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# Three new species of *Phaea* Newman (Coleoptera: Cerambycidae), with discussion of the need for and designation of a lectotype for *Phaea rufiventris* Bates

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# Three new species of *Phaea* Newman (Coleoptera: Cerambycidae), with discussion of the need for and designation of a lectotype for *Phaea rufiventris* Bates

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**Abstract.** Three new species of *Phaea* Newman, 1840 (Coleoptera: Cerambycidae) are described from Mexico: *P. quadrimaculata* Wappes and Santos-Silva, **new species**; *P. aurantia* Wappes and Santos-Silva, **new species**; and the third, *P. tavakiliani* Wappes and Santos-Silva, **new species**, whose specimens were found within the type series of *Phaea rufiventris* Bates, 1872. Hence, a lectotype is designated for the latter and the new species is described herein.

[The first author, James E. Wappes, submitted this manuscript and initially served as the corresponding author, but passed away prior to its publication.]

**Key words.** Tetraopini, Latin America, longhorned beetles, North America, taxonomy.

**ZooBank registration.** urn:lsid:zoobank.org:pub:47B0AAD2-AB9E-4E43-90DE-80B0523253DC

## Introduction

*Phaea* Newman, 1840 is a New World genus in the tribe Tetraopini. Originally described for just one species, *P. saperda* Newman, 1840, by the end of the 19th century it was comprised of 31 species with most described by Bates (21 species) and others by Haldeman (1), LeConte (2), Gahan (1), Thomson (1), and Pascoe (4). During the 20th century another 39 species were added by Casey (1), Melzer (5), Chemsak and Linsley (3), and Chemsak (30). Collectively, 12 of these are currently in synonymy. Since then, just six species have been added and with the three new species described herein the current total is 67. The revision by Chemsak (1999) included a multi-character key, redescription of the then 58 species known with a color illustration of each. It remains a valuable reference today.

*Phaea* are small to moderate sized (6.5–11.5 mm), elongate and cylindrical in shape, with the integument varying from nearly all black, accented by brighter colors, to almost all orange or red.

Few of the species have been associated with larval hosts but adults are often found perched or leaf chewing on sapotaceous plants. Based on collecting experience many of the larger species are to be found on trees while the smaller species can be taken on smaller roadside or trailside vines and plants.

## Materials and Methods

Photographs were taken in the MZSP with a Canon EOS Rebel T3i DSLR camera, Canon MP-E 65 mm f/2.8 1–5× macro lens, controlled by Zerene Stacker AutoMontage software. Measurements were taken in mm using a measuring ocular Hensoldt/Wetzlar - Mess 10 in the Leica MZ6 stereomicroscope, also used in the study of the specimens.

The acronyms used in the text are as follows:

**ACMT** American Coleoptera Museum (James Wappes), San Antonio, Texas, USA
**FSCA** Florida State Collection of Arthropods, Gainesville, Florida, USA
**MNHN** Muséum national d'Histoire naturelle, Paris, France
**MZSP** Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil

# Results

## *Phaea quadrimaculata* Wappes and Santos-Silva, new species

(Fig. 1–4)

**Description. Female.** Head mostly orangish; postclypeus brown; third of labrum close to anteclypeus dark brown, and anterior ⅔ reddish brown; apex of genae brownish; mandibles dark reddish brown on center of basal half, except margins black, black on posterior half; palpi mostly black; antennae nearly black. Prothorax mostly orangish, lighter than head; pronotum with four circular black maculae, two on anterior third, two on posterior third; sides of prothorax with large black macula posteriorly, gradually widened from apex of anterior third to posterior margin; prosternum narrowly darkened on sides of area close to procoxal cavities. Ventral surface of meso- and metathorax, scutellum, elytra, abdominal ventrites, and legs black.

