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Remarks on the subgenus Cylinderina Rivalier (Coleoptera: Cicindelidae: Cylindera) from the Philippines with description of a new species

144. Contribution towards the knowledge of the Cicindelidae

Jürgen Wiesner Dresdener Ring 11 D-38444 Wolfsburg, Germany

Charles Dheurle 5, Place Jenson F-52200 Langres, France

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Jürgen Wiesner and Charles Dheurle

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Remarks on the subgenus *Cylinderina* Rivalier (Coleoptera: Cicindelidae: *Cylindera*) from the Philippines with description of a new species

144. Contribution towards the knowledge of the Cicindelidae

Jürgen Wiesner

Dresdener Ring 11 D-38444 Wolfsburg, Germany juergen.wiesner@wolfsburg.de

Charles Dheurle

5, Place Jenson F-52200 Langres, France charles.dheurle@wanadoo.fr

Abstract. Cylindera (Cylinderina) sierramadrensis Wiesner and Dheurle, new species (Coleoptera: Cicindelidae) is described from Luzon. Re-descriptions of the other seven species of this subgenus (C. (C.) nanula (Horn, 1937), C. (C.) nana (Schaum, 1862), C. (C.) pseudonana (Horn, 1924), C. (C.) werneri Wiesner, 1988, C. (C.) rothschildi (Horn, 1896), C. (C.) genieri Cassola and Werner, 2003, C. (C.) vandenberghei Dheurle, 2016) are provided together with a key and pictures of their habitus, labrum and aedeagus.

Key words. Cicindelini, diagnosis, new species, Luzon, endemic species, key.

Introduction

The subgenus *Cylinderina* was created by Emile Rivalier (1961) based on a group of small individuals (body length 5.3 to 7.0 mm, Fig. 1; relation of head, pronotum and elytra = 0.2, 0.2, 0.6) endemic to the Philippine Island Luzon, with globose eyes (average ratio between width of elytra and width of head = 1.1), slender, and reduced maculations or immaculate. Rivalier (1961) retained in this subgenus the species *Cicindela nana* Schaum, 1862, *Cicindela pseudo-nana* Horn, 1924, and *Cicindela Rothschildi* Horn, 1896, which was interpreted by Walther Horn (1910) as *Odontochila Rothschildi* (Horn, 1896). In 1988 another species, *Cylindera* (*Cylinderina*) werneri Wiesner was described, and in 1992 the first author transferred *Cicindela nanula* Horn, 1937 to *Cylinderina*, as Rivalier was not aware of this species in 1961. Subsequently *Cylindera* (*Cylinderina*) genieri Cassola and Werner, 2003, and *Cylindera* (*Cylinderina*) vandenberghei Dheurle, 2016 were also transferred to this subgenus. Recently the second author received six *Cylindera* (*Cylinderina*) specimens which proved to be a new species and is described herein. Additionally, an identification key for all eight species is given together with pictures of their habitus, labrum and aedeagus and a re-description of their features.

Materials and Methods

All measurements were made using a stereomicroscope. Measurements were made from the front of the clypeus to apex of elytra. The label data of type specimens were collated using the following system: in order from pinhead to pin point the label data were copied with label sides indicated by slanted lines, and additional labels indicated by semicolons. Printed white labels and rectangular shape, however, were not explicitly noted. All remaining pertinent data were recorded within brackets.

Specimens mentioned here are deposited in the following collections:

BMNH British Museum of Natural History, London, Great Britain.

CDFC Charles Dheurle Collection, Langres, France.

CKGC Christian Kerkering Collection, Emsdetten, Germany.

CMNC Canadian Museum of Nature, Ottawa, Canada.

- JWGC Jürgen Wiesner Collection, Wolfsburg, Germany.
- MCZC Museo Civico di Zoologia, Roma, Italy.
- MFNB Museum für Naturkunde, Berlin, Germany.
- MNHN Muséum National d'Histoire Naturelle, Paris, France
- NHMW Naturhistorisches Museum, Vienna, Austria.
- SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.
- ZSMC Zoologische Staatssammlung, Munich, Germany.

Locality data of Philippine tiger beetles often seems to be inaccurate, incorrect or doubtful not only from the past but also from modern insect trade. Nevertheless, a distribution map is given (Fig. 2). Indications to apparently doubtful records are given under section remarks at the respective species.

Results

Key to the species of Cylinderina

1. —	Femora metallic black2Femora reddish3
2(1).	Epipleura black; elytra with broad, curved metallic margin, middle band short
_	Epipleura rufous; elytra with small metallic margin; middle band long
3(1).	Pronotum globose, shorter than wide
_	Pronotum plain, as long as wide
4(3). —	Elytra with straight middle band 1. Cylindera (Cylinderina) nanula (Horn, 1937) Elytra without middle band, but with or without small marginal dot
5(4).	Sternae and episternae glabrous throughout
_	Only metepisternum glabrous, all the rest setose
6(5).	Elytra of females with a mirror-like area in front; elytra with no testaceous maculation; antennae of males reaching the apical fourth of the elytral length
_	Elytra of females without a mirror-like area; central part of elytra dull; elytral maculation, if existing, showing at least a small subhumeral dot; antennae of males shorter
7(6).	Elytra with postapical dot and triangular middle spot
_	Elytra lacking postapical dot; middle spot, if present, forming a small line

1. Cylindera (Cylinderina) nanula (Horn)

(Fig. 3)

Cicindela nanula Horn 1937: 57.

Cylindera (Jansenia) nanula. Schilder 1953: 548.

Cylindera (Cylinderina) nanula. Wiesner 1992: 186; Cabras et al. 2016: 196.

Type depository. Lectotype male and paralectotype male in SDEI (here designated).

Type status. Lectotype male in SDEI, type labels: "LUZON, Laguna Pr, Mc Gregor, Paete; Type, W.

