothyla postica* shares the same coloration of maxillary palpi and shape of the aedeagus with *C. consobrina*, but it principally differs in having testaceous abdomen, and its femora, although with black areas, are always much paler, particularly so in male, and also the antennomeres 1-2 are paler and antennomeres 3-4 markedly light-maculate by purple-reddish to ochre-testaceous apical areas; penultimate (longest) palpomeres of labial palpi are yellow-ochre, only exceptionally darkened on their glabrous side. In addition, the body size of *C. postica* is generally smaller and more vividly coloured.

*C. posticoides* sp. nov. clearly differs in having much longer apex of the aedeagus (external differences see under that species below). *C. fulvothoracica* differs in having both abdomen and metasternum testaceous, and by very different shape of the aedeagus. Remaining three species of *Cenothyla* immediately differ in having their abdomen and metatarsi metallic-black.

**Biology and distribution.** In the original description (Chaudoir 1860), the type locality was not explicitly mentioned for this species, but it is probably “près du fleuve des Amazones” (according to the origin of preceding species also received from Bates, and “Amazones” on the label of the lectotype). It obviously occurs throughout the Amazon Basin, in Brazil (Matto Grosso, Sao Paulo de Olivença), but also in Peruvian and Ecuadorian Amazon rainforests, thus sometimes sympatric with *C. consobrina*, but without any evidence of also syntopic occurrence.

**Remarks.** According to Chaudoir (1860) the original description was based on three syntypes of both sex. The male in MNHN labelled as type is designated here as the lectotype to increase stability of the taxon. Because of the sympatric occurrence in the Amazon Basin, *C. postica* cannot be a subspecies of *C. consobrina* as simply considered by Rivalier (1969) followed by Wiesner (1992), Lorenz (1989 a, b, 2005a,b) and Erwin & Pearson (2008) despite the sympatric distribution. Consequently *C. postica* is restituted here to its original species status. As mostly old individual specimens of *C. postica* are present in collections, more recent syntopic adults are needed to be examined, but at present, the differences from *C. consobrina* appear to be quite adequate.

*Cenothyla posticooides* sp. nov.

(Figs. 9, 43-61)

**Type locality.** Peru: Madre de Dios, Manu Reserve Zone, Cocha Pachita Trail, 12°01.0'S, 71°31.1'W, 310 m a.s.l.

**Type material.** Holotype ♂ in MNHN, labelled: "Peru-Madre de Dios / Manu Res. Zone 310 m / Cocha Pachita Trail / 12°01.0'S, 71°31.1'W / D. Brzoska 21-X-2000" [printed]. Allotype, 1 ♀ in DBCN: "Peru-Madre de Dios / Manu Res. Zone 310 m / Cocha Salvador-Rio Manu / 12°00.2'S, 71°31.6'W / D. Brzoska 21-X-2000" [printed]. Paratypes. 9 ♂♂, 1 ♀ in DBCN, 4 ♂♂ in CCJM, 1 ♂ in CJVB, 1 ♂ in SDEI, 1 ♂ in MFNB, 1 ♂ in BMNH, 1 ♂ in USNM, 1 ♂ in FSCA, 1 ♂ in CMNH, 1 ♂ in NHMK with same labels as allotype. 1 ♂ in DBCN: "Peru-Madre de Dios / Manu Res. Zone / Pakitza B.S. 320 m / D. Brzoska 16-X-2000" [printed]. All type specimens labelled: "Holotype (Allotype or Paratype respectively) / *Cenothyla* / *posticooides* sp. nov. / det. Jiří Moravec 2014" [red, printed].

**Description.** Body (Fig. 9) medium-sized, 10.2-11.8 (HT 10.7, AT 11.8) mm long, 3.20-3.80 (HT 3.30, AT 3.80) mm wide (females usually distinctly larger than males), dorsal surface dark cupreous with golden-bronze iridescence and more reddish-cupreous lateral areas; legs conspicuously pale; elytral white maculation consisting in both sexes of three maculae.

Head (Figs. 50-51) large, only very slightly narrower than body, 3.15-3.60 mm wide; all head portions glabrous.

Frons with bluntly triangular anterior margin, lateral areas steeply sloped towards clearly separated clypeus; anterior juxtaclypeal and lateral areas smooth, shiny-black or with green, bluish or violaceous lustre; median convex area of blunt frons-vertex fold fluently passing to vertex, black-copper with reddish, rarely green-blue iridescence, finely wavy to vermicular-rugulose, wavy rugae mostly transversely arranged; supraantennal plates elongate-triangular, smooth and shiny violaceous or green, their apices forming a part of rather sharp frons-vertex lateral edges.

Vertex flat in middle; anteromedian area including the frons-vertex fold covered with mostly transversely arranged, wavy rugae, passing to vermicular sculpture on narrow median area, but sublateral stria-like rugae divergent in middle passing posteriad, forming an arcuate ornament in middle; large juxtaorbital areas more distinctly longitudinally parallel-striate, but striae becoming shallow when passing onto temples; surface of occipital area very finely irregularly asperate.

Clypeus partly reddish-cupreous, partly iridescent green or green-blue, mostly on lateral areas, surface irregularly wrinkled.

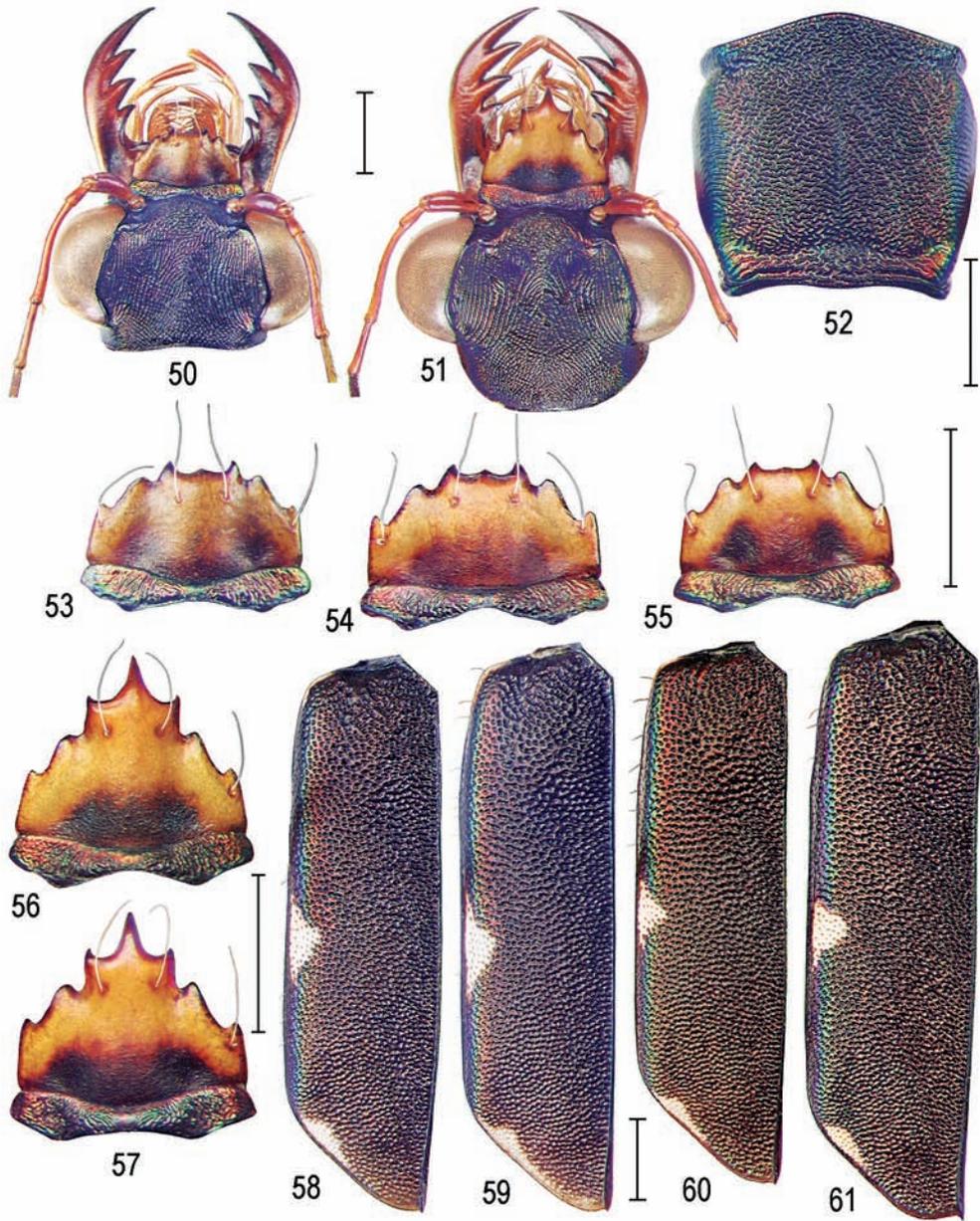
Genae metallic black-blue with violaceous and green lustre, nearly smooth with only shallow, irregular, very indistinct striae.

Labrum 4-setose, in both sexes ochre-testaceous, in male with brownish to black-brown basomedian area which is more metallic-black in female; male labrum (Figs. 53-55) rather short, 0.70-0.75 mm long, 1.30-1.40 mm wide, with subacute or acute basolateral teeth, subacute or obtuse lateral teeth, and acute anterior teeth with much smaller or obtuse or almost effaced median tooth; female labrum (Figs. 56-57) much longer, length 1.25-1.30 mm, width 1.30-1.50 mm, similarly shaped but with distinctly protruding median tooth.

Mandibles (Figs. 50-51) normally shaped, with arcuate lateral margins, in both sexes subsymmetrical, each mandible with four teeth (and basal molar), inner teeth of right mandible more robust, becoming gradually smaller towards the basal molar, but the third tooth in left



Figs. 35-49. Two species of *Cenothyla*. 35-42: *C. postica* (Chaudoir): 35- metasternum and abdomen, ♂, "Amazons, 90" (MNHN); 36-42: aedeagi (36- Sao Paulo (MNHN); 37- Ecuador, Amuantai (ASUT); 38- ditto, ventral view; 39- Teffe (BMNH); 40-41- ditto, internal sac in left and right lateral view; 42- "Amazons, 90" (MNHN). 43-49: *C. posticoides* sp. nov., aedeagi: 43- Cocha Pachita, HT (MNHN); 44- Cocha Salvador, PT (CCJM); 45- ditto, ventral view; 46- ibid, PT CCJM; 47- Pakitza, PT (DBCN); 48-49- internal sac in left and right lateral view, HT. Bars = 1 mm.



Figs. 50-61. *Cenothyla posticooides* sp. nov. 50-51: head (50- ♂, Cocha Pachita, HT (MNHN); 51- ♀, Cocha Salvador, AT (DBCN)); 52- pronotum, ♂, HT; 53-57: labrum (53 ♂, HT; 54- ♂, Pakitza, PT (DBCN); 55- ♂, Cocha Salvador, PT (CCJM); 56- ♀, AT; 57- ♀, Cocha Salvador, PT (CCJM)); 58-61: elytron (58- ♂, HT; 59- ♂, Pakitza, PT (DBCN); 60- ♂, Cocha Salvador, PT (CCJM); 61- ♀, AT. Bars = 1 mm.

mandible wider than the second; coloration rather pale reddish-brown to mahogany-brown with black-darkened margins of teeth, and narrow, ivory-yellow lateral stripe which is less distinct in female.

Palpi (Figs. 50-51) normally shaped with elongate terminal palpomeres; both maxillary and labial palpi ochre-yellow with terminal palpomeres mahogany to brownish-darkened, in female also the penultimate palpomere is somewhat darkened; penultimate (longest) palpomeres of labial palpi narrow, only indistinctly and gradually dilated towards 0.17-0.24 mm wide apex.

Antennae rather long, in male slightly surpassing elytral half, in female shorter, not reaching it; scape with only apical seta, dark metallic mahogany or with violaceous lustre, its basal and ventral area ochre-testaceous; pedicel either ochre-testaceous or mahogany to brownish-darkened; antennomeres 3-4 testaceous with mahogany lustre, covered with usual, sparse, indistinct setae; antennomeres 5-11 smoky black with normal micropubesence.