**Head.** Frons finely and sparsely punctate, with short, yellowish pubescence (almost indistinct depending on angle of light source), with abundant, short, erect brown setae interspersed throughout, and long, erect blackish setae interspersed laterally on inferior region. Vertex with fine, sparser punctures (punctures nearly absent close to prothorax); with abundant yellowish pubescence not obscuring integument (more grayish-white depending on light intensity and angle), with long, erect dark setae interspersed between antennal tubercles and upper eye lobes. Area behind upper eye lobes nearly smooth, with pubescence as on vertex, with long, erect black setae interspersed close to eye; area between eye lobes coarsely punctate anteriorly, nearly smooth close to prothorax, nearly lacking pubescence, with long, erect dark setae; area behind lower eye lobes tumid, with sparse, short yellowish setae, with long, erect dark setae close to eye, smooth, glabrous close to prothorax. Genae finely striate-punctate, especially centrally toward dorsal surface; with sparse yellowish pubescence, more abundant near apex, with long, erect dark setae interspersed on central region. Postclypeus with bristly yellowish-white pubescence on wide central area (pubescence denser and longer on sides of this area), with a few long, erect brownish setae interspersed, glabrous laterally. Labrum coplanar with anteclypeus at posterior third, oblique at anterior ⅔; mostly glabrous on posterior third, with yellowish pubescence on central third, with long, erect setae of same color interspersed, anterior third glabrous. Antennal tubercles frontally with sculpturing as on frons, punctures sparser, finer toward apex, sparsely punctate toward upper eye lobes; with yellowish pubescence not obscuring integument frontally, nearly absent toward upper eye lobes, denser, bristly near apex throughout; with long, erect, sparse dark setae, more abundant toward apex. Area between base of antenna and lower eye lobes with long, erect, abundant dark setae. Gulamentum smooth, glabrous, except for nearly vertical anterior area with yellowish pubescence not obscuring integument, with a few long, erect brownish setae interspersed. Distance between upper eye lobes 0.73 times length of scape (0.40 times distance between outer margins of eyes); in frontal view, distance between lower eye lobes 1.30 times length of scape (0.71 times distance between outer margins of eyes). Antennae 1.3 times elytral length, almost reaching posterior fifth of elytron. Scape flattened dorso-ventrally; finely, densely rugose-punctate, especially dorsally; with light yellowish-brown bristly pubescence not obscuring integument, with long, erect brownish setae interspersed, longer ventrally. Pedicel and antennomeres with light yellowish-brown pubescence; pedicel and antennomeres III–X with long, erect dark setae ventrally, setae sparser toward X; dorsal apex of antennomeres III–X with a few long, erect setae. Antennal formula (ratio) based on length of antennomere III: scape = 1.17; pedicel = 0.27; IV = 1.02; V = 0.94; VI = 0.82; VII = 0.74; VIII = 0.63; IX = 0.59; X = 0.51; XI = 0.59.

**Thorax.** Prothorax slightly wider than long; sides sinuous, with central region not distinctly projected. Pronotum with central umbone large, from anterior third to near posterior margin, not strongly elevated, gradually inclined on margins; finely sparsely punctate, punctures sparser on umbone; circular black areas slightly depressed; with yellowish pubescence not obscuring integument, sparser on umbone; with long, erect dark setae,


**Figures 1–8.** *Phaea* spp. **1–4)** *Phaea quadrimaculata*, holotype female. **1)** Dorsal habitus. **2)** Ventral habitus. **3)** Lateral habitus. **4)** Head, frontal view. **5–8)** *Phaea aurantia*, holotype male. **5)** Head, frontal view. **6)** Dorsal habitus. **7)** Umbone, lateral view. **8)** Ventral habitus.

distinctly denser inside of black macula and on posterior area of umbone. Sides of prothorax finely, sparsely punctate, punctures sparser on central gibbosity; with yellowish pubescence not obscuring integument, sparser on central gibbosity, with long, erect dark setae interspersed, more abundant on base. Prosternum nearly microscopic striate-punctate; with yellowish pubescence not obscuring integument (more grayish-white depending on light intensity), with long, erect setae of same color interspersed. Prosternal process noticeably narrow centrally; with yellowish-white pubescence partially obscuring integument. Ventral surface of meso- and metathorax with yellowish pubescence not obscuring integument (more grayish-white depending on light intensity), more erect, sparser and seta-shaped on metaventrite. Scutellum with yellowish pubescence not obscuring integument, with abundant, erect dark setae interspersed. **Elytra.** Coarsely, abundantly punctate on basal third, punctures gradually finer, denser toward apex, except humerus nearly smooth; apex individually rounded; with abundant grayish-white pubescence not obscuring integument, with long, erect dark setae interspersed, longer on basal third. **Legs.** Femora with yellowish pubescence not obscuring integument, denser ventrally, with long, erect setae of same color interspersed. Tibiae with abundant yellowish pubescence not obscuring integument, with long, erect dark setae, denser dorsally and ventrally.

**Abdomen.** Ventrites with grayish-white pubescence not obscuring integument, more bristly centrally on I–IV, pubescence sparser on central area of I, denser throughout on V, with long, erect yellowish setae interspersed on I–IV, and dark setae on V; central area of ventrite V, finely, longitudinally sulcate from base to apex; apex of ventrite V nearly truncate.