Horn; Mus. Wash. [hand written]; SYNTYPUS [printed, red]; Dr. W. Horn det. 1935, C. nanula W. H., type [partially hand written]; nanula m. [pale yellow, hand written, black bordered]; Coll. W. Horn, Eberswalde; SDEI Coleoptera, # 301416; LECTOTYPE, Cylindera (Cylinderina) nanula (W. Horn, 1937), ded. J. Wiesner, 2018".

Paralectotype male in SDEI, *type labels*: "LUZON, Laguna Pr, Mc Gregor, Paete; Mus. Wash. [hand written]; Type, W. Horn; SYNTYPUS [printed, red]; Coll. W. Horn, Eberswalde; PARALECTOTYPE, Cylindera (Cylinderina), nanula (W. Horn, 1937), ded. J. Wiesner, 2018".

Other material examined. 1 male in SDEI: "Laguna, Ins. Phil.". 1 female in NHMW: "Philippinen, Luzon, Imugan / S. Drechsler, 6. 1917". 1 female in JWGC: "PHILIPPINES, Mt. Province, N. Luzon, VI. 1988". 1 female in CDFC: "PHILIPPINES, North Luzon, Cagayan, Sta Ana / VIII. 2015, LUMAWIG leg.". 2 males, 1 female in CKGC: "Maddela town env. — Luzon, Sierra Madre — PHILIPPINES, local collector 04/2018".

Distribution. Philippines, Luzon (Prov. Cagayan: Santa Ana, Prov. Laguna: Paete, Prov. Mt. Province, Prov. Nueva Vizcaya: Imugan, Prov. Quirino: Maddela).

Diagnosis. Distinguished from all other members of the subgenus by the elytral maculation.

Re-description. Size: Total length (without labrum) 5.8–7.0mm (mean = 6.2mm, n = 6). Head: Coppery above, metallic greenish on clypeus, frons, orbital plates, and genae; surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.2 in medium. Labrum (male Fig. 7, female Fig. 8, 9) distinctly wider than long, ratio between width and length = 2.0 in medium; with five to seven marginal setae, unidentate in the middle of front edge; color in various extension metallic greenish at lateral and basal margin, the remainder part of the labrum brownish yellow, at least a small area around the marginal tooth. Mandibles yellowish, more or less rufescent or darkened on apical and inner teeth. Labial and maxillary palpi testaceous, the last joint metallic dark greenish; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching the apical third of the elytral length in the males, the half of the elytral length in the females; scape brownish yellow, with one long apical seta; antennomeres two to four mostly glabrous, dark, with metallic luster, sometimes rufous at apical end; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), straight at sides, glabrous, transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color coppery above, bluish green at lateral margin. Sternae and episternae metallic dark greenish or dark coppery, almost glabrous, mesepimeron and metasternum with some white setae ventrally, metepisternum with some white setae at base; mesepisternum of females with a longitudinal furrow over its whole length. Elytra: (Fig. 4-6) parallel-sided, somewhat divergent in males, somewhat rounded in females; color dull brown on the disk near the suture, apically lightened in some specimens, laterally in variable extension bluish green; elytral testaceous maculation consists of a slender subhumeral lunule, a broader middle band that nearly reaches the middle suture, and a large subapical dot. Surface with a fine microsculpture, and numerous larger, evenly spaced punctures laterally, shoulders glossy; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a small sutural spine. Epipleurae rufous. Ventral aspect: Venter dark brown, with some thin white setae marginally; coxae with white setae; coxae and trochanters testaceous; femora testaceous, apical tip (knee) darkened; tibiae and tarsi dark, with little metallic reflections; legs covered with some with setae, mesotibiae more densely setose. Aedeagus: (Fig. 10) on left lateral view fusiform, stout and straight, tapering, slightly enlarged at the front and the back, with a short, straight, blunt apex (total length 2.2mm).

Remarks. Apparently *C.* (*C.*) *nanula* lives in several biotopes throughout Luzon. Nevertheless, more detailed collecting data would be welcome to make the occurrence of this species more precise.

2. Cylindera (Cylinderina) nana (Schaum)

(Fig. 11)

Cicindela nana Schaum 1862: 177.

Cicindela nana. Horn 1926: 169c; 1938: plate 50, Fig. 24.

Cylindera (Jansenia) nana. Schilder 1953: 548.

Cylindera (Cylinderina) nana. Rivalier 1961: 140; Wiesner 1992: 186; Cabras et al. 2016: 196.

Type depository. Lectoype male (here designated) in MFNB, two paralectotype males and one paralectotype female (here designated) in MFNB.

Type status. Lectotype male in MFNB, *type labels*: "Hist.-Coll. (Coleoptera), Nr. 42546, Cicindela nana Schaum*, Luzon, Coll. Schaum, Zool. Mus. Berlin [printed, yellow, with black border]; SYNTYPE, Cicindela nana, Schaum, 1862, labelled by MFNB 2018 [printed, red]; LECTOTYPE, Cylindera (Cylinderina), nana (Schaum, 1862), ded. J. Wiesner, 2018 [printed, red]".

Paralectotypes: 2 males, 1 female in MFNB with same labels, and "PARALECTOTYPE, Cylindera (Cylinderina), nana (Schaum, 1862), ded. J. Wiesner, 2018 [printed, red]".

Other material examined. 3 males, 1 female in SDEI: "Philippines". 2 males in SDEI: "Luzon". 1 male in SDEI: "Philippinen, Luzon, Imugan". 1 female in JWGC: "PHILIPPINES, N. Luzon, Mt. Province, 27. V. 1986, leg. R. M. Lumawig". 1 male in CDFC: "PHILIPPINES, N. Luzon, kayapa. Nueva. Visca, Coll. DHEURLE / Sierra Madre, VIII-2016, LUMAWIG leg.". 1 male in CKGC: "Dingalan vill. env. — Luzon, Sierra Madre — PHILIPPINES, local collector 04/2018".