Thorax. Pronotum (Fig. 52) as long as wide or very slightly longer, length 2.15-2.40 mm, width 2.15-2.35 mm, dark cupreous with feeble greenish iridescence, sublateral areas iridescent reddish-cupreous passing to green-blue more laterally, and to black-violet on juxtannotopleural areas; sulci well pronounced (anterior sulcus distinct only laterally); anterior lobe notably wider than the posterior, its anterior margin prolonged anteriorly in middle, surface finely or more coarsely, densely irregularly vermicular-rugulose; disc with moderately or more distinctly convex lateral margins (including dorsally visible proepisterna), moderately attenuated towards posterior sulcus, but indistinct notopleural sutures running mutually subparallel, or are narrowed in middle; median line indistinct, often partly merging with surface sculpture; discal surface densely, finely to rather coarsely or irregularly zigzag-wavy to vermicular-rugulose; more transverse but shallower and still irregular rugae on lateral areas reaching notopleural sutures; posterior lobe with distinct basal rim, surface irregularly and more coarsely wavy- to vermicular-rugulose; dorsolateral bulges moderate; whole dorsal surface glabrous; proepisterna and mesepisterna smooth and glabrous, shiny metallic-black, metepisterna concolorous, with usual, deep impression at metepimeron; female mesepisternal coupling sulci in form of a deeper longitudinal-sinuuous sulcus within the usual longitudinal furrow, thus only slightly differing from much shallower and almost uniform furrow in male mesepisternum; ventral sterna shiny metallic-black, rarely with feeble bluish iridescence; prosternum and mesosternum smooth and glabrous; metasternum with widely punctate-setose lateral areas, punctures dense or somewhat sparser, rather shallow, and even shallower punctures sparsely distributed on narrow anterior area of the metasternum; setae arising from the setigerous punctures are white, rather short and stiff.

Elytra (Figs. 58-61) elongate, length 6.50-7.50 mm, with rounded humeri, lateral margins almost parallel, or only slightly convex in middle (more distinctly so in female), anteapical angles in both sexes arcuate, then obliquely running towards apices which are towards indistinct sutural spine almost subacute in male, rounded in female; microserrulation very indistinct and irregular; elytral dorsal surface appearing almost even, regularly convex on posterior half of elytral disc, humeral impressions moderate, together with moderate discal impression indistinctly or more clearly delimiting rather moderate basodiscal convexity; anteapical and apical impressions moderate; elytral surface similar to that in *C. consobrina*, but

punctures generally more anastomosing; surface distinctly punctate on whole elytral length, punctures conspicuously larger on basodiscal convexity with mostly regular intervals, even larger within humeral impressions and particularly on lateral areas of basodiscal convexity and within the discal impression where their intervals are thinner, and the punctures often anastomosing, becoming smaller on posterior elytral half, smallest and more irregular and anastomosing along elytral sutures, much smaller and very irregular with carinate intervals particularly on elytral apices, forming a dense, rasp sculpture, but appearance of the sculpture varies depending on angle of illumination; elytral surface glabrous except for a few usual hairlike sensory setae indistinctly scattered mostly on basal area, and a few others adjacent to epipleura; elytral coloration dark cupreous, often (also in HT) discal elytral area black-copper; sublateral areas bright reddish-cupreous and with iridescent-green or green-blue narrow lateral area; juxtaepipleural area deep violaceous; white elytral maculation consists in male of three distinct maculae, humeral macula is slightly elongate but barely visible from above; in female the humeral macula is only indistinctly indicated as a very small dark ochre or brown dot, visible only in lateral view; other maculae distinct in both sexes: lateral-median macula large and distinctly triangular; anteapical macula elongate-triangular or more elongate, rarely prolonged along the apical margin towards apex, reaching sutural spine (Fig. 59).

Legs. Pro- and mesocoxae brownish-testaceous, often with metallic-green densely setose anterior area, metacoxae metallic-black with testaceous apex, with apical seta and a few discal setae and densely setose margin; trochanters whitish-ivory to ivory-ochre with only apical seta on pro- and mesotrochanters; femora testaceous with feeble mahogany to purple-violaceous lustre and ochre basal and ventral area; pro- and mesofemora with rows of rather sparse erect white setae which are sparser on metafemora; tibiae light testaceous with deep mahogany lustre on apices of protibiae; metatibiae even paler; surface of tibiae covered with rows of scattered semierect, whitish setae which are much stiffer than those on femora, the setae passing into very dense greyish setose pad on apical half of pro- and mesotibiae; tarsi testaceous with mahogany lustre which is more intense and darker on protarsi; first three protarsomeres in male distinctly dilated and with usual, dense greyish-white pad of short setae; claws testaceous.

Abdomen ochre- to reddish-testaceous, surface of ventrites nearly glabrous, with only occasional barely visible, extremely short microsetae (apart from usual, a few long hairlike sensory setae at margins of the ventrites).

Aedeagus (Figs. 43-49) elongate, length 3.40-3.60 mm, width 0.50-0.60 mm, conically attenuated into conspicuously long and narrow apex, which is somewhat ventrally directed and its narrow, rounded tip sometimes slightly turned dorsad; in ventral view (Fig. 45) the apex appears to be conically attenuated towards a narrow obtuse tip; internal sac (Figs. 48-49) with sclerites similar to all other species of the genus *Cenothyla*, containing very thin arciform piece, large, strongly chitinized oblong ventral sclerite with basal appendage, and dorsal sclerite folded in middle, the folded shape better obvious in right lateral view (Fig. 49) showing that this sclerite is without any spiny projection.

**Variability.** Only minor variability in coloration; the pronotal surface sculpture is in some adults somewhat finer. The variability in shape of the aedeagi (Figs. 43-49) is also unimportant, no other species of *Cenothyla* possesses such elongate apex of the aedeagi.

**Differential diagnosis.** *Cenothyla posticoidea* sp. nov. clearly differs from all species of the genus in having much longer apex of the aedeagus, somewhat resembling aedeagi in some species of the genus *Pentacomia* Bates, 1872, e.g. of *P. (Mesochila) skrabali* Duran & Moravec, 2013 which is otherwise immediately distinguished by its diagnostic generic characters, clearly differing both in its external characters and structure of the internal sac (see Duran & Moravec 2013).

The external differences from *C. postica* are also obvious as all leg segments of *C. posticoidea* sp. nov are testaceous with feeble mahogany to purple-violaceous lustre on femora and tarsi (particularly more intense on protarsi), and while both penultimate and terminal palpomeres of maxillary palpi are in *C. postica* black, they are in *C. posticoidea* testaceous with only mahogany-brownish-darkened terminal palpomeres. The longest palpomeres of the labial palpi in *C. posticoidea* sp. nov are ochre-yellow including their glabrous side, never black-darkened.

**Etymology.** Derived from Latin *posticum-a* (back part, ventral side) and ancient Greek suffix *-oides* (likeness, similar to) referring to the similar coloration of the abdomen of the new species with that in *Cenothyla postica* (Chaudoir).

**Biology and distribution.** Known only from the area of the type locality in the region of Madre de Dios, Peru. The large area of the Manú National Park which also includes the area of Pakitza on the Manu River, is predominantly a part of the Southwest Amazon moist rainforest of unique biodiversity preserved thanks to its inaccessibility. It is now a biosphere reserve designated as a World Heritage Site.

**Remarks.** It is interesting that no species of *Cenothyla* was reported from the area of Pakitza by Pearson & Huber (1995).

### *Cenothyla fulvothoracica* sp. nov.

(Figs. 8, 62-68)

**Type locality.** Peru: Madre de Dios, Rio Alto Madre de Dios, near Pantiacolla Lodge, 410-700 m.a.s.l., 12°39.4'S, 71°13.9'W,

**Type material.** Holotype ♂ in DBCN (later in NHMK) labelled: "Peru - Madre de Dios / Rio Alto Madre de Dios / Pantiacolla Lodge, 410-700 m / D. Brzoska 25-X-2000" [printed] // "Holotype / *Cenothyla fulvothoracica* sp. nov. / det. Jiří Moravec 2014" [red, printed].

**Description** (of the male holotype, female unknown). Body (Fig. 8) medium-sized, 12.2 mm long, 3.70 mm wide; dorsal surface dark cupreous with golden-bronze iridescence and more reddish-cupreous lateral areas, discal elytral area black-copper; elytral white maculation consisting of three maculae.

Head (Fig. 62) large, slightly narrower than body, 3.40 mm wide; all head portions glabrous.

Frons with moderately and bluntly triangular anterior margin, lateral areas steeply sloped towards clearly separated clypeus; anterior juxtaclypeal and lateral areas very finely wrinkled, metallic-black, median area of obtusely convex frons-vertex fold fluently passing to vertex, black with reddish cupreous lustre, very finely vermicular-rugulose; supraantennal plates elongate-triangular, smooth and shiny-violaceous, their apices forming a part of rather sharp but irregular frons-vertex lateral edges.

Vertex almost flat, very slightly convex in middle with two indistinct anterior-sublateral impressions; anteromedian area including the frons-vertex fold covered with wavy to vermicular rugae which become finer, shallower and irregular posteriad of the narrow median area; sublateral stria-like rugae with uneven surface passing posteriad; large juxtaorbital areas more regularly longitudinally parallel-striate, becoming shallower when passing onto temples; surface of occipital area very finely irregularly asperate.

Clypeus predominantly metallic-green with cupreous inner areas, rather distinctly irregularly rugulose.

Genae metallic black with feeble violaceous and green lustre on anterior area, almost smooth except for shallow, indistinct striae on anterior area.

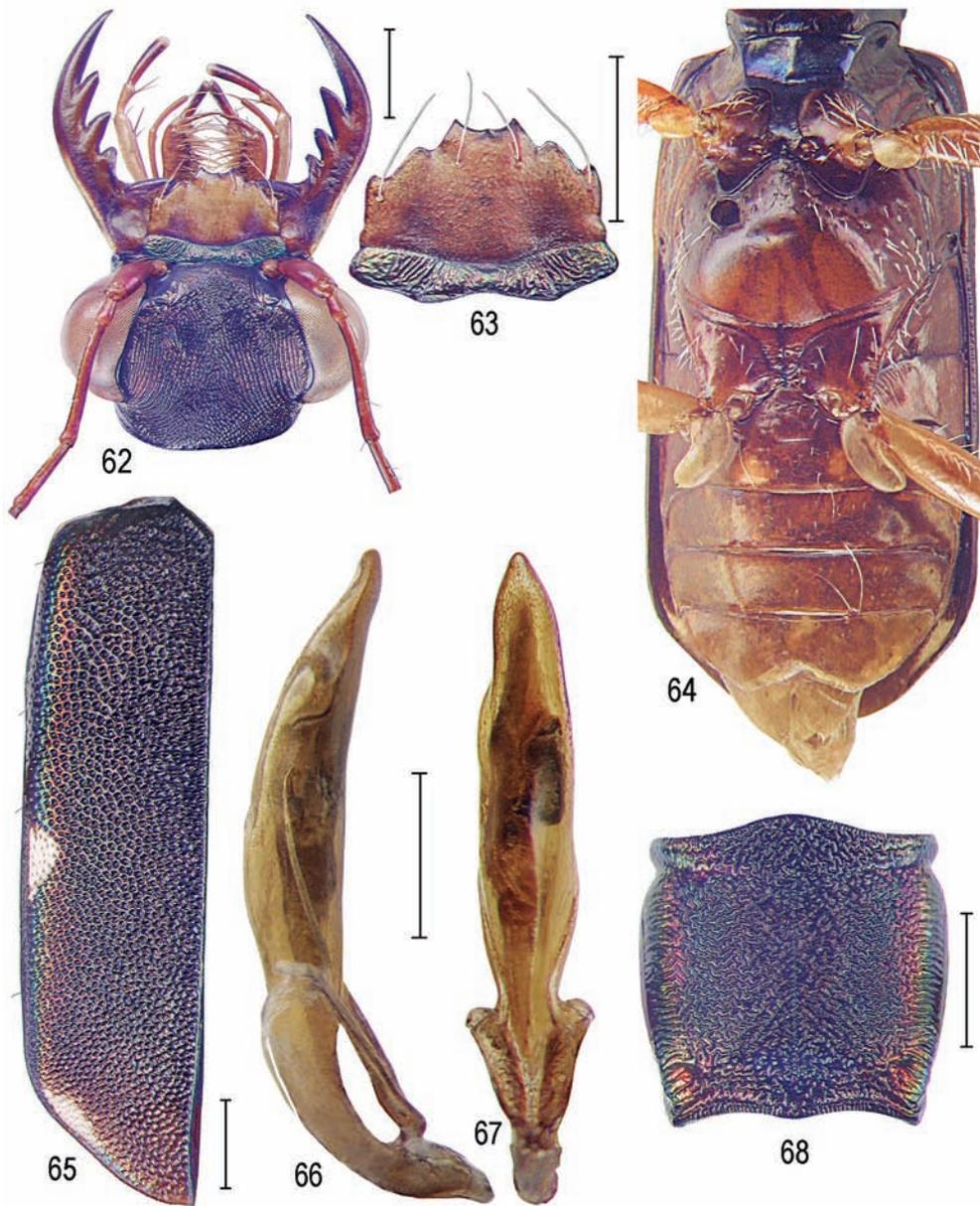
Labrum 4-setose, in male (Fig. 63) ochre testaceous with only indistinctly brownish darkened rather narrow basomedian area, rather long, 0.90 mm long, 1.50 mm wide, with subacute basolateral teeth, blunt lateral teeth, and anterior lobe consisting of two wide, acute anterior teeth and only indicated, somewhat backward placed median tooth.