**Dimensions in mm.** Total length, 11.25; prothoracic length, 2.00; anterior prothoracic width, 1.90; posterior prothoracic width, 2.05; widest prothoracic width, 2.30; humeral width, 2.50; elytral length, 7.35.

**Type material.** Holotype female from MEXICO, CHIAPAS: Aqua Ceros [= El Aquacero], 40 km west Tuxtla Gutierrez, 21.VI.1987, W.F. Chamberlain col. (FSCA, formerly ACMT).

**Etymology.** Named for the four, distinctive, small, circular black maculae of the pronotum.

**Remarks.** *Phaea quadrimaculata* sp. nov. resembles *P. laurieae* Chemsak, 1999 but differs as follows: scape flattened dorso-ventrally, not widened toward apex, lacking large and noticeably projected asperities apically; pronotum with four black circular maculae; pronotal umbone finely, sparsely punctate; elytra entirely black; elytra nearly parallel-sided. In *P. laurieae*, the scape is conical, gradually widened toward apex with prominent asperities apically, pronotum is not flattened dorso-ventrally; pronotum with only two black circular maculae, pronotal umbone is coarsely, irregularly punctate, elytra with centrobasal area reddish, and elytra gradually widened toward apex.

In the key from Chemsak (1999), *Phaea quadrimaculata* can be included in the alternative of couplet "20":

20′(19). Pronotal umbone not black nor contrasting with areas around it; Mexico (Chiapas) . . . . . ***P. quadrimaculata* Wappes and Santos-Silva, sp. nov.**

— Pronotal umbone black or partially black distinctly contrasting with areas around it . . . . . **20**

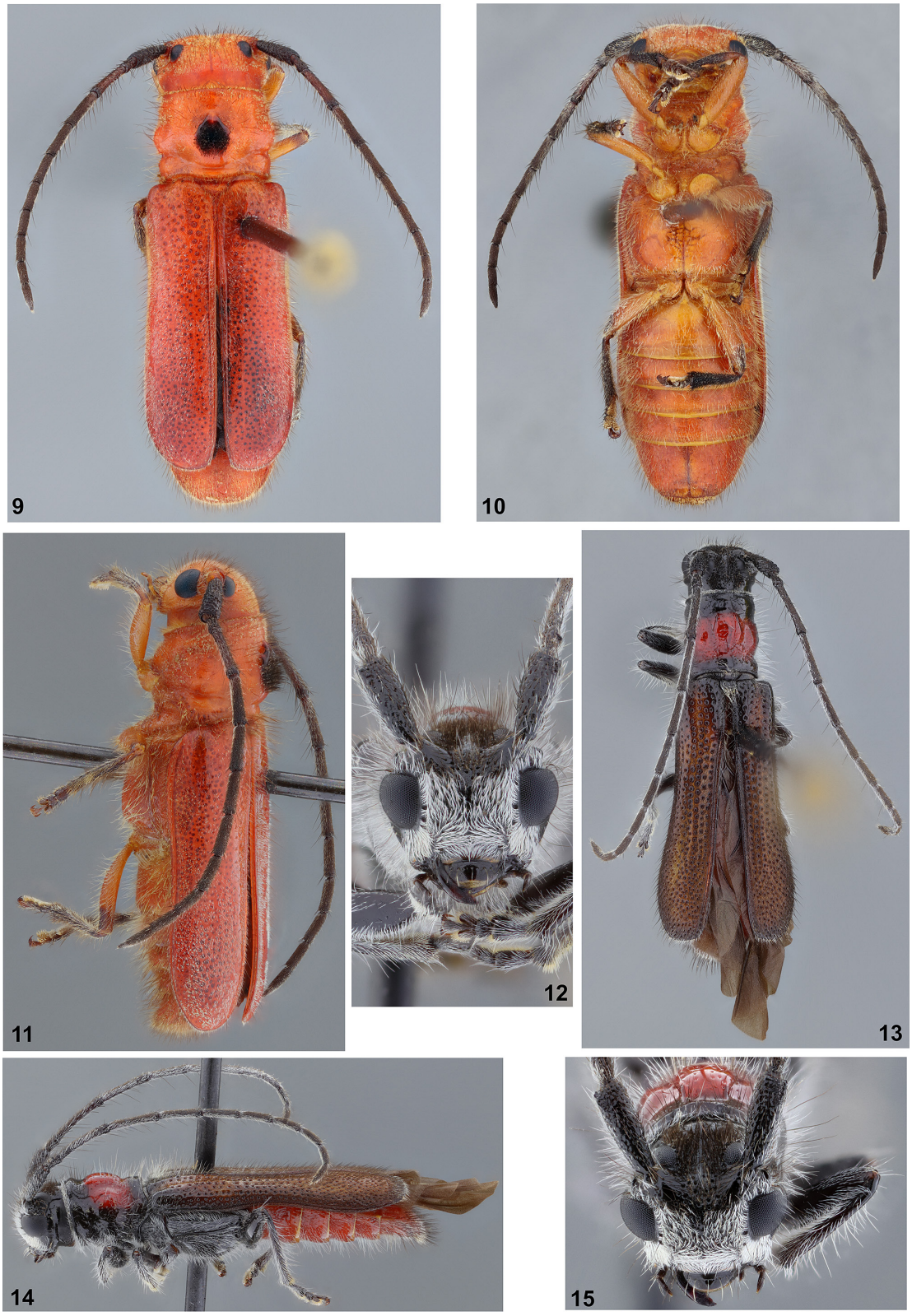
20(20′). Elytra with apical half black, anterior margin of dark area extending obliquely back from suture, head and pronotum usually reddish orange, elytra basally yellowish, humeri and small area behind scutellum dark. Length, 8–11.5 mm; Mexico (Tamaulipas, San Luis Potosí, Nuevo León, Veracruz, Yucatán) . . . . . ***P. tricolor* Bates, 1881**