Distribution. Philippines, Luzon (Prov. Aurora: Dingalan, Prov. Mt. Province, Prov. Nueva Vizcaya: Imugan, Kayapa,).

Diagnosis. Distinguished by the dark femora and the color of the elytra.

Re-description. Size: Total length (without labrum) 5.3-6.2 mm (mean = 5.7 mm, n = 13). Head: Dark coppery above; surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio ratio between width of head and elytra = 1.3 in medium. Labrum (male Fig. 15, female Fig. 16) distinctly wider than long, ratio between width and length = 2.5 in medium; with six to seven marginal setae, unidentate in the middle of front edge; color blackish brown, in some specimens with a small metallic luster at the lateral margin. Mandibles yellowish, more or less rufescent on apical and inner teeth. Labial and maxillary palpi testaceous, the last joint metallic dark greenish; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching half of the elytral length in the males, a little shorter in the females; antennomeres one to four dark, with metallic luster; scape with one long apical seta, the other three antennomeres almost glabrous; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), sides somewhat rounded between the transversal constrictions, glabrous or with some white setae at lateral margin, transversely waved at lateral margin, remainder with irregular wrinkles; color dark coppery. Sternae and episternae metallic dark coppery, proepisternum with some white setae marginally; mesepisternum glabrous, the remaining setose; mesepisternum of females with a longitudinal furrow in the upper half. Elytra: (Fig. 12-13) parallel-sided, somewhat rounded in the middle; color dull brown, apically lightened in some specimens, lateral margin blackish cupreous; elytral testaceous maculation consists of a slender middle band, which nearly reaches the middle suture, and a medium sized subapical dot; a small subhumeral dot is present or lost. Surface with a fine microsculpture, and many larger, evenly spaced punctures laterally; preapical impression strong, apical microserration fine and irregular in some specimens; apical border distinctly rounded and restricted towards middle suture, with a small sutural spine. Epipleurae rufous. Ventral aspect: Venter setose, dark brown, with metallic luster in some specimens; coxae with white setae; trochanters testaceous; coxae, femora, tibiae and tarsi dark, with little metallic reflections; legs covered with some with setae, mesotibiae more densely setose. Aedeagus: (Fig. 14) on left lateral view fusiform, straight, tapering, slightly enlarged in the middle, with a straight, blunt apex, slightly knobbed and curved downwards (total length 2.4 mm).

3. Cylindera (Cylinderina) sierramadrensis Wiesner and Dheurle, new species (Fig. 17)

Type depository. Holotype male in JWGC, one paratype female in JWGC, two paratype males and two paratype females in CDFC.

Type status. Holotype male, *type labels*: "PHILIPPINES, Eastern Luzon, Aurora, Dingalan, Coll. DHEURLE; Sierra Madre, February 2018, LUMAWIG leg.; HOLOTYPE, Cylindera (Cylinderina) sierramadrensis n. sp., ded. J. Wiesner &, C. Dheurle, 2018 [printed, red]".

Paratypes: 1 female in CDFC with same labels, and "PARATYPE, Cylindera (Cylinderina) sierramadrensis n. sp., ded. J. Wiesner &, C. Dheurle, 2018 [printed, red]". 1 male in CDFC: "PHILIPPINES, E. Luzon_Aurora, Sierra Madre, DHEURLE coll. [hand written]; Dingalan, II. 2018, I. Lumawig leg. [hand written]; PARATYPE, Cylindera (Cylinderina) sierramadrensis n. sp., ded. J. Wiesner &, C. Dheurle, 2018 [printed, red]". 1 female in JWCG with same labels. 1 male and 1 female in CDFC: "PHILIP-PINES, North Luzon, Nueva Ecija, Coll. DHEURLE; Gabaldon, Sierra Madre, March 2018, Lumawig leg.; PARATYPE, Cylindera (Cylinderina) sierramadrensis n. sp., ded. J. Wiesner &, C. Dheurle, 2018 [printed, red]".

Distribution. Philippines, Luzon (Prov. Aurora: Dingalan, Prov. Nueva Ecija: Gabaldon).

Etymology. The new species is named after the region where it was collected.

Diagnosis. Distinguished by the dark femora, the black epipleura, the different colored mandibles of males and females, and the curved metallic elytral margin.

Description. Size: Total length (without labrum) 5.8-6.5 mm (mean = 6.0 mm, n = 6). Head: Dark coppery or bluish green above; surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.2 in medium. Labrum (male Fig. 21, female Fig. 22) distinctly wider than long, ratio between width and length = 2.2 in medium; with six to seven marginal setae, unidentate in the middle of front edge; color in various extension dark, with blue green hue, tooth brownish in some specimens. Mandibles yellowish, darkened on apical and inner teeth in males and completely darkened except the base in females. Labial and maxillary palpi testaceous, the last joint metallic dark greenish; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching half of the elytral length in the males, a little shorter in the females; antennomeres one to four dark, with metallic luster; scape with with one long apical seta, the other three antennomeres almost glabrous; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), sides somewhat rounded between the transversal constrictions; glabrous, with some white setae laterally before the anterior constriction; transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color either bluish green all over or blackish blue between the constrictions with coppery hue at basal and apical margin. Sternae and episternae metallic bluish black, proepisternum with several white setae marginally; mesepisternum glabrous, the remaining setose; mesepisternum of females with a longitudinal furrow in the upper half. Elytra: (Fig. 19-20) parallel-sided, somewhat rounded in the middle; color dull brown on the disk, apical half of elytra coppery, small bluish or coppery near the suture, lateral margin glossy greenish blue and waved; elytral testaceous maculation consists of a small subhumeral dot, a slender middle band, which extends the half of an elytra, and a medium sized subapical dot. Surface with a fine microsculpture, marginally smooth, and a lot of larger, evenly spaced punctures laterally, shoulders glossy; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a tiny sutural spine. Epipleurae black. Ventral aspect: Venter setose apically, black, with metallic luster in some specimens; coxae with white setae; trochanters testaceous; coxae, femora, tibiae and tarsi dark, with little metallic reflections; legs covered with some with setae, mesotibiae more densely setose. Aedeagus: (Fig. 18) on left lateral view fusiform, straight, tapering, slightly enlarged in the middle, with a straight, blunt, slightly knobbed and upturned apex (total length 2.5 mm).