Mandibles (Fig. 62) normally shaped with arcuate lateral margins, each mandible with four teeth (and basal molar), subsymmetrical, the three inner teeth becoming gradually smaller towards the basal molar (apex of second tooth in left mandible broken); coloration black-brown with reddish-brown inner areas and narrow, ivory-yellow lateral stripe.

Palpi (Fig. 62). Both maxillary and labial palpi ochre-testaceous with terminal palpomeres brownish-black darkened; penultimate (longest) palpomeres of labial palpi indistinctly brown-darkened on its glabrous side, narrowly cylindrical, only indistinctly and gradually dilated towards 0.22 mm wide apex.

Antennae rather long, reaching elytral half; scape with only apical seta, together with pedicel deep brownish-testaceous with feeble metallic-mahogany lustre; antennomeres 3-4 brownish testaceous with feeble mahogany lustre more intense on their apices, covered with usual, sparse indistinct setae; antennomeres 5-11 smoky black with normal micropubescence.

Thorax. Pronotum (Fig. 68) as long as wide, length and width 2.20 mm, dark cupreous with feeble greenish iridescence, sublateral areas iridescent reddish-cupreous passing to green-blue lateriad towards juxtannotopleural areas; sulci well pronounced (anterior sulcus distinct only laterally); anterior lobe wider than the posterior, its anterior margin prolonged anteriorly in middle, surface rather coarsely, irregularly vermicular-rugulose; disc with moderately convex lateral margins (including dorsally visible proepisterna and indistinct notopleural sutures which copy the outline of the proepisternal margins in a small distant, the margins only slightly and gradually attenuated towards posterior sulcus; median line indistinct, partly merging with surface sculpture on anterior area; discal surface rather distinctly irregularly zigzag-wavy to vermicular-rugulose, rugae becoming irregular in middle and coarser posteriad; more transverse but shallower and sparser rugae on lateral areas reaching



Figs. 62-68. *Cenothyla fulvothoracica* sp. nov, Rio Alto Madre de Dios, Peru (DBCN, later NHMK), ♂, HT: 62- head; 63- labrum; 64- ventral thoracic sterna and abdomen; 65- elytron; 66- aedeagus; 67- ditto, ventral view; 68- pronotum. Bars = 1 mm.

notopleural sutures; posterior lobe with distinct basal rim, surface irregularly coarsely wavy-rugulose; dorsolateral bulges distinct; whole dorsal surface glabrous; prosternum proepisterna and mesosternum smooth and glabrous, shiny metallic-black with very indistinct cupreous and green lustre; mesepisterna (Fig. 64) with brownish tinge, glabrous; metepisterna (Fig. 64) reddish-testaceous (concolorous with testaceous metasternum), with usual, deep impression at metepimeron; metasternum (Fig. 64) ochre- to reddish-testaceous with wide punctate-setose lateral and anterior areas, punctures rather deep and spaced; setae arising from the setigerous punctures are white, rather short and stiff.

Elytra (Fig. 65) elongate, length 7.70 mm, with subangular humeri, lateral margins almost parallel, only slightly convex in middle; anteapical angles arcuate, then obliquely running towards apices which are towards indistinct sutural spine subacute; microserrulation indistinct and very irregular; elytral dorsal surface appearing almost even, regularly convex on posterior half of elytral disc, humeral impressions moderate, but together with moderate discal impression clearly delimiting rather moderate basodiscal convexity; anteapical and apical impressions moderate; elytral surface punctate on whole elytral length, punctures of similar shape as in *C. posticoides*, but punctures generally less anastomosing and on basodiscal convexity mostly with narrow intervals; elytral surface glabrous except for a few usual hairlike sensory setae indistinctly scattered mostly on basal area, and a few others adjacent to epipleura; elytral coloration black-copper on elytral disc, reddish-cupreous on limited sublateral areas, passing to iridescently green-blue narrow lateral area; juxtaepipleural area deep violaceous; white elytral maculation consists of three distinct maculae: humeral macula slightly elongate but barely visible from above; lateral-median macula large and distinctly triangular, anteapical macula elongate-triangular.

Legs. Pro- and mesocoxae brownish-testaceous, densely setose on their anterior area, mesocoxae with metallic-green lustre; metacoxae light reddish- testaceous with apical seta and a few discal setae and densely setose margin; trochanters diffusely ivory, with only apical seta on pro- and mesotrochanters; femora brownish-testaceous with indistinctly black-darkened inner area (obvious only in some angles of illumination); pro- and mesofemora with rows of rather sparse erect white setae (appearing greyish in front illumination) which are much sparser on metafemora; tibiae light testaceous with brownish-darkened apices of protibiae, metatibiae pale-testaceous; surface of tibiae covered with rows of scattered, semierect whitish to greyish setae which are much stiffer than those on femora, passing into very dense greyish setose pad on apical half of pro- and mesotibiae; meso- and metatarsi pale testaceous; protarsi with first three protarsomeres gradually darkened: the first testaceous, the second brownish and the third black-brown, distinctly dilated and with usual, dense, greyish-white pad of short setae; claws dark testaceous.

Abdomen (Fig. 64) light reddish-testaceous, surface of ventrites nearly glabrous, with only occasional hardly visible, extremely short microsetae (apart from usual, a few, long hairlike sensory setae at margins of the ventrites).

Aedeagus (Figs. 66-67) almost straight, apical portion directed moderately ventrally, gradually attenuated into rather wide and rounded apex which is moderately turned backward (dorsad); in its ventral aspect (Fig. 67) the aedeagus appears more voluminous and with wide, conically constricted, rounded apex; internal sac (observed when the aedeagus was

re-hydrated) contains all sclerites characteristic of the genus, the arciform piece appears as boomerang-like bent and slightly thicker than in other species.

**Differential diagnosis.** *Cenothyla fulvotheracica* sp. nov. is immediately recognizable from all other species of *Cenothyla* due to its testaceous metasternum, metepisterna and abdomen, and by the unique shape of its aedeagus.

*Odontocheila luridipes* (Dejean, 1825), as well as *Odontocheila cajennensis* (Fabricius, 1787) and some of its subspecies, also possess testaceous metasternum and abdomen, but they are immediately distinguished by their entirely smooth and glabrous metasternum and of course by their different aedeagi. It should be noted here that the original Latin spelling “*cajennensis*” by Fabricius (1787) is maintained here, while the commonly used spelling “*cayennensis*” is considered to be incorrect subsequent spelling.

**Etymology.** Derived from Latin *fulvus* (dark-yellow, brownish-yellow, gingery) and ancient Greek *thórax*, referring to the pale testaceous coloration of the metasternum.

**Biology and distribution.** According to the collector (pers. com.), the only male was caught flying on an eroded clay embankment at the edge of the Alto Madre de Dios River. It was taken there together with also only male of *Brzosaicheila crassisculpta* Moravec, 2012, in a hardly accessible place of primary rainforest of the area of Madre de Dios in north-eastern Peru.

**Remarks.** For the combination of the remarkable diagnostic characters I decided to describe this species as new for science despite the only male is known. It is supported by the fact that no other specimen of *Cenothyla* was caught in the locality of this new species; a possibility of such an enormous variability is very improbable, particularly the shape of the aedeagus is outstanding within the genus. The male is fully matured, because the teeth in its mandibles are somewhat abraded (one tooth even broken) and its aedeagus is normally chitinized, unlike in juvenile males which have aedeagi translucent and soft.

### *Cenothyla varians* (Gory, 1833)

(Figs. 2-3, 69-91)

*Cicindela Varians* Gory, 1833: 171, 172 - primary junior homonym of *Cicindela varians* Ljungh, 1799 (synonymy by Cassola 1999: 77, but as in prevailing usage the name *C. varians* Gory should be preserved - see “Remarks” below).

*Odontocheila cognata* Chaudoir, 1843: 679 (synonymy by Gemminger & Harold 1868: 31).

*Odontochila varians*: Gemminger & Harold 1868: 31.

*Cenothyla varians*: Rivalier 1969: 218, fig. 13.

*Cenothyla cognata*: Cassola 1999: 77 (unjustified replacement).

*Odontocheila (Cenothyla) varians*: Lorenz 1989a: 36.

*Odontocheila (Cenothyla) cognata*: Lorenz 2005a: 37.

**Type locality.** Cayenne.

**Type material.** *C. varians* Gory. Lectotype (designated here) ♂ in MNHN, labelled: “Muséum Paris / Coll. Chaudoir 1874” [greenish, printed] // “*variens* Gory / *gilvipes* Dej. / Cayenne” [large, ochraceous with black frame, handwritten] // “1505 / Rivalier” [handwritten, referring to separately mounted aedeagus] // “Lectotype / *Cicindela / varians* Gory, 1833 / design. Jiří Moravec 23014” [red, printed]. Paralectotypes. 2 ♂♂, 1 ♀ in MNHN: “Muséum

Paris / Coll. Chaudoir 1874" [greenish, printed, the two males bear additional labels: "1506 / Rivalier" and: 1507 / Rivalier" referring to separately mounted aedeagus]. The paralectotypes labelled: "Revision Jiří Moravec 2014: / Paralectotype / Cicindela / varians Gory, 1833" [red, printed]. All type specimens labelled: "Cenothyla / varians (Gory, 1833) / det. Jiří Moravec 2014" [printed].

*Odontocheila cognata* Chaudoir. Lectotype (designated here) ♀ in MNHN, labelled: "Muséum Paris / Coll. Chaudoir 1874" [greenish, printed] // "Cognata / Chaud. / Cayenne / Godet" [large with black frame, folded, handwritten] // "Lectotype / *Odontocheila / cognata / Chaudoir, 1843 / design. Jiří Moravec 2014*" [red, printed].