— Elytra reddish with apical third transversely black, (rarely all black), head and pronotum reddish, pronotum with one or two discal black spots. Thoracic umbone large, sides vaguely angulate. Length, 9–13.5 mm; Mexico (Jalisco, Morelos, Guerrero, Oaxaca, Chiapas), Honduras, Nicaragua, Costa Rica (Guanacaste), Panama (Panama) . . . . . ***P. hoegei* Bates, 1881**

### *Phaea aurantia* Wappes and Santos-Silva, new species

(Fig. 5–11)

**Description. Holotype male** (Fig. 5–8). Integument mostly bright orange; outer side of mandibles brownish on margins of basal half, entirely black on apical half; anterior half of labrum brown; sides of postclypeus and apex of genae brownish; antennae dark brown, almost black; dorsal surface of pronotal umbone black; elytra bright orange; apex of meso- and metafemora black, more so on metafemora; tibiae and tarsi dark brown, almost black.




**Figures 9–15.** *Phaea* spp. **9–11)** *Phaea aurantia.* **9)** Dorsal view, paratype female. **10)** Ventral view, paratype female. **11)** Lateral view, holotype male. **12–15)** *Phaea tavakiliani*, holotype male. **12)** Head, frontal view. **13)** Dorsal habitus. **14)** Lateral habitus. **15)** Head, oblique view.

**Head.** Frons finely, sparsely punctate (punctures sparser centrally toward clypeus; with bristly yellowish pubescence not obscuring integument (depending on light intensity can appear grayish-white), or depending on the viewing angle appear to be absent, with long, abundant dark setae interspersed. Vertex and area behind upper eye lobes with sculpturing pubescence and erect setae as on frons (punctures slightly sparser). Area behind lower eye lobes tumid, with a few fine punctures close to eye, smooth close to prothorax; with sparse yellowish pubescence, and long, erect dark setae on tumid area, glabrous close to prothorax. Genae with a few fine punctures; with yellowish pubescence not obscuring integument, with long, erect dark setae interspersed (part of them yellowish basally), except glabrous apex. Postclypeus with sparse yellowish pubescence on wide central area, with long, erect setae of same color interspersed, especially on sides of this area, glabrous laterally. Labrum coplanar with anteclypeus at posterior half, oblique at anterior half; with a few fine punctures on coplanar area near oblique area; glabrous, with a few long, erect yellowish setae on coplanar area near oblique area. Antennal tubercles with sculpturing, pubescence (except glabrous apex), and erect setae as on frons (pubescence less conspicuous toward upper eye lobes). Gulamentum smooth, glabrous, with a few long, erect, dark setae on anterior margin. Distance between upper eye lobes 0.80 times length of scape (0.38 times distance between outer margins of eyes); in frontal view, distance between lower eye lobes 1.36 times length of scape (0.64 times distance between outer margins of eyes). Antennae 1.45 times elytral length, slightly surpassing elytral apex. Scape gradually widened toward apex, not flattened, finely, abundantly punctate, posterior third of outer side asperate; with bristly yellowish pubescence not obscuring integument, with long, erect dark setae interspersed throughout, longer ventrally. Pedicel and antennomeres with yellowish pubescence, denser, less conspicuous from antennomere IV; pedicel and antennomeres III–X with long, erect dark setae ventrally (gradually shorter and sparser toward X). Antennal formula (ratio) based on length of antennomere III: scape = 1.00; pedicel = 0.28; IV = 0.96; V = 0.82; VI = 0.76; VII = 0.72; VIII = 0.62; IX = 0.60; X = 0.56; XI = 0.70.