4. Cylindera (Cylinderina) pseudonana (Horn)

(Fig. 23)

Cicindela pseudo-nana Horn 1924: 90.

Cicindela pseudo-nana. Horn 1926: 169c; 1938: plate 50, Fig. 22.

Cylindera (Jansenia) pseudonana. Schilder 1953: 548.

Cylindera (Cylinderina) pseudonana. Rivalier 1961: 140; Wiesner 1992: 186; Cabras et al. 2016: 196.

Type depository. Lectotype male (here designated) in SDEI, paralectotype (here designated) in SDEI.

Type status. Lectotype male in SDEI, *type labels*: "Mt. Banahao, IV. 1914, Böttcher; Luzon; Type, W. Horn; Syntypus [printed, red]; Coll. W. Horn, DEI Eberswalde; SDEI Coleoptera, #301441; LECTOTYPE, Cylindera (Cylinderina) (W. Horn, 1924), ded. J. Wiesner, 2018 [printed, red]".

Paralectotype female in SDEI, *type labels*: "Lucon; Kerremans; Type, W. Horn; Maindron [hand written]; Syntypus [printed, red]; pseudo-nana mihi [pale yellow, handwritten, black bordered]; Coll. W. Horn, Eberswalde; SDEI Coleoptera, #301442; PARALECTOTYPE, Cylindera (Cylinderina) (W. Horn, 1924), ded. J. Wiesner, 2018 [printed, red]".

Other material examined. 1 male in SDEI: "Philippinen, Luzon, Mt. Banahao".

Distribution. Philippines, Luzon (Prov. Quezon: Mt. Banahao).

Diagnosis. Distinguished by the reddish femora, the metallic elytral margin and the triangular middle spot.

Re-description. Size: Total length (without labrum) 5.9–6.7 mm (mean = 6.3 mm, n = 3). Head: Dark bluish green above, cupreous between orbital plates in males, genae violet, surface smooth, glabrous, each with two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.1 in medium. Labrum (male Fig. 27, female Fig. 28) distinctly wider than long, ratio between width and length = 2.1 in medium; with seven to eight marginal setae, unidentate in the middle of front edge; color rufous, at base and lateral margins with blue green hue in various extinction. Mandibles yellowish, brownish on apical and inner teeth in males and completely brownish except for the base in females. Labial and maxillary palpi testaceous, the last joint metallic dark greenish; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching the apical third of the elytral length in the males (antennae of female not complete); scape brownish yellow, with one long apical seta; antennomeres two to four mostly glabrous, brownish with metallic luster; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), sides somewhat rounded between the transversal constrictions in males, straight in the female; glabrous, with some white setae laterally before the anterior constriction; transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color bluish green, cupreous besides the middle suture in males. Sternae and episternae metallic violet black, proepisternum with several white setae at the front margin, mesepisternum glabrous, the remaining setose; coupling sulcus of female mesepisternum not visible, due to bad condition of the specimen. Elytra: (Fig. 25–26) parallel-sided, color dull brown on the disk, apically lightened at the suture; broadly bordered from the scutellum up to the apex by blue greenish color; elytral testaceous maculation consists of a small subhumeral dot, a small triangular middle dot, and a small or very small subapical dot. Surface with a fine microsculpture above, marginally smooth, shoulders glossy; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a tiny sutural spine. Epipleurae rufous. Ventral aspect: Venter setose apically, brownish; coxae with white setae, testaceous; trochanters glabrous and testaceous; femora testaceous, brownish towards apex; tibiae and tarsi dark brownish; legs covered with some with setae, mesotibiae more densely setose. Aedeagus: (Fig. 24) on left lateral view fusiform, straight, tapering, slightly enlarged at the front and the back, with a straight, blunt and slightly upturned apex (total length 2.4mm).

5. Cylindera (Cylinderina) werneri Wiesner

(Fig. 29)

Cylindera (Cylinderina) werneri Wiesner 1988: 153, Fig. 1-5.

Cylindera (Cylinderina) werneri. Wiesner 1992: 187; Cabras et al. 2016: 196; Dheurle 2016: 39, Fig. 5, 9.

Type depository. Holotype male in ZSMC, paratype female in JWGC.

Type status. Holotype male in ZSMC, *type labels*: "Queson National, Forest Park, Luzon 24. March. 1981, coll. N. Nishikawa; Typus [red, printed]; ZSM -Samml., K. Werner 2009; HOLOTYPUS, CYLINDERA, (Cylinderina) werneri Wiesner [type written, red]".

Paratype female in JWGC, *type labels*: "Queson National, Forest Park, Luzon 24. March. 1981, coll. N. Nishikawa; PARATYPUS, CYLINDERA, (Cylinderina) werneri Wiesner [type written, red]".

Other material examined. 1 male in SDEI: "Quezon Park, Tayabas, Luzon, P.I. VI-1-32; F. C. Hadden, collector". 1 female in SDEI with same labels, but VI-6-32. 1 male in SDEI with same labels, but VI-9-32.

Distribution. Philippines, Luzon (Prov. Quezon, National Forest Park, Quezon Park).