**Other material examined.** Historical data. 1 ♀ in MFNB: "gilvipes / Dej. / C. varians Gory / Cayenne Dej." [large green, handwritten] // "Hist. Coll. (Coleoptera) / Nr. 3623 / *Odontocheila givipes* Dej. / Cayenne, Dejean / Zool. Mus. Berlin" [green with black frame, printed]. 1 ♂ in MFNB with same second label. 1 ♂ in MFNB: "Paramaribo // "Muséum Paris / Coll. Chaudoir 1874" // "Difficilis / Chaud. / Paramaribo / 58 Dohrn" // "1508 / Rivalier". 1 ♂ in IRSNB: "Cayenne" // "Coll. Breyer" // "O. / varians Gory / dét." // "5931". 1 ♂ in MFNB [standing as "*Odontocheila confusa*"]: "Hist. Coll. (Coleoptera) / Nr. 3619 / *Odontocheila confusa* Dej. / Brasil, von Olfers / Zool. Mus. Berlin" [misidentified; locality confused]. Other data. 1 ♂ in MNHN: "Guyane Française / Charvein". 1 ♂ in SDEI: "Guyane". 1 ♂ in MNHN: "Saut Maripa-Oyapock / 26.Nov.1996". 1 ♂ in MNHN: "Muséum Paris / Guyane / Française / de Carsevenne". 3 ♂♂, 2 ♀♀ in USNM: "Suriname: / Brokopondo District / Brownsberg Natuurpark / Mazaroni Plateau, 400-500 m. / 18.VIII.1982 / W. E. Steiner" // "Earthwatch Suriname / Expedition, August 1982; / Colins, Early, Oberman, / Pllock, Putnam, Steiner". 2 ♂♂ in CDCL: "Guyane / Française / Regina PK.125 / Coll. Dheurle" // "Fevrier 2009". 1 ♂ in CDCL: "French Guyana / Matiti, IX-2011 / Giugliaris leg / Coll. Dheurle". 1 ♂ in CCJM: "Guyane Française / St.Laurent du Maroni / V.1993, / Marek Seidl leg.". 1 ♂ in IRSNB: "Cayenne 2000 IRSNB / Guyane Française / Saul Cirque Popoke / 3°36'N 53°10'W / 28.VI.2000 / leg. Braet et al. / Fauchage / Bord de lagon". 1 ♂ in IRSNB: "Coll. R.L.Sc. N.H. / Guyane Française / Saul Mt. Galbao / 670 m 24/VI/2000 / piège malaise / leg. Y. Braet". 1 ♂, 1 ♀ in IRSNB: *ibid.*, except for: "22/30/2000".

**Redescription.** Body (Figs. 2-3) small, 9.20-10.2 (LT 9.30) mm long, 2.80-3.20 (LT 2.90) mm wide (females usually larger than males), dorsal surface dark copper with somewhat brighter cupreous lateral areas and with only indistinct green to blue narrow lateral area; elytral white maculation consisting of three maculae in male (humeral macula entirely absent in female).

Head (Figs. 69-70) large, only slightly narrower than body, 2.80-3.10 mm wide; all head portions glabrous.

Frons with moderately triangular anterior margin, steeply sloped towards clearly separated clypeus; anterior juxtaclypeal and lateral areas smooth, almost black or with feeble greenish, rarely golden-bronze and violaceous lustre.

Vertex as in *C. consobrina*, but the surface sculpture finer.

Clypeus as in *C. consobrina*, but the green coloration mostly prevailing.

Genae as in *C. consobrina*.

Labrum 4-setose, male labrum (Figs. 71-74) ochre-testaceous (in old specimens usually irregularly dark-tarnished), very rarely with brownish to metallic-black basomedian area, rather long, length 0.70-0.75 mm, width 1.10-1.20 mm, with subacute or acute basolateral teeth, irregularly subacute or obtuse lateral teeth, and acute anterior teeth with much smaller or only indicated, or almost effaced median tooth; female labrum (Fig. 75) much longer, length 1.10-1.30 mm, width 1.20-1.30 mm, similarly shaped but with distinctly protruding median tooth (coloration in HT and other old specimens dark-brownish tarnished).

Mandibles (Figs. 69-70) shaped as in *C. consobrina*, but coloration lighter, reddish-brown.

Palpi (69-70) normally shaped with elongate terminal palpomeres; both maxillary and labial palpi ochre-yellow with terminal palpomeres gradually brownish-darkened (subapical

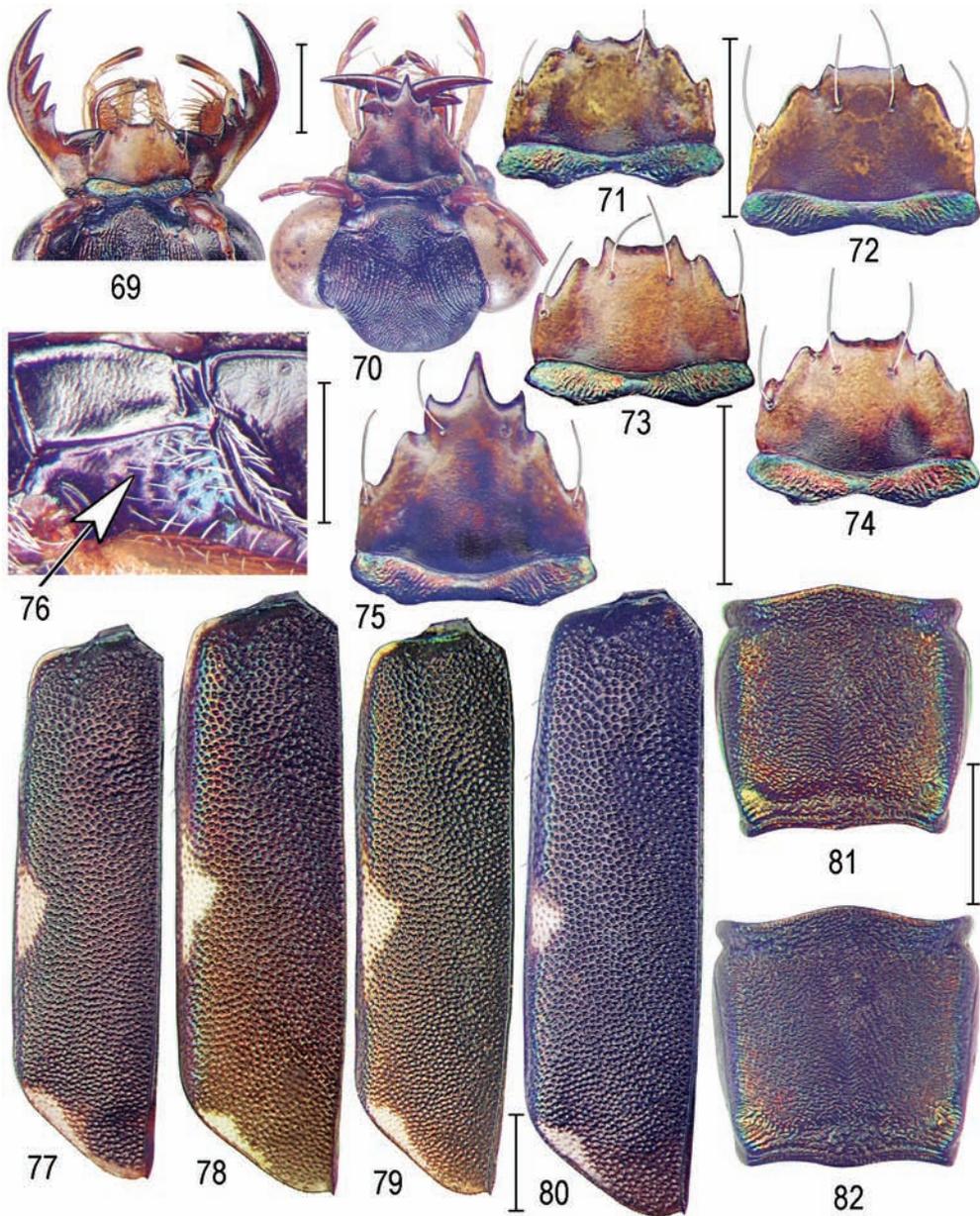
area almost black), in female also the penultimate palpomere is somewhat darkened; penultimate (longest) palpomeres of labial palpi narrow, only indistinctly and gradually dilated towards apex up to 0.20 mm wide.

Antennae rather long, in male slightly surpassing elytral half, in female shorter; scape with only apical seta, rather variably coloured independent of sex, dark metallic brown, usually with violaceous lustre, its basal and ventral area often ochre-testaceous, sometimes the scape and pedicel almost entirely ochre-testaceous; pedicel either ochre-testaceous with dark brown belt in middle, or brownish-darkened; antennomeres 3-4 variably testaceous to dark brownish, with metallic mahogany or purple lustre, and mostly with black apices, covered with usual, sparse indistinct setae; antennomeres 5-11 smoky black with normal micropubescence.

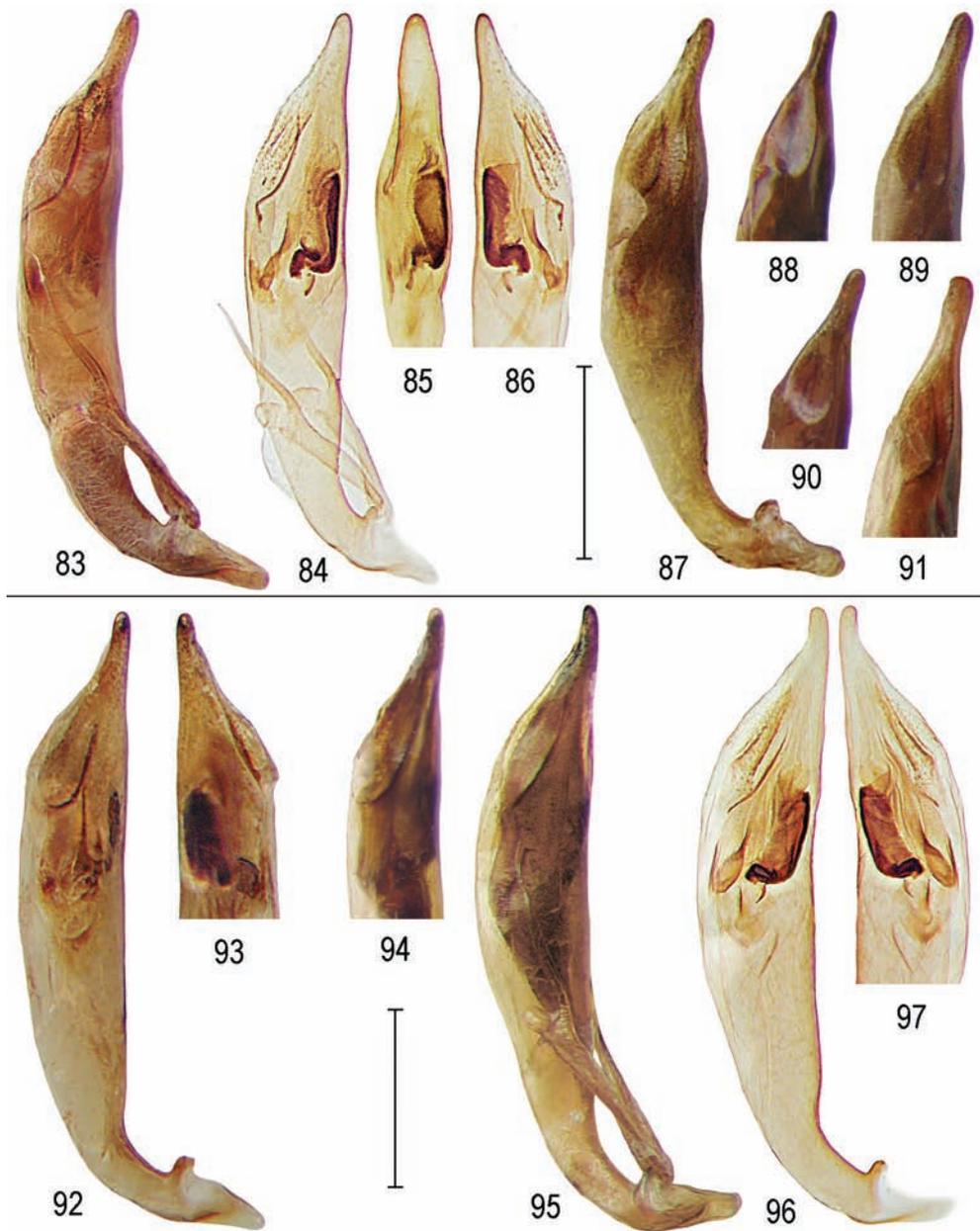
Thorax. Pronotum (Figs. 81-82) mostly as long as wide, 1.75-2.20 mm long. 1.80-2.20 mm wide, shape, and coloration as in *C. consobrina*, but the reddish and greenish iridescences generally less vivid, surface sculpture much finer than in *C. consobrina*, particularly on disc it consists of irregular, fine and dense vermicular rugae; all lateral and ventral thoracic sterna metallic-black as in *C. consobrina*, but punctate-setose lateral and anterior areas of metasternum consisting of somewhat shallower punctures (Fig. 76).