**Thorax.** Prothorax wider than long; anterior and posterior constrictions well marked; sides with rounded central tubercle large, projected. Pronotum with central umbone large, subdiamond-shaped, sides vertical anteriorly, oblique posteriorly; vertical area with two coarse, deep, subelliptical punctures on each side; dorsal surface with dense, erect dark brown setae. Remaining surface of prothorax nearly smooth; with yellowish-white pubescence not obscuring integument (depending on light intensity can appear more grayish-white), depending on the viewing angle pubescence can appear to be absent, with long, abundant, erect dark brown setae interspersed. Sides of prothorax with pubescence and erect setae as on sides of pronotum, except for lateral tubercle nearly lacking pubescence. Prosternum with a few fine punctures laterally; with yellowish-white pubescence not obscuring integument (more grayish-white depending on light intensity), indistinct centrally depending on the viewing angle, with long, erect setae of same color interspersed. Prosternal process noticeably narrow centrally. Metaventrite nearly glabrous centrally; mesanepisternum and mesepimeron with yellowish-white pubescence not obscuring integument (more grayish-white depending on light intensity). Metanepisternum with yellowish-white pubescence not obscuring integument (more grayish-white depending on light intensity), longer and more distinct than on mesanepisternum, with long, erect setae of same color interspersed. Sides and posterior area of metaventrite with long, abundant, erect yellowish setae (sparser and shorter centrally or even absent on some areas). Scutellum with sparse yellowish pubescence, with long, erect, abundant yellowish setae (some of them brown). **Elytra.** Coarsely, sparsely punctate on anterior half, punctures gradually finer toward apex; apices individually rounded; with grayish-white pubescence not obscuring integument, distinctly sparser on dorsal surface of anterior quarter, with long, erect, abundant setae of same color interspersed (some brown setae on margins, especially toward apex). **Legs.** Femora with yellowish pubescence not obscuring integument, denser, bristly ventrally, with long, erect, abundant setae of same color interspersed ventrally. Tibiae with yellowish-white pubescence not obscuring integument, with long, erect setae of same color interspersed dorsally (some of them brownish).

**Abdomen.** Ventrites with abundant long, erect, yellowish setae laterally and on apex of I–IV, distinctly sparser on central area of I–IV; ventrite V with long, erect, sparse dark setae interspersed throughout; apex of ventrite V widely rounded.

**Female** (Fig. 9–10). Differs from male by the shorter antennae (1.2 times elytral length, almost reaching posterior quarter of elytra), and abdominal ventrite V with shallow, narrow blackish sulcus centrally from base to apex.

**Dimensions in mm** (male holotype/female paratypes). Total length, 8.90/10.40–10.60; prothoracic length, 1.95/1.95–2.10; anterior prothoracic width, 1.85/2.25–2.30; posterior prothoracic width, 2.10/2.40–2.45; widest prothoracic width, 2.35/2.60–2.65; humeral width, 2.65/2.95–3.10; elytral length, 5.90/6.25–6.60.

**Type material.** Holotype male from MEXICO, CHIAPAS: Simojovel, 8–10.VI.1991, R. Mendoza col. (FSCA, formerly ACMT). Paratypes – 2 females, same data as holotype (ACMT, MZSP).

**Etymology.** Named for the primarily bright orange integumental color.

**Remarks.** *Phaea aurantia* sp. nov. is similar to *P. carnelia* Chemsak and Linsley, 1988 (see photographs on Bezark 2020b), but differs as follows: antennomeres thicker, entirely dark; scape asperate at outer side; pronotal umbone subdiamond-shaped. In *P. carnelia*, the antennomeres are slender and with basal yellowish ring, scape is not asperate at outer side, and the pronotal umbone is subchordate-shaped.