Diagnosis. Distinguished by the reddish femora, the curved metallic elytral margin, and lacking subapical dot.

Re-description. Size: Total length (without labrum) 5.7–6.4 mm (mean = 5.9 mm, n = 5). Head: Dark bluish green above, genae dark blue, surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.1 in medium. Labrum (male Fig. 33, female Fig. 34) distinctly wider than long, ratio between width and length = 2.2 in medium; with six marginal setae, unidentate in the middle of front edge; color rufous, at base and lateral margins with blue green hue in various expansion. Mandibles yellowish, brownish on apical and inner teeth in males and completely brownish except for the base in females. Labial and maxillary palpi testaceous, the last joint metallic dark; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching half of the elytral length in the males, a little shorter in the females; scape with one long apical seta; antennomeres one to four brownish with metallic luster; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), sides somewhat rounded between the transversal constrictions; glabrous, with some white setae laterally before the anterior constriction; transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color bluish green. Sternae and episternae brownish black with bluish hue, proepisternum with several white setae at the front margin, mesepisternum glabrous, the remaining setose; mesepisternum of females with a longitudinal furrow over its whole length. Elytra: (Fig. 30-32) parallel-sided; color dull brown on the disk, broadly and curved bordered from the scutellum up to the apex by blue greenish color; elytral testaceous maculation lost, or consists of a tiny subhumeral dot, or of a small subhumeral dot and a thin middle band. Surface with a fine microsculpture above, marginally smooth, shoulders glossy; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a small sutural spine. Epipleurae rufous. Ventral aspect: Venter setose apically, brownish black; coxae with white setae, testaceous; trochanters glabrous and testaceous; femora testaceous, brownish towards apex; tibiae and tarsi dark brownish; legs covered with some white setae, mesotibiae more densely setose. Aedeagus: (Fig. 35) on left lateral view fusiform, straight, tapering, slightly enlarged in the middle, with a straight, blunt and slightly upturned apex (total length 2.1mm).

Remarks. While describing *C.* (*C.*) werneri, the first author overlooked a tiny subhumeral dot on the elytra of the male holotype.

6. Cylindera (Cylinderina) rothschildi (Horn)

(Fig. 36)

Cicindela Rothschildi Horn 1896: 152.

Odontochila Rothschildi. Horn 1910: plate 20, Fig. 8; 1926: 125.

Cylindera (Cylinderina) Rothschildi. Rivalier 1961: 139, Fig. 9c, 140.

Cylindera (Cylinderina) rothschildi. Wiesner 1992: 186; Cabras et al. 2016: 196.

Type depository. Holotype male in MNHN, paratype male and female in SDEI.

Type status. Paratype male in SDEI, *type labels*: "Albay, S. Luzon, Whitehead, 94; Type coll. W. Horn; Coll. W. Horn, DEI Eberswalde; Tring Mus.; Paratypus [printed, red]". Paratype female in SDEI, *type labels*: "N. Luzon, (Whitehead. 94); Type, coll. W. Horn; Tring Mus.; Paratypus [printed, red]; Coll. W. Horn, DEI Eberswalde; Rothschildi mihi [pale yellow, hand written, bordered black]".

Other material examined. 3 females in SDEI: "N. Luzon, Whitehead". 1 male in BMNH: "N. Luzon".

Distribution. Philippines, Luzon (Prov. Albay, all records are from North Luzon).

Diagnosis. Distinguished by the reddish femora and the unicolored glossy coppery or greenish elytra.

Re-description. Size: Total length (without labrum) 5.5-6.5 mm (mean = 5.9 mm, n = 6). Head: Blue green or coppery green above, genae dark blue, surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.1 in medium. Labrum (male Fig. 40, female Fig. 41) distinctly wider than long, ratio between width and length = 1.9 in medium; with six to seven marginal setae, unidentate in the middle of front edge; color rufous, at base and lateral margins with green hue in various expansion. Mandibles yellowish all over. Labial and maxillary palpi testaceous, the last joint metallic dark; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching half of the elytral length in the females, may be a little longer in males (antennae of the studied material mostly broken); scape yellowish, with one long apical seta; antennomeres two to four brownish, antennomeres five to eleven dark brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), straight at sides, glabrous, transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color blue green or coppery green, margin violet. Sternae and episternae dark brassy, glabrous all over; mesepisternum of females with a shallow longitudinal furrow over its entire length. *Elytra*: (Fig. 37–38) parallel-sided; color green or coppery, lateral margins bluish, apex semi-translucent; elytral testaceous maculation absent, or consists of a slender middle dot, or of a tiny subhumeral, slender middle and small subapical dot. Surface with evenly spaced punctures, shallow to absent apically, shoulders glossy; preapical impression shallow, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a tiny sutural spine. Epipleurae rufous. Ventral aspect: Venter glabrous, brownish black; coxae with some white setae, testaceous; trochanters glabrous and testaceous; femora testaceous; tibiae dark brownish testaceous at base; tarsi dark brownish; legs covered with some white setae, mesotibiae more densely setose. Aedeagus: (Fig. 39) on left lateral view fusiform, stout and straight, tapering, slightly enlarged in the middle, with a short, straight, blunt and slightly upturned apex (total length 2.0 mm).

Remarks. All but one of the beetles in collections show the label data "N Luzon", without further details Only one bears the label data "Albay, S Luzon". Therefore, the distribution of *C. rothschildi* is not absolutely known.

7. Cylindera (Cylinderina) genieri Cassola and Werner (Fig. 42)

Cylindera (Cylinderina) genieri Cassola and Werner 2003: 49, Fig. 1–2. Cylindera (Cylinderina) genieri. Cabras et al. 2016: 196.

Type depository, Holotype male in CMNC, paratypes in JWCG, MCZC, SDEI, and ZSMC.