Elytra (Figs. 77-80) elongate, length 5.50-6.20 mm, with rounded humeri, lateral margins almost parallel, only slightly convex in middle in female; anteapical angles arcuate, then obliquely running towards apices which are towards small but distinct sutural spine rounded, more widely rounded in female; microserrulation indistinct and very irregular; elytral dorsal surface appearing almost even, moderately convex on posterior half of elytral disc, humeral impressions moderate, but together with moderate discal impression clearly delimiting moderate basodiscal convexity; anteapical and apical impressions moderate to rather distinct; elytral surface punctate on whole elytral length, punctures of similar shape as in *C. consobrina*, but notably finer; elytral surface glabrous except for a few usual hairlike sensory setae indistinctly scattered mostly on basal area, and a few others adjacent to epipleura; elytral coloration dark-copper on elytral disc, mostly only indistinctly reddish-cupreous on limited sublateral areas and also the iridescent green-blue lateral area is narrower and often indistinct; juxtaepipleural area deep violaceous; white elytral maculation consists in male of three distinct maculae, humeral macula slightly elongated and partly visible from above, but it is in female much darker ochre-brownish rounded spot; lateral-median macula large and distinctly triangular, anteapical macula elongate-triangular, in male mostly prolonged in form of thin whitish stripe running along apical margin and reaching suture.

Legs. Pro- and mesocoxae brownish-testaceous, often with metallic-green densely setose anterior area, metacoxae metallic-black with testaceous apex, with apical seta and a few discal setae and densely setose margin; trochanters ivory to diffusely ivory-ochre with only apical seta on pro- and mesotrochanters; femora rather pale ochre-testaceous to brownish, often with mahogany lustre on dorsal area, indistinctly black-darkened inner area (obvious only in some angles of illumination) and pale ventral area of femoral basal third; protibiae brownish with darkened apical area; mesotibiae and particularly metatibiae paler brownish-testaceous (exceptionally femora and tibiae ochre-testaceous); setal vestiture of femora and tibiae as in *C. consobrina*; all tarsi metallic-black (faded to brown in most of old specimens) with green-blue and violaceous lustre.



Figs. 69-82. *Cenothyla varians* (Gory): 69- buccal appendages, ♂, Regina, French Guiana (CDCL); 70- head, ♂, ex Chaudoir, PLT (MNHN); 71-75: labrum (71- ♂, ex Chaudoir, LT (MNHN); 72- ♂, ex Chaudoir, PLT (MNHN); 73- ♂, Regina, French Guiana (CDCL); 74- ♂, ibid., (CDCL); 75- ♀, ex Chaudoir, PLT (MNHN); 77-80: elytron (77- ♂, LT; 78- ♂, "Brasil, N° 3619" (MFNB); 79- ♂, Cayenne (IRSNB); 80- ♀, ex Chaudoir, PLT (MNHN); 81-82: pronotum (81- ♂, LT; 82- ♀, PLT). Bars = 1 mm.



Figs. 83-97. Aedeagi. 83-91. *Cenothyla varians* (Gory): 83- Cayenne, N° 3623 (MFNB); 84- ditto, internal sac; 85- ditto, ventral view; 86- ditto, right lateral view; 87- Regina, French Guiana (CDCL); 88- Saul, (IRSNB); 89- Regina, French Guiana (CDCL); 90- Cayenne (IRSNB); 91- Brownsberg, Surinam (USNM). 92-97. *Cenothyla rietscheli* (Wiesner): 92- Manaus, PT (JWCW); 93- ditto, right lateral view; 94-95- Reserva Ducke, Manaus (BMNH); 96-97- ditto, internal sac in left and right lateral view. Bars = 1 mm.

Abdomen. Ventriles shiny metallic black; surface smooth, shiny and entirely glabrous (only their posterior margins with usual a few, long hairlike sensory setae).

Aedeagus (Figs. 83-91) with apical portion both dorsally and ventrally rather abruptly constricted into narrow, moderately elongate to subcylindric, ventrally directed apex; internal sac (Figs. 84-86) as in other species of the genus, the dorsal folded piece appears to be of the same shape both in left and right lateral view.

**Variability.** The body coloration varies only slightly; one specimen, probably a juvenile male from Saut Maripa - Oyapock (MNHN) has the femora and tibiae pale ochre-testaceous and also its tarsi are paler than in all other specimens; the most variable (also in syntopic adults) is the coloration of antennal scape which can be deep-brown with purple-violaceous lustre, or ochre testaceous; coloration of antennomeres 3-4 varies from pale testaceous to dark brownish with metallic mahogany or purple lustre (their apices are almost constantly black); terminal palpomeres of labial palpi in male vary from black-brown darkened apical half, to entirely black. The shape of the aedeagi somewhat differs depending on the condition of the aedeagi - their apex is somewhat wider when they are re-hydrated (Fig. 83), becoming much wider in mounted aedeagi after clearing procedures in order to observe the internal sac (Figs. 84, 86); such more or less distinct deformations of cleared aedeagi is universal for all cleared aedeagi of tiger beetles.

**Differential diagnosis.** *Cenothyla varians*, the smallest species of the genus, shares the metallic-black metatarsi and abdomen with *C. rietscheli* (Wiesner, 2007) comb. nov. and *C. klichai* sp. nov. described below. However, *C. varians* is distinguished from these two species particularly by the shape of the aedeagus which is more abruptly constricted both from the ventral and dorsal side into moderately elongate subcylindric apex, surface of the abdomen is entirely glabrous, and humeral macula is absent in female. All examined specimens from French Guiana (the country of the type locality), as well as from Surinam, have the aedeagi very similar, and all have the surface of their abdominal ventrites glabrous (except for the long hairlike sensory setae at margins of the ventrites which occur in all species of the subtribe Odontocheilina).

Unfortunately, aedeagi of all syntypes of *C. varians* deposited in MNHN, as well as of the male from Surinam labelled "*difficilis*" (unavailable name listed by Chaudoir (1865) without a description) were destroyed by wrong mounting treatment used by Rivalier when he extracted the internal sacs from the aedeagi and mounted them using a brown glue between two glasses. The scholastic illustration by Rivalier (1969, fig. 13v) of the aedeagus for *C. varians* (no origin given) and inaccurate drawing of sclerites within the internal sac show obviously a deformed aedeagus and internal sac by such wrong treatment. The thin arcuate-bent basal piece illustrated by Rivalier in fact does not exist and was drawn by him under an illusion (see also "Remarks" under "Differential diagnosis" of *Cenothyla* here).

**Biology and distribution.** The type locality of *C. varians*, as well as of "*Cicindela gilvipes* Dejean in litt." (unavailable name mentioned by Dejean (1837) without a description), is Cayenne, French Guiana. The other historical specimens from MNHU can probably be syntypes as according to their labels they came from Dejean-Chaudoir collection. The specimens (CDCL) labelled "Regina" comes from Réserve Naturelle des Nouragues in an

area of Approuague River; this species (under the name *Cenothyla cognata* (Chaudoir, 1843)) is recorded from this locality and from Roura (Montagne de Chevaux), French Guiana, by Cassola (2001). According to the collector (Charles Dheurle, pers. com.), the adults in the area of Regina had diurnal activity, hunting small insects on the ground of small paths inside primary forests, and escaped by a quick fly to neighbouring vegetation when disturbed. The specimens (IRSNB) labelled “Saul” come from the commune Saül, lying in the French Guiana National Park with Mont Galbao (670 m), but the unique ecosystem with the Limonade River can be endangered by an endeavour of gold mining in the forest area near the river. Saut Maripa, some 180 km southeast of Cayenne, French Guiana, is a sault (near St. Georges) on the Oyapock River which forms a border between French Guiana and Brazilian state of Amapá - the specimen (MNHN) examined and listed here was also recorded from French Guiana by Rivalier (1970). The occurrence in Surinam is confirmed both by the historical specimen (MNHN) of “*Odontocheila difficilis* Chaudoir in litt.” (unavailable name listed by Chaudoir (1865) without a description) and recent specimens (USNM) from Brownsberg Natuurpark. I have found no specimen in collections labelled “British Guyana”, neither I have found a specimen of *C. varians* from Venezuela - the record by Horn (1910) is probably based on the only female labelled “Venezuela / Staudinger”, deposited in SDEI, and standing there as *C. varians*. However, my examination of the only female in SDEI has revealed that its much less distinctly punctate-setose lateral area of the metasternum and the shape of its pronotum with much more distinct notopleural sutures, as well as the densely setose surface of abdominal ventrites, refer to *Odontocheila angulipenis* W. Horn, 1932 described from Colombia, but common also in Venezuela (see also Moravec 2013). Nevertheless, the female is unusually smaller, thus only examination of a male can confirm this identification. I was unable to examine a specimen reported as *C. varians* from Venezuela by Rodriguez, Joly & Pearson (1994).

Specimens listed by Guerra, Brzoska & Pearson (1997), as well as by Pearson Guerra & Brzoska (1999) as *C. varians* from Bolivian province La Paz are *C. klichai* sp. nov. (see under that species here). The record from “Rio Juruá, Peru” by (Horn 1910) is *C. rietscheli* (see under this species below). The only male from Brazil Amazonas Tefê (= Teffê), standing in SDEI as *C. varians*, has ochre testaceous labrum and also its aedeagus corresponds with *C. rietscheli* (see under that species below). Other specimens from Brazil Amazonas, Sao Paulo de Olivença, Ega, Teffe and Para deposited in MNHN can also be conspecific with *C. rietscheli*, but the specimens must be examined again to check the newly recognized diagnostic characters. Those listed as “*Cenothyla varians*” from Manaus, Brazil, by Horn (1926), Adis et al. (1998) as well as larvae of “*C. varians*” from Manaus studied by Arndt, Paarmann & Adis (1996) obviously belong to *C. rietscheli*, as Manaus is its type locality (see under that species below).

**Remarks.** A brief history of the nomenclature is as follows. *Cenothyla varians* was originally described as *Cicindela varians*, Gory, 1833. *Cenothyla cognata*, originally described as *Odontocheila cognata* Chaudoir, 1843, was treated as a synonym of “*Odontochila*” *variens* by Gemminger & Harold (1868), followed by Fleutiaux (1892), Horn, 1905, 1910, 1926 and other subsequent authors. Rivalier (1969) treated this species in his revision as *Cenothyla varians* (Gory, 1833) and also Wiesner (1992) used the name in his checklist. Cassola (1999)

found that *Cicindela varians* Gory, 1833 was a primary homonym of *Cicindela varians* Ljungh, 1799. Consequently, Cassola (1999) replaced the name with the first available synonym *Odontocheila cognata* Chaudoir, 1843, and treated this taxon as *Cenothyla cognata* (Chaudoir, 1843). This species was listed under this substituted name by some recent authors such as Lorenz (2005a,b) and Erwin & Pearson (2008), despite the paper by Boyd (2000) who correctly argued that the several replacements by Cassola (1999) were invalid as against the ICZN regulations.

The replacement by Cassola (1999) is considered invalid for the following reasons:

1.) Although *Cicindela varians* Gory, 1833 was a primary junior homonym of *Cicindela varians* Ljungh, the homonymy no longer exists. Moreover, the name *Cicindela varians* Ljungh (a *nomen oblitum*) has never been used except for the inappropriate attempt to restore the name for the North American species *Cicindela scutellaris* Say, 1823 by Cassola (1999), which was not accepted by Boyd (2000), or by Erwin & Pearson (2008).

2.) The name *Cicindela varians* Gory (as *Odontocheila* or *Cenothyla* respectively) was in prevailing (even exclusive) usage for more than hundred of years, and should be preserved according to Art. 23.9.5 (ICZN 1999).

Consequently, it is concluded here that the replacement by Cassola (1999) was invalid from its beginning (Art. 23.9.5, ICZN 1999) and the Commission is being asked for a rule to preserve the name *C. varians* Gory.