According to the alternative of couplet "37" from Chemsak (1999): "37(36) Elytra reddish or with dark apices or dark longitudinal fasciae behind humeri… 38 / Elytra orange or mostly dark or with apical ½ dark.... 40." Often, delimiting the difference between "orange" and "reddish" is difficult, as the intensity of light can make the color appear to be one or the other or somewhere in-between. If the elytra are considered reddish, the new species can be included in the alternative of couplet "39" (modified):

39(38). Elytra with posterior area black; pronotal umbone lacking dark erect setae; Mexico (Chiapas, Oaxaca) . . . . . ***P. noguerai* Chemsak, 1999**

— Elytra with posterior area not contrasting in color with remaining surface; pronotal umbone with dark erect setae . . . . . **39′**

39′(39). Scape strongly asperate at outer side, bicolorous; Mexico (Jalisco, Morelos, Guerrero, Puebla, Oaxaca, Chiapas) . . . . . ***P. maccartyi* Chemsak, 1999**

— Scape slightly asperate at outer side, unicolorous; Mexico (Chiapas) . . . . . ***P. aurantia* Wappes and Santos-Silva, sp. nov.**

Considering the elytra orangish, the new species can be included in the alternative of couplet "40":

40(37). Pronotal umbone black; Mexico (Chiapas) . . . . . ***P. aurantia* Wappes and Santos-Silva, sp. nov.**

— Pronotal umbone orangish . . . . . **40′**

40′(40). Elytra usually with at least apical ½ black, head, pronotum and legs orange; pubescence dense, grayish, appressed, partially obscuring surface on dark portion of elytra. Length, 8.5–15 mm; El Salvador, Guatemala, Honduras, Nicaragua, Costa Rica, Panama . . . . . ***P. giesberti* Chemsak, 1999**

— Elytra mostly vaguely metallic bluish black (females) or orange with vague narrowly black apices (males), head and pronotum reddish orange; pubescence fine, dark on dark surface, not obscuring surface. Length, 8.5–16 mm; Colombia . . . . . ***P. astatheoides* Pascoe, 1866**

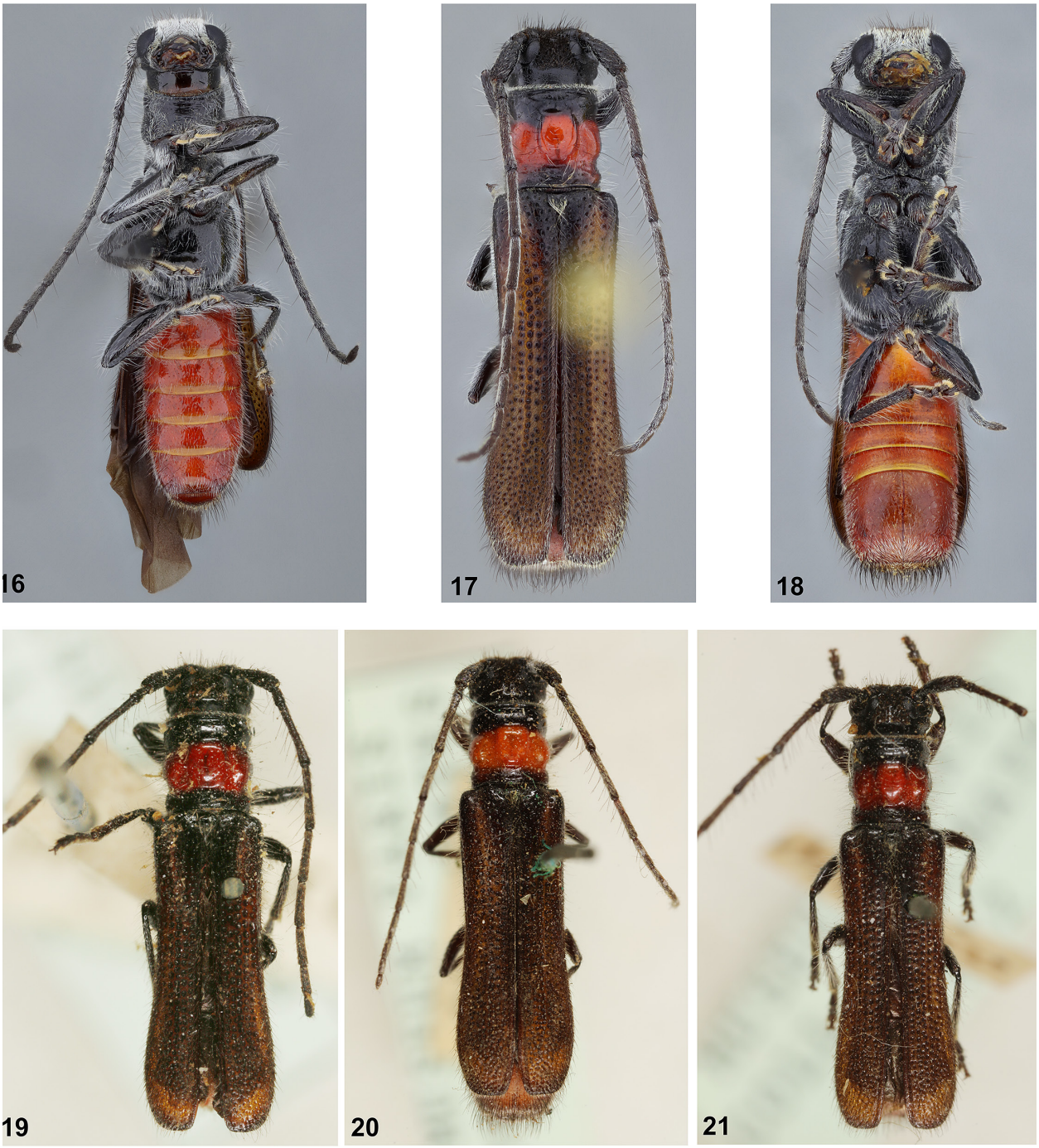
## *Phaea tavakiliani* Wappes and Santos-Silva, new species