Type status. Paratype male in SDEI, *type labels*: "PHILIPPINES, Ilocos, Norte: Balaoi, Pagudpud, (Luzon) 23-25.V.1987, C. K. Starr; PARATYPUS, Cylindera (Cylinderina), genieri n. sp., F. Cassola & K. Werner, dederunt, 2002 [printed, red]". Paratype female in JWGC with same labels.

Other material examined. 1 male and 1 female in CDFC: "PHILIPPINES, N. Luzon, Ilocos, Pagudpud, VII. 2016, LUMAWIG leg.".

Distribution. Philippines, Luzon (Prov. Ilocos Norte: Pagudpud, Balaoi).

Diagnosis. Distinguished by reddish femora and the globose pronotum.

Re-description. Size: Total length (without labrum) 5.6–6.6 mm (mean = 6.3 mm, n = 4). Head: Glossy bluish-violet above, metallic green to blue-green on clypeus, frons, orbital plates, and genae; surface smooth, glabrous, each one with a setigerous puncture next to the eyes at the center; strong longitudinal striae on vertex and eyes, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.0 in medium. Labrum (male Fig. 46, 47, female Fig. 48) distinctly wider than long, ratio between width and length = 2.0 in medium, with six to seven marginal setae, unidentate in the middle of front edge; color glossy metallic blue-violet, slightly darkened in front, sometimes briefly lightened on the middle tooth. Mandibles yellowish, brownish on apical and inner teeth. Labial and maxillary palpi testaceous, the last joint metallic dark; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching over the half of the elytral length in the male, slightly shorter in the female; scape with one long apical seta; antennomeres one to four rufous to brownish with metallic luster; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum slightly wider than long (ratio between width and length = 1.1 in medium), rounded at sides, slightly globose, glabrous, smooth with some irregular wrinkles on disc; color mostly glossy blue-violet, metallic bluish-green in the transversal constrictions and on front and hind collars. Sternae and episternae dark violaceus, proepisternum and mesepisternum glabrous, metepisternum and metasternum with some white setae apically; mesepisternum of females with a longitudinal furrow on the upper half. Elytra: (Fig. 44–45) parallel-sided; color dull purple-brown on front and middle disc, glossy metallic blue-violet on base, shoulders, the lateral sides, and the full apical third of elytra. Surface with a fine microsculpture, and some larger, evenly spaced, greenish or bluish punctures in the front third of elytra; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, sutural spine very tiny or nearly absent. Epipleura rufous. Ventral aspect: Venter mostly glabrous with few white setae, brownish black; coxae with white setae, testaceous; trochanters glabrous and testaceous; femora testaceous; tibiae and tarsi dark brownish with a metallic hue; legs covered with some white setae, mesotibiae more densely setose. Aedeagus: (Fig. 43) on left lateral view fusiform, stout and straight, tapering, enlarged in the middle, with a straight, slightly upturned apex (total length 2.1 mm).

8. Cylindera (Cylinderina) vandenberghei Dheurle (Fig. 49)

Cylindera (Cylinderina) vandenberghei Dheurle 2016: 37, Fig. 1–4, 6–8. Cylindera (Cylinderina) vandenberghei. Cabras et al. 2016: 196.

Type depository. Holotype male in MNHN, allotype female in CDFC, paratypes in CDFC, JWGC, and ZSMC.

Type status. Paratype male in CDFC, *type labels*: "PHILIPPINES, North Luzon Island, Cagayan Province, Coll. DHEURLE. Ch.; Santa Ana, VIII-2015, local collector, Ismael Lumawig lg.; PARATYPE, Cylindera (Cylinderina), vandenberghei Dheurle, 2016 [printed, red]". Paratype female in JWGC with same labels.

Distribution. Philippines, Luzon (Prov. Cagayan: Santa Ana).

Diagnosis. Distinguished by reddish femora and the almost shining elytra lacking maculation.

Re-description. Size: Total length (without labrum) 5.7-6.0 mm (mean = 5.8 mm, n = 2). Head: Clypeus and frons glossy dark green or dark blue, vertex and orbital plates glossy violet or greenish between orbital plates; genae violet, or greenish ventrally; surface smooth, glabrous, with each two setigerous punctures next to the eyes in front and at the center; strong longitudinal striae on vertex and orbital plates, the striae becoming slightly concentric on vertex, and finer, irregular, transversely waved, behind on neck; genae roughly longitudinally striated. Eyes pale yellow. Ratio between width of head and elytra = 1.0 in medium. Labrum (male Fig. 53, female Fig. 54) distinctly wider than long (ratio between width and length = 1.8 in medium); with six marginal setae, unidentate in the middle of front edge; color glossy dark green or bluish with rufous tooth. Mandibles testaceous, teeth brownish. Labial and maxillary palpi testaceous, the last joint metallic dark; basal segment of labial palpi with long erected white setae. Antennae slender, long, reaching the apical fourth in the male, the half of the elytral length in female; scape with one long apical seta; antennomeres one and four rufous, with metallic luster; antennomeres five to eleven dark blackish brown, dull, finely and evenly pubescent. Thorax: Pronotum as wide as long (ratio between width and length = 1.0 in medium), sides straight, somewhat convergent towards base; glabrous, transversely waved before and behind the transversal constrictions and at the lateral margin, with irregular wrinkles on disc; color violet, somewhat greenish at front and base. Sternae and episternae glossy black, glabrous; mesepisternum of females with a longitudinal furrow over its whole length. Elytra: (Fig. 51-52) parallel-sided; color bluish violet, with green reflections at the shoulders, broadly and curved bordered from the scutellum up to the apex by glossy violet color, with a bright glossy violet band at the front third of the elytra. Surface with a fine microsculpture above, glossy in the female, smooth in the male, with larger punctures laterally; shoulders glossy; preapical impression strong, apical microserration extremely fine; apical border distinctly rounded and restricted towards middle suture, with a tiny sutural spine. Epipleurae rufous. Ventral aspect: Venter glabrous, black; coxae glabrous, testaceous apically; trochanters glabrous and testaceous; femora, tibiae and tarsal segments testaceous, brownish apically; legs covered with some white setae, mesotibiae more densely setose. Aedeagus: (Fig. 50) on left lateral view fusiform, stout and straight, tapering, slightly enlarged in the middle and concave on the other side, with a straight, blunt apex (total length 2.1mm).