Moreover, the only preserved type specimen in MNHN of *Odontocheila cognata* (designated here as a lectotype - see the "Type material of *Odontocheila cognata* Chaudoir" above) is a female which somewhat differs from *Cenothyla varians* in having larger body, elytra with smaller (not triangular) lateral-median white macula and much darker metatibiae.

The characters of the lectotype of *Odontocheila cognata*, as examined by me, correspond with the original description by Chaudoir (1843) where the legs are described as: "*femora apice late, tibiis tarsisque omnibus violaceo-micantibus*". Its body is 10.8 mm long, 3.2 mm wide, the labrum is dark reddish-testaceous with widely extending black basal area; metasternum is punctate-setose on its lateral area and partly also at anterior margin; surface of black abdominal ventrites is entirely glabrous (only the usual, long hairlike sensory setae at margin of the ventrites are present). Except for the smaller elytral maculae (humeral macula is entirely absent) and darker metatibiae and metatarsi, this female refers to *C. varians*, but also can be a female of *O. trilbyana*.

Several species of *Odontocheila*, including *O. trilbyana* share the punctate-setose areas of the metasternum with all species of *Cenothyla* (males of *Odontocheila* are clearly distinguished by their very different shapes of their aedeagi containing a long, multicoiled flagellum within internal sacs - see Fig. 131).

Horn, as well as Mandl, confused in collections *Cenothyla varians* (under "*Odontochila*" *variens*) and also *C. consobrina* with *Odontocheila trilbyana* and *O. marginilabris*, so the records of these species of *Cenothyla* in some papers by these authors are undependable. Despite the diagnostic differences, Horn (1893) even considered *O. trilbyana* to be a synonym of "*Odontochila*" *variens* (= *Cenothyla varians*).

***Cenothyra rietscheli* (Wiesner, 2007) comb. nov.**  
(Figs. 4, 92-100)

*Pentacomia* (*Poecilochila*) *rietscheli* Wiesner, 2007: 439, 441, fig. 1, 443, Figs. 2-6.

**Type locality.** Brazil: Manaus.

**Type material.** Holotype (not examined) ♂ in INPA: labelled: "Brasilien, Manaus / Embrapa Gelände / leg. S. Rietschel / 23.-26.3.1998" [with green frame, printed]; "Holotype / *Pentacomia* (*Poecilochila*) *rietscheli* sp. nov. / ded. J.Wiesner 2007" [red, printed]. Paratypes (of the paratypes listed by Wiesner (2007) and deposited in INPA, MPEG, ASUT and JWCW, only the following were examined here: 1 ♀ in JWCW with same label as holotype. 1 ♂ in JWCW: "Brasil: Amazonas / 75 km n Manaus / 17.Nov.1992 / D. L. Pearson" [printed] // "primary forest floor" [printed]. All paratypes labelled: "Paratype / *Pentacomia* (*Poecilochila*) *rietscheli* sp. nov. / ded. J.Wiesner 2007" [red, printed], and the two examined paratypes with additional label: "*Cenothyra* / *rietscheli* (Wiesner, 2007) comb. nov. / det. Jiří Moravec 2014" [printed].

**Other material examined.** 7 ♂♂, 2 ♀♀ in BMNH: "Brazil, Am[azonas] / Reserva Ducke / 26 km NE Manaus / Barbosa, M.G.V." // "Plot A / Malaise[trap] 2 / March 1995" // "BMNH{E}2003-84". 2 ♂♂, 1 ♀ in BMNH: "Brazil, Amazonas / Reserva Ducke / 26 km NE Manaus / Flight Intercept Trap / BMNH{E}2003-84" // "*Pentacomia* / (*Poecilochila*) / *rietscheli* Wiesner, 2007 / det. F. Cassola 2007" // "*Cenothyra* / *rietscheli* (Wiesner, 2007) comb. nov. / det Jiří Moravec 2014". 1 ♂ in SDEI: "Tefê III.1932 / Wucherpfennig" // "Coll. W. Horn / DEI Eberswalde". 1 ♂, 1 ♀ in SDEI: "Rio Juruá / E. Amaz. / Garbe leg." // "Coll. W. Horn / DEI Eberswalde".

**Redescription.** Body (Fig. 4) small to medium sized, 9.50-10.8 mm long 2.90-3.30 mm wide (no size of HT mentioned), females distinctly larger than males; body of appearance of *C. varians*, coloration rather variable from bright bronze-cupreous with distinct reddish and green iridescence on lateral areas, to dark copper with only indistinct iridescence (females usually darker); whitish elytral maculation consisting of three distinct maculae, humeral macula present in both sexes.

Head (Fig. 98) very large, as wide as the body, or only very slightly narrower or wider than body, 2.90-3.30 mm wide.

Frons and vertex shaped and with surface sculpture as in *C. varians*, but mostly with prevailing reddish-cupreous lustrous coloration and lustrously green limited sublateral areas.

Clypeus as in *C. varians*.

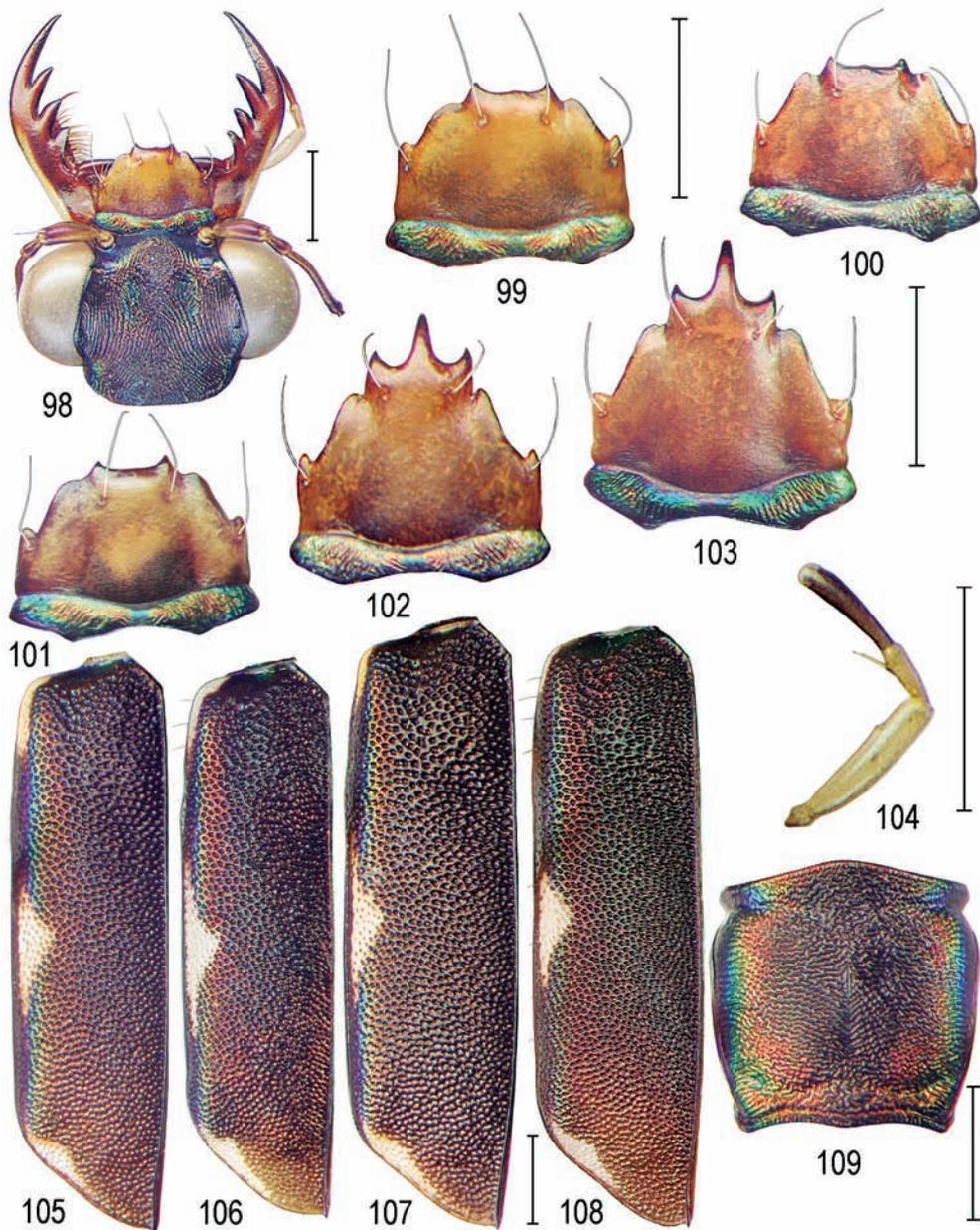
Genae as in *C. consobrina* and *C. varians*.

Labrum 4-setose, male labrum (Figs. 99-101) coloration as in *C. varians*, mostly entirely yellow-ochre to ochre-testaceous, very rarely with brownish-black darkened limited basomedian area, 0.75-0.80 mm long, 1.20-1.30 mm wide, with subacute or acute basolateral teeth and mostly rounded, rarely subacute lateral teeth; acute anterior teeth with much smaller or only indicated or almost effaced median tooth (as in *C. varians*); female labrum (Figs. 102-103) shaped as in *C. varians*, but most of examined females have the labrum entirely pale ochre, length 1.30-1.40 mm, width 1.35-1.45 mm.

Mandibles (Fig. 98) shaped as in *C. varians*, but terminal teeth somewhat longer; coloration rather pale reddish-brown with rather distinct ivory-yellow to ochre lateral stripe.

Palpi shaped and coloured as in *C. varians*, but the terminal palpomere of maxillary palpus in male is more often entirely black (Fig. 104).

Antennae as in *C. varians* including the variability in coloration.



Figs. 98-100. *Cenothyla rietscheli* (Wiesner): 98- head, ♂, Manaus, PT (JWCW); 99-103: labrum (99- ♂, Manaus, PT (JWCW); 100-101- ♂♂, Reserva Ducke, Manaus (BMNH); 102- ♀, PT (JWCW); 103- ♀, Reserva Ducke, (BMNH); 104- maxillary palpus, ♂, Manaus, PT (JWCW); 105-108: elytron (105- ♂, Manaus, PT (JWCW); 106- ♂, Reserva Ducke (BMNH); 107- ♀, PT (JWCW); 108- ♀, Reserva Ducke, (BMNH); 109- pronotum, ♂, Manaus, PT (JWCW). Bars = 1 mm.

Thorax. Pronotum (Fig. 109) shaped as in *C. varians*, very slightly longer than wide, 1.90-2.10 mm long, 1.95-2.20 mm wide, coloration generally with brighter reddish and greenish iridescences than in *C. varians*, more similar to *C. postica*; surface sculpture as in *C. varians*; all lateral and ventral thoracic sterna as in *C. varians*, including punctate-setose lateral and anterior areas of metasternum.

Elytra (Figs. 105-108) as in *C. varians*, including the shape of whitish maculae, but with humeral macula distinct and more elongate in both sexes, and apex in male more subacute; elytral length 5.90-6.70 mm.

Legs as in *C. varians* with the ivory yellow to ochre-testaceous trochanters and the darker dorsal surface of femora in contrast to their ivory to ochre pale basoventral areas, also with the similar variability within leg coloration.

Abdomen with ventrites shiny metallic black with feeble blue and green lustre, as in *C. varians*, but surface of ventrites with scattered, very sparse, short, mostly very indistinct microsetae (apart of usual, a few, long hairlike sensory setae at posterior margins of the ventrites).

Aedeagus (Figs. 92-97) narrowed into almost straight or usually slightly dorsally turned apex, 3.20-3.35 mm long, 0.55-0.60 mm wide; internal sac (Figs. 96-97) as in *C. consobrina* and other species of the genus.

**Variability.** Similar to that in *C. varians*, particularly in the leg and antennal coloration. The entirely ochre-coloured labrum is rarely in syntopic adults with black basal area (Fig. 101), as it is also in the female from Rio Juruá deposited in SDEI.