(Fig. 12–21)

*Phaea rufiventris* Bates 1872: 228 (part); Gemminger 1873: 3205 (cat.; part); Chemsak 1999: 77 (part).

**Description. Holotype male** (Fig. 12–16). Head mostly black; mouthparts reddish-brown except palpomeres black; prothorax black except wide central area of pronotum dark reddish from about anterior third to about posterior sixth; ventral surface of meso- and metathorax, and legs black; abdominal ventrites reddish, except apex of I–IV yellowish brown; scutellum black; elytra basally black, on triangular circum-scutellar area, humeral area (this region projected on basal fifth), on narrow longitudinal band along suture, and on sides, with wide longitudinal brownish band close to black sutural band, and remaining surface dark yellowish-brown.

**Head.** Frons finely, abundantly punctate, with slightly coarser punctures interspersed; with grayish-white pubescence almost obscuring integument, with long, erect dark setae interspersed. Vertex with sculpturing as on frons, punctures gradually sparser toward prothorax; with bristly, abundant brownish pubescence not obscuring integument, which depending on angle of viewing can be indistinct, with long, erect dark setae interspersed. Area behind upper eye lobes superiorly with sculpturing, pubescence, and erect setae as on vertex, smooth, glabrous inferiorly. Area between eye lobes finely punctate anteriorly, smooth toward prothorax, with one long, erect dark




**Figures 16–21.** *Phaea* spp. **16-18)** *Phaea tavakiliani*, **16)** Ventral habitus, holotype male. **17)** Dorsal habitus, paratype female. **18)** Ventral habitus, paratype female. **19–21)** Syntypes of *Phaea rufiventris*, dorsal habitus. **19)** Male. **20)** Female. **21)** Male.

seta emerging from each puncture. Area behind lower eye lobes tumid, finely, sparsely punctate superiorly, finely, transversely striate close to gena; finely, sparsely punctate close to prothorax; with long, erect, sparse dark setae on tumid area. Genae with dense grayish-white pubescence obscuring integument (whiter depending on light intensity), toward clypeus, sparser toward ventral surface, with long, erect dark setae interspersed. Postclypeus with a few fine punctures on wide central area; with grayish-white pubescence obscuring wide central area,

glabrous laterally; with a few long, erect dark setae on pubescent area. Labrum coplanar with anteclypeus at posterior ⅔, oblique at anterior third; with transverse row of fine punctures with long, erect yellowish-white setae on middle of coplanar area, smooth and glabrous on remaining coplanar area and anterior third. Antennal tubercles coarsely, abundantly punctate frontally, nearly smooth toward upper eye lobe; with pubescence and setae on frontal area as on frons, less so near apex, with short, sparse, bristly brownish setae, and long, erect, both dark and yellowish-white setae toward upper eye lobe. Gulamentum smooth, glabrous, except long, erect, sparse yellowish-white setae on anterior margin. Distance between upper eye lobes 0.54 times length of scape (0.31 times distance between outer margins of eyes); in frontal view, distance between lower eye lobes 0.95 times length of scape (0.54 times distance between outer margins of eyes). Antennae 1.5 times elytral length, slightly surpassing elytral apex. Scape gradually widened in anterior third, nearly parallel-sided toward apex, not flattened dorsoventrally, finely, abundantly punctate, finely asperate on posterior third of outer side; with sparse yellowish-white pubescence, with long, erect, both yellowish-white and dark setae interspersed, longer ventrally. Pedicel and antennomeres with yellowish-white pubescence not obscuring integument, with long, erect dark setae ventrally except on antennomere XI (erect setae gradually sparser and shorter toward X). Antennal formula (ratio) based on length of antennomere III: scape = 0.73; pedicel = 0.21; IV = 0.90; V = 0.73; VI = 0.63; VII = 0.57; VIII = 0.50; IX = 0.47; X = 0.38; XI = 0.37.