Prospects

Although the eight species of Cylinderina are described and distinguished in this paper using adult morphological characters, several aspects are still unknown. The collection of more reliable distribution data, habitat information, and immature morphology will improve our knowledge about *Cylinderina*.

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Body length of Cylindera (Cylinderina) species

in mm (without labrum)

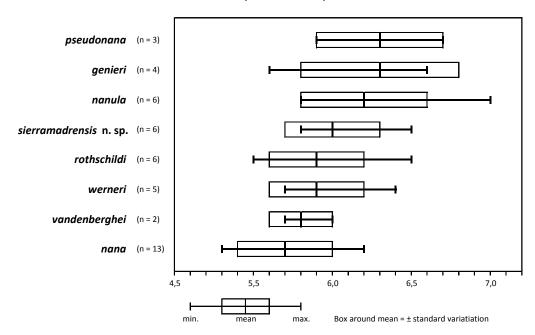
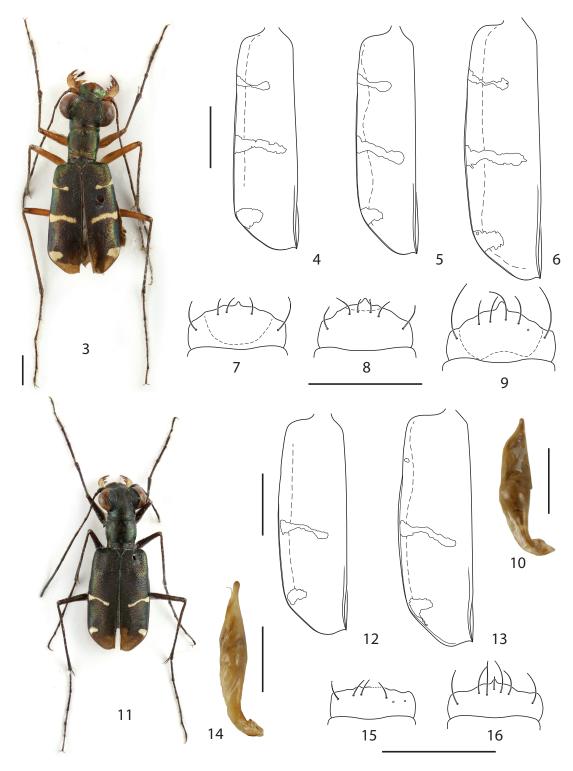


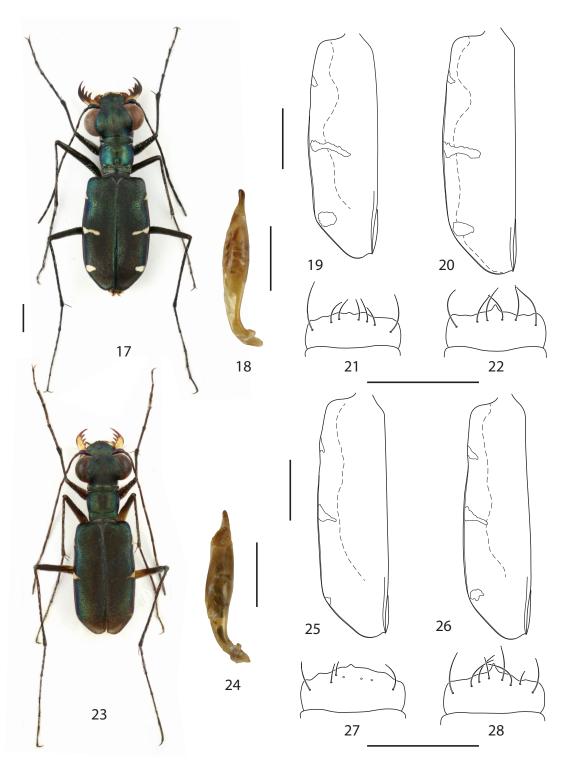
Figure 1. Body length of Cylindera (Cylinderina) species in mm (without labrum).



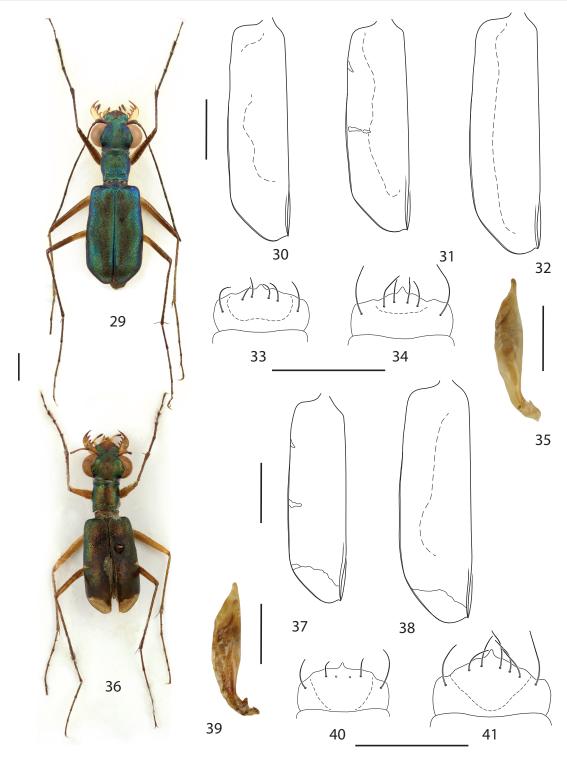
Figure 2. Distribution map of Cylindera (Cylinderina) species.