**Differential diagnosis.** *Cenothyla rietscheli* shares the metallic-black abdomen combined with black metatarsi with *C. varians* and *C. klichai* sp. nov., and it resembles these two species also by its body appearance, except for the brighter coloration which rather resembles that in *C. postica*. By the shape of white elytral maculae and the mostly unicoloured, ochre-testaceous labrum, it particularly resembles *C. varians*, but the female labrum in *C. rietscheli* is generally paler. Nevertheless, it is distinguished both from *C. varians* and *C. klichai* by the elytral humeral macula which is in *C. rietscheli* larger, more elongate and present in both sexes, and by the different shape of the apex of the aedeagus somewhat resembling that in *C. consobrina*.

Both external and internal characters of *C. rietscheli* (as well as of all other species of *Cenothyla*) clearly differ from the diagnostic generic characters of *Pentacomia* Bates, 1872, including its subgenus *Poecilochila* Rivalier, 1969. Particularly the aedeagi and structures of internal sacs diagnostically differs. Thus the comparison of *C. rietscheli* to a very different tiger beetle *Pentacomia (Poecilochila) cupricollis* (Kollar, 1836) by Cassola (2009) was quite inappropriate.

**Biology and distribution.** The type locality of *C. rietscheli* is in Central Amazonia near Manaus, Brazil; The “Embrapa Gelände” written on the label of the holotype means “Brazilian Embrapa Headquarters”, area of a mission of the Brazilian Agriculture Research Corporation. Other paratypes come from the area of the type locality, 75 km of Manaus, taken in a primary forest floor. The specimens (BMNH) from the Reserva Ducke, 26 km northeast of Manaus, were caught into a Malaise trap and a Flight intercept trap during an expedition

of the British Natural History Museum, London in 1994-1995. Despite the diametrical generic differences, this species was reported by Cassola (2009) from the Reserva Ducke under the name *Pentacomia (Poecilochila) rietscheli* Wiesner, 2007. *C. rietscheli* was caught there together with *Odontocheila nigrotarsalis* W. Horn, 1928 (= *O. atripes* Rivalier, 1970, synonymy by Moravec 2012a), but *C. rietscheli* was wrongly reported by Cassola (2009) from the this locality under the name *O. amabilis* Chaudoir, 1860, a species immediately distinguished from *C. rietscheli* by its metallic violaceous-blue dorsal body coloration and the diagnostic generic characters of the aedeagi.

The historical specimens (pair) standing in SDEI as *C. varians*, labelled “Rio Juruá / E. Amaz.” are treated here as *C. rietscheli*. The female has black-darkened basal area of its labrum, but the labrum of the male is entirely ochre, its aedeagus protruding from the abdomen is in rather “soft” shape, but both these characters as well as indistinct microsetae on abdominal ventrites in both these specimens refer to *C. rietscheli*. The locality is rather ambiguous, because Río Juruá originates in Ucayali foothills of the Peruvian Andes near the border with Brazil, thus its much longer part is in Brazil where it enters Río Solimões, the upper part of the Amazon River, northwest of Tefé (also spelled Teffé), about 500 km upstream from Manaus. The only male from Tefé in SDEI fully corresponds with *C. rietscheli*, too.

**Remarks.** Originally described by Wiesner (2007) under the name *Pentacomia (Poecilochila) rietscheli*, but the examination of the paratypes (JWCW) and other specimens (BMNH) from the area of the type locality has revealed that they possess both external and internal characters of the genus *Cenothyla*. Consequently, this taxon is transferred here to *Cenothyla*. I was unable to examine the holotype deposited in INPA, but the illustrations by Wiesner (2007), including the schematic drawing of the aedeagus of the holotype, perfectly correspond with my examination of the two paratypes (JWCW) and the other specimens from the area of the type locality.

### *Cenothyla klichai* sp. nov.

(Figs. 5, 110-130)

**Type locality.** Peru: area of the Tambopata River south of Puerto Maldonado, north-eastern Peruvian region of Madre de Dios.

**Type material.** Holotype in MNHN, ♂ labelled: “Peru: Madre de Dios / Tambopata River / Gollpa Lodge / 9-12.XI.1995, M. Klichai lgt.” [printed] // “On jungle trails / and low vegetation / inside jungle” [printed]. Allotype. ♀ in CMKP with same locality data. Paratypes. 17 ♂♂, 15 ♀♀ in CMKP, 5 ♂♂, 2 ♀♀ in CCJM, 1 ♂, 1 ♀ in DBCN, 1 ♂ in CJVB, 1 ♂ in MFNB, 1 ♂ in SDEI, 1 ♂ in BMNH, 1 ♀ in CDCL, 1 ♂ in COSJ, 1 ♂ in KCBC with same locality data. 4 ♂♂ 7 ♀♀ in CMJO, 1 ♀ in CCJM with same locality data except for: “M. Jančíková lgt.”. 1 ♂ in CMKP: “Peru Madre de Dios / Tambopata River / T. River Lodge / 6-20.XI.1995 M. Klichai lgt” [printed]. 1 ♂, 2 ♀♀ in DBCN: “Peru: Madre de Dios / ZR Tambopata - Candamo / Tambopata Research Ctr. / D. Brzoska 21-X-1996” [printed]. 2 ♂♂ in DBCN: ibid. except for: “23-X-1996”. 1 ♀ in DBCN: ibid. except for “24-X-1996”. 1 ♂ in CPVP: “Rio Madre de Dios / 5.12.2012 lgt. Hájek.” [printed] 4 ♂♂ 1 ♀ in CCJM: “S. America, Peru / Amazonas / Rio Madre de Dios, 30 km / S Puerto Maldonado city / 5-10.XII.1997 / leg. P. Udovitchenko”. 1 ♂ in BMNH: “Peru Madre de Dios / Tambopata Res. / 30 km (air) sw Pto. / Maldonado, 290m / 12°50’S 069°20’W” // “on vegetation in / young terra firma / forest” // “B.M. 1982-183 / II.1982 / N. E. Stork” [printed]. 1 ♂, 1 ♀ in CMNH: “Peru: Madre de Dios / 30 km SW Pt. Maldonado / 12.50°S, 60.20°W, 290 m / Tambopata Reserve / 4.Jan.1983, J. Anderson” [printed] // “a melanotic-aberrant adult / differing from other / type specimens in having / its mandibles and femora / almost black (note by J.M)” [printed]. 1 ♂ in RLHC: “Peru: Madre de Dios / 30 km

SW Pt. Maldonado / 4.Nov.1979 / D.L. Pearson (Cocha Trail)" [printed]. 1 ♂ in RLHC: "Peru: Madre de Dios / 15 km E of Puerto / Maldonado on Rio Madre de / Dios, Albergue Lodge / Cuzco Amazonico, 200m / 28 June 1983 G.C. Hunter". 2 ♂♂, 2 ♀♀ in DBCN, 1 ♂, 1 ♀ in RLHC: "Bolivia - La Paz / Rio Undumo / (NW Ixiamas) / 28-XI-1994 / Brzoska/Guerra" [printed]. 1 ♂, 1 ♀ in CCJM: *ibid.* except for "29-X-1994". All type specimens labelled: "Holotype (Allotype or Paratype respectively) / *Cenothyta* / *klichai* sp. nov. / det. Jiri Moravec 2014" [red, printed].

**Other material examined.** 1 ♂ in BMNH: "Peru" // "F. Bates Coll. / 1911-248" // "Trilbyana / t. Horn" [sic!]. 1 ♂ in RLHC, 1 ♀ in ASUT: "Peru: Loreto / 125km sw Nauta / 12 June 1990 / D.L. Pearson" // "Inundated / forest flor". 1 ♀ in RLHC, 1 ♀ in ASUT: *ibid.*, except for "70km sw Nauta / 25.Aug.1991" / M. Torres". 1 ♀ in ASUT: *ibid.*, except for: 85km sw Nauta / 21.Aug.1991" / M. Torres". 1 ♂ in RLHC, 2 ♂♂, 1 ♀ in ASUT: "Peru: Loreto / Nunez Cocha, R. Napo / 3.March 1991 / M.E. Torres". 2 ♂♂ in RLHC, 4 ♂♂, 2 ♀♀ in ASUT: *ibid.*, except for: "6.March 1991". 2 ♂♂, 1 ♀ in ASUT: *ibid.*, except for 2.March 1991. 1 ♂ in RLHC: "Peru: Loreto / Muscachina R.Tigre / 14.Dec.1991 / J. Alvarez". 1 ♂ in RLHC: "Bolivia: Beni, Uacuma / Bosque Chimanes / 10.Nov.1983 / J.F. Guerra". 1 ♂ in CDCL: "Colombie / Meta Prov. / Carimagua / Col. Dheurle".

**Description.** Body (Fig. 5) medium sized, 10.3-11.8 (HT 10.5. AT 11.5) mm long, 3.20-3.85 (HT, AT) mm wide (females distinctly larger than males), body dark but iridescent bronze-cupreous, mostly with only feeble reddish and green iridescence on lateral areas; elytral white maculation consisting of three maculae in both sexes.

Head (Fig. 110) large, only slightly narrower than body, 3.10-3.60 mm wide; all head portions glabrous.

Frons with triangular anterior margin, steeply sloped towards clearly separated clypeus; anterior juxtaclypeal and lateral areas smooth, black or with green and violet lustre; median area of blunt frons-vertex fold fluently passing to vertex, dark greenish and copper with cupreous lustre, or reddish-cupreous, covered with very fine vermicular rugae; supraantennal plates elongate-triangular, smooth and shiny violet-green, their apices distinctly raised. forming rather sharp, laterally limited frons-vertex edges.

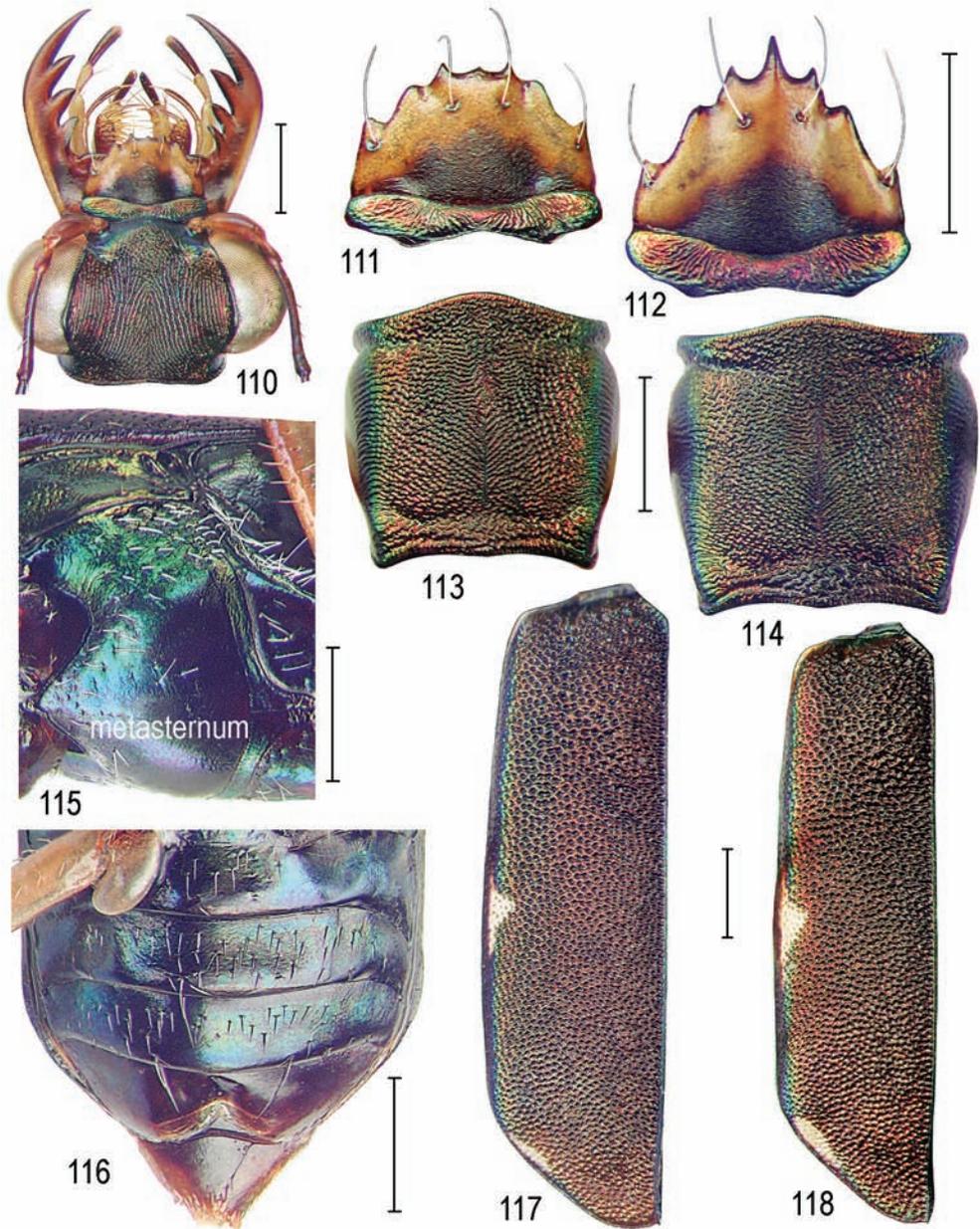
Vertex almost flat in middle; anteromedian area including the frons-vertex fold covered with very fine vermicular rugae; narrow median area vermicular-rugulose, rugae divergent in middle and passing posteriad forming an ornament in middle, sublateral areas with parallel, very finely zigzag-wavy rugae divergent posteriad; large juxtaorbital areas more distinctly longitudinally parallel-striate, passing onto temples; surface of occipital area very finely asperate.