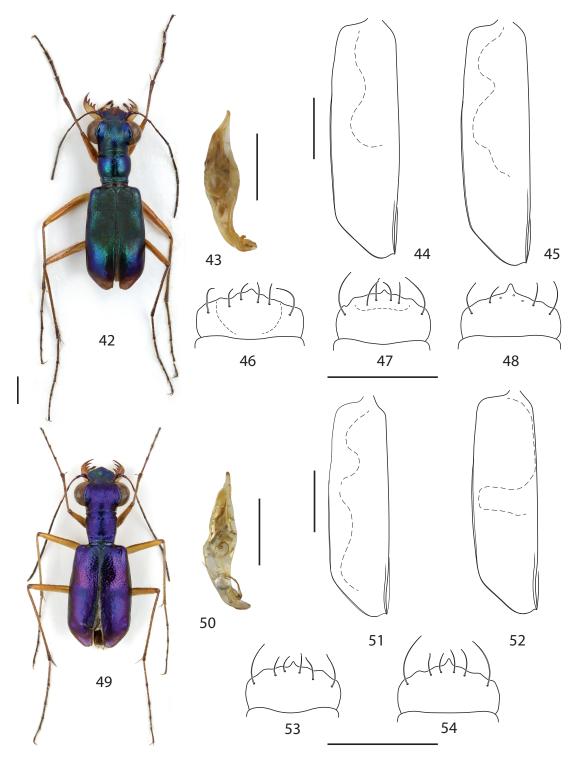
Figures 3–16. Cylinderia (Cylinderina). All scales = 1 mm. 3–10. C. (C.) nanula (Horn, 1937). 3) Habitus, paralectotype male from Paete (SDEI). 4–6. Left elytron. 4) Paralectotype male from Paete (SDEI). 5) Female from Santa Ana (JWGC). 6) Female from Mt. Province (JWGC). 7–9. Labrum. 7) Paralectotype male from Paete (SDEI). 8) Female from Santa Ana (JWGC). 9) Female from Mt. Province (JWGC). 10) Left lateral view of aedeagus, paralectotype from Paete (SDEI). 11–16. C. (C.) nana (Schaum, 1862). 11) Habitus, male from Kayapa (CDFC). 12–13. Left elytron. 12) Male from Kayapa (CDFC). 13) Female from Mt. Province (JWGC). 14) Left lateral view of aedeagus, male from Kayapa (CDFC). 15–16. Labrum. 15) Male from Kayapa (CDFC). 16) Female from Mt. Province (JWGC).



Figures 17–28. Cylindera (Cylinderina). All scales = 1 mm. 17–22. C. (C.) sierramadrensis, new species. 17) Habitus, paratype female from Dingalan (JWGC). 18) Left lateral view of aedeagus, holotype from Dingalan (JWGC). 19–20. Left elytron. 19) Holotype male from Dingalan (JWGC). 20) Paratype female from Dingalan (JWGC). 21–22. Labrum. 21) Holotype male from Dingalan (JWGC). 22) Paratype female from Dingalan (JWGC). 23–28. C. (C.) pseudonana (Horn, 1924). 23) Habitus, lectotype male from Mt. Banahao (SDEI). 24) Left lateral view of aedeagus, lectotype from Mt. Banahao (SDEI). 25–26. Left elytron. 25) Lectotype male from Mt. Banahao (SDEI). 26) Paralectotype female (SDEI). 27–28. Labrum. 27) Lectotype male from Mt. Banahao (SDEI). 28) Paralectotype female (SDEI).



Figures 29–41. Cylindera (Cylinderina). All scales = 1 mm. 29–35. C. (C.) werneri Wiesner, 1988. 29) Habitus, holotype male from National Forest Park (ZSMC). 30–32. Left elytron. 30) Holotype male from National Forest Park (ZSMC). 31) Male from Quezon Park (SDEI). 32) Paratype female from National Forest Park (JWGC). 33–34. Labrum. 33) Holotype male from National Forest Park (ZSMC). 34) Paratype female from National Forest Park (JWGC). 35) Left lateral view of aedeagus, male from Quezon Park (SDEI). 36–41. C. (C.) rothschildi (Horn, 1896). 36) Habitus, paratype male from Albay (SDEI). 37–38. Left elytron. 37) Paratype male from Albay (SDEI). 38) Paratype female (SDEI). 39) Left lateral view of aedeagus, paratype from Albay (SDEI). 40–41. Labrum. 40) Paratype male from Albay (SDEI). 41) Paratype female (SDEI).



Figures 42–54. Cylindera (Cylinderina). All scales = 1 mm. 42–48. C. (C.) genieri Cassola and Werner, 2003. 42) Habitus, paratype male from Balaoi (SDEI). 43) Left lateral view of aedeagus, male from Pagudpud (CDFC). 44–45. Left elytron. 44) Paratype male from Balaoi (SDEI). 45) Paratype female from Balaoi (JWGC). 46–48. Labrum. 46) Paratype male from Balaoi (SDEI). 47) Male from Pagudpud (CDFC). 48) Paratype female from Balaoi (JWGC). 49–54. C. (C.) vandenberghei Dheurle, 2016. 49) Habitus, paratype female from Santa Ana (JWGC). 50) Left lateral view of aedeagus, paratype from Santa Ana (CDFC). 51–52. Left elytron. 51) Paratype male from Santa Ana (CDFC). 52) Paratype female from Santa Ana (JWGC). 53–54. Labrum. 53) Paratype male from Santa Ana (CDFC). 54) Paratype female from Santa Ana (JWGC).