Clypeus reddish-cupreous, mostly with only indistinct iridescent green or green-blue lustre on lateral areas, finely, but rather distinctly irregularly wrinkled.

Genae metallic black, with green or green-blue, mostly very strong, lustre, almost smooth or very indistinctly shallowly striate, more distinctly on postgenal areas.

Labrum 4-setose, in both sexes distinctly bicolored, ivory-yellow to ochre with metallic-black basomedian area which is usually very large, particularly in female; male labrum (Fig. 111) 0.75-0.80 mm long, 1.30-1.40 mm wide, with mostly acute basolateral teeth, blunt to rounded lateral teeth, and three acute or subacute anterior teeth (median tooth usually somewhat smaller); female labrum (Fig. 112) much longer, length 1.15-1.25 mm, width 1.45-1.55 mm, similarly shaped but tridentate median lobe with distinctly protruding median tooth.

Mandibles (Fig. 110) normally shaped with arcuate lateral margins, each mandible with four teeth (and basal molar), in both sexes subsymmetrical, the third tooth in left mandible more robust than the second, the fourth tooth smaller; three inner teeth in right mandible



Figs. 110-118. *Cenothyta klichai* sp. nov., type locality: 110- head, ♂, HT (MNHN); 111-112: labrum (111- ♂, HT; 112- ♀, AT (CMKP)); 113-114- pronotum (113- ♂, HT; 114- ♀, AT); 115- metasternum in lateral-ventral view, ♂, HT; 116- abdomen, ♂, HT; 117-118: elytron (117- ♀, AT; 118- ♂, HT). Bars = 1 mm.



Figs. 119-130. *Cenothyla klichai* sp. nov., aedeagi: 119- type locality, HT (MNHN); 120- ditto, apex dried; 121-123- ibid. PT (CCJM); 124- apex dried, Rio Undumo, Bolivia PT (DBCN); 125- type locality, PT (CCJM); 126- ditto, ventral view; 127-130: cleared aedeagi showing internal sacs in left and right lateral view, type locality (CCJM). Bars = 1 mm.

becoming gradually smaller towards the basal molar; coloration rather pale reddish-brown with black-darkened margins of teeth, and narrow, ivory lateral stripe which is less distinct in female.

Palpi (Fig. 110) normally shaped with elongate terminal palpomeres; both maxillary and labial palpi ivory-yellow to ochre-yellow (slightly darker in female) with terminal palpomeres black-brown to black, in female often with also penultimate palpomere slightly darkened; penultimate (longest) palpomeres of labial palpi narrow, only very indistinctly and gradually dilated towards apex up to 0.20-mm wide.

Thorax. Pronotum (Figs. 113-114) in male mostly slightly longer than wide, in female also as long as wide, length 2.10-2.30 mm, width 2.00-2.30 mm, rather variably coloured, median area dark cupreous, often with diffusely green-blue tinge, sublateral areas usually with strong bright reddish lustre passing to mostly indistinct iridescent green-blue lateral areas and violaceous juxtannotopleural areas; sulci well pronounced, but anterior sulcus deep only laterally, shallow in middle; anterior lobe notably wider than the posterior, its anterior margin in middle distinctly prolonged anteriorly, rather finely and densely irregularly vermicular-rugulose; disc with more or less distinctly convex lateral margins of dorsally visible proepisterna, the margins in female mostly gradually attenuated towards posterior sulcus; indistinct notopleural sutures running mutually subparallel, or are narrower in middle, in female sometimes copy the outline of the lateral proepisternal margins in small distance; median line indistinct, often partly merging with surface sculpture; discal surface densely and rather finely irregularly zigzag-wavy to vermicular-rugulose, while shallower rugae on lateral areas are almost transverse when reaching notopleural sutures; posterior lobe with distinct basal rim, surface irregularly covered with coarser vermicular to transverse-wavy rugae; dorsolateral bulges indistinct; whole dorsal surface glabrous; proepisterna and mesepisterna metallic-black with only feebly cupreous, rarely greenish lustre or almost black, smooth and glabrous; female mesepisternal coupling sulci in form of a deeper longitudinal-sinuuous sulcus within the usual longitudinal furrow, thus only slightly differing from much shallower and almost uniform furrow in male mesepisternum; metepisterna usually with bronze lustre, and usual, deep impression at metepimeron, glabrous; ventral sterna shiny metallic-black, with strong green, blue and violaceous lustre; prosternum and mesosternum smooth and glabrous; metasternum punctate-setose on whole lateral areas, and also with two or three rows of setigerous punctures on anterior area, setae arising from the setigerous punctures are white, rather long and stiff (Fig. 115).

Elytra (Figs. 117-118) elongate, length 6.30-7.30 mm, with rounded to subangular humeri (more subangular in female), lateral margins in male subparallel, in female moderately convex in middle, anteapical angles in both sexes arcuate, then obliquely running towards apices which are towards indistinct sutural spine indistinctly subacute in male, rather widely rounded in female; microserrulation indistinct and very irregular; elytral dorsal surface almost regularly convex on posterior half of elytral disc, humeral impressions moderate, but together with moderate discal impression rather clearly delimiting moderate basodiscal convexity; anteapical and apical impressions moderate to more distinct, remaining elytral surface almost even; elytral surface distinctly but comparatively finely punctures with mostly regular intervals on whole elytral length (punctuation notably finer than in *C. consobrina*, comparable

to that on elytra of *C. varians* and *C. rietscheli*), punctures larger on anterior elytral third, particularly within humeral impressions, on lateral areas of basodiscal convexity and within the discal impression where their intervals are thinner, but rarely anastomosing; punctures becoming smaller on posterior elytral half, smallest and more irregular along elytral sutures, much smaller and very irregular on elytral apices appearing with carinate intervals, but appearance of the sculpture is confined to angle of illumination; elytral surface glabrous except for a few usual hairlike sensory setae indistinctly scattered mostly on basal area, and a few others adjacent to epipleura and apical margins; elytral coloration on elytral disc dark to rather vividly copper with diffuse golden-bronze iridescence; sublateral areas often bright reddish-cupreous in male, usually less vividly in female, passing to narrow iridescent-green lateral area and violaceous juxtaepipleural area; white elytral maculation consists in both sexes of three maculae: humeral macula partly visible from above, usually smaller and ochre in female and better visible in lateral view; lateral-median macula irregularly triangular (usually wider in male); anteapical macula rather small, somewhat elongate.

Legs basically coloured and with setae as in *C. varians* and *C. rietscheli*, including the coloration of femora, tibiae and black tarsi; trochanters whitish-ivory to diffusely ivory-yellow.

Abdomen (Fig. 116) metallic-black with greenish and violaceous lustre, surface of ventrites primarily rather densely covered with short whitish to greyish microsetae (apart of a few, usual hairlike sensory setae at margins of the ventrites).

Aedeagus (Figs. 119-130) with median portion rather straight, conically attenuated towards short, narrow, rounded apex, 3.15-3.50 mm long, 0.55-0.70 mm wide; internal sac (Figs. 127-130) as in other species of *Cenothyla*.

**Variability.** Two paratypes (CMNH) from the area of the type locality but 30 km southwest of Puerto Maldonado, cited in "Other material examined" differ in having their mandibles and femora almost black, but other characters and dorsal body coloration correspond with other type specimens. Specimens from Bolivia including females have the pronotum more commonly as long as wide. Other variability is obvious from the description and the illustrations.

**Differential diagnosis.** *C. klichai* sp. nov. shares the metallic-black metatarsi and abdomen with *C. rietscheli* and *C. varians* sp. nov. but is distinguished from these two species by the shape of the aedeagus which is almost regularly dorsally conically attenuated towards rather short, moderately ventrally directed apex. The difference is strongly obvious in dried aedeagi. Furthermore, this new species immediately differs from *C. varians* in having its body notably larger and more vividly coloured, elytra with humeral macula present in both sexes and the anteapical macula notably smaller, never prolonged towards suture, its labrum constantly with black basomedian area, and surface of the abdominal ventrites rather densely covered by microsetae (the microsetae can be easily abraded by wrong mounting treatment, namely when the beetles are glued on papered boards).

**Etymology.** Named after Czech entomologist Miroslav Klícha, the collector of the holotype and most of the paratypes of the new species.

**Biology and distribution.** The type locality, the jungle area of the Tambopata River south

of Puerto Maldonado in the north-eastern Peruvian region of Madre de Dios, is about five hours by a motorboat upstream the river towards Bolivian border area of Andean foothills., but other localities in the Tambopata Reserve lie more close to Puerto Maldonado. According to the collectors (pers. com.), adults have diurnal activity; they were caught in the type locality when flying along shady and wet paths and small openings inside the jungle, in a distance of about 50 m from the river; during the night they were sitting underneath the foliage of low vegetation. The biodiversity of the vast region of Madre de Dios including the National Reserve “Zona Reservada Tambopata-Candamo”, which is predominantly low-lying Amazon Rainforest, is tremendous. It is interesting that no species of *Cenothyla* was reported from the Tambopata Reserve by Pearson (1984). The Bolivian locality, the area of the Undumo River northwest of Ixiamas in the Bolivian province La Paz, is about 120 km away from the type locality in Peru. This new species occurs also in the area of Rio Napo in the Peruvian province of Loreto, a long way from the type locality. The Rio Napo flows from the Ecuadorian province of Loreto to the homonymous Peruvian province in a long distance.

The only male from Colombia (CDCL) is a surprise, because the locality Carimagua in the province of Meta is a long way from the localities in Peru, but the male which comes from an insect dealer has all characters of *C. klichai* sp. nov.

**Remarks.** The specimens from the Peruvian province of Loreto are not included in the paratype series.

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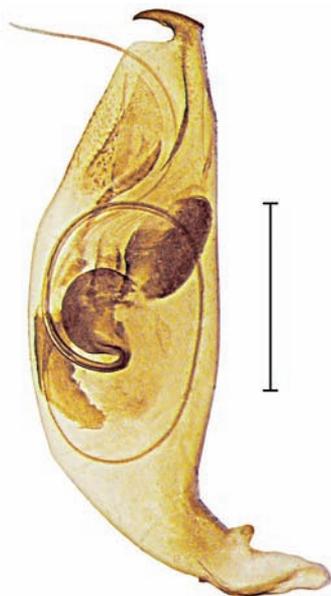


Fig. 131. Aedeagus showing internal sac characteristic of the genus *Odontocheila* (*O. trilbyana* Thomson, Ecuador, Sucumbios, Dureno, DBCN). Bar = 1 mm.

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