**Thorax.** Prothorax slightly longer than wide; anterior and posterior constriction well marked, more so laterally on posterior one; sides centrally with distinct, moderately large gibbosity. Pronotum with central umbone large, with anterior margin nearly truncate, posterior area rounded, sides of anterior half vertical (concave, with coarse, shallow punctures indicated), and sides of posterior half oblique; dorsal surface of umbone coarsely and sparsely punctate, with long, sparse, erect yellowish-white setae, nearly absent centrally; remaining pronotal surface with sparse, fine punctures, except black posterior area with coarser and denser punctures dorsally, and striate laterally; with long, erect, grayish-white setae, more abundant laterally on posterior half. Sides of prothorax coarsely, sparsely punctate (punctures more abundant centrally); with long, erect grayish-white setae, more abundant on posterior ⅔ and close to prosternum. Prosternum finely, transversely striate centrally; with abundant, bristly grayish-white pubescence, except on center of anterior half, with long, erect setae of same color interspersed. Central area of prosternal process distinctly narrowed. Ventral surface of mesothorax, metanepisternum, and sides of metaventrite with grayish-white pubescence, partially obscuring integument on some areas; remaining surface of metaventrite with long, both subdecumbent and erect grayish-white setae, sparser centrally. Scutellum with long, abundant grayish-white setae, especially on posterior ⅔. **Elytra.** Coarsely, abundantly punctate, punctures finer, denser toward apex; sides slightly narrowed centrally, expanded posteriorly; apex truncate; with yellowish-white pubescence not obscuring integument, denser posteriorly, nearly absent on some areas of anterior half, with long, erect setae of same color interspersed, distinctly denser on sutural area of basal third. **Legs.** Femora with grayish-white pubescence, distinctly denser, bristly ventrally, with long, erect setae of same color interspersed. Tibiae with yellowish-white pubescence not obscuring integument (whiter depending on light intensity), bristly toward apex, with long, erect setae of same color interspersed.

**Abdomen.** Ventrites finely, sparsely punctate; ventrites I–IV with grayish-white pubescence, denser laterally, distinctly sparser centrally, except apex glabrous, with long, erect setae of same color interspersed; ventrite V slightly convex, with distal third depressed, and apex truncate; ventrite V with grayish-white pubescence, sparser on centrobasal area, with long, erect dark setae interspersed.

**Female** (Fig. 17–18, 20). Differs from male by the shorter antennae (1.25 times elytral length, reaching about posterior fifth of elytra), abdomen distinctly surpassing elytral apex, and abdominal ventrite V distinctly convex, with shallow, narrow blackish sulcus centrally from base to apex.

**Dimensions in mm** (male holotype/female paratypes). Total length, 9.05/8.70–10.00; prothoracic length, 1.65/1.50–1.70; anterior prothoracic width, 1.50/1.40–1.65; posterior prothoracic width, 1.55/1.40–1.70; widest prothoracic width, 1.60/1.45–1.75; humeral width, 2.00/1.80–2.25; elytral length, 6.80/5.80–6.85. Paratypes deposited at MNHN were not measured, except total length (8.5 mm and 9.4 mm) of two *P. rufiventris* syntypes.

**Type material.** Holotype male from MEXICO, GUERRERO: 32 mi. W Iguala, 5200', 10.VII.1970, E. Fisher and P. Sullivan col. (FSCA, formerly ACMT). Paratypes – MEXICO, OAXACA: Huajuapan, 1 female, 25.VIII.1969, L.A. Kelton col. (MZSP). PUEBLA: 5 mi. SW Chapulco, 5800', 14.VII.1970, E. Fisher and P. Sullivan col. (ACMT).

**Etymology.** This species is dedicated to our friend Gérard L. Tavakilian (MNHN) in recognition of his many contributions to the knowledge of the Cerambycidae, and for his frequent, willing consultation and help to the authors.

**Remarks.** See following comments on *P. rufiventris* Bates, 1872.

### *Phaea rufiventris* Bates, 1872

(Fig. 22–29)

*Phaea rufiventris* Bates 1872: 228; Gemminger 1873: 3205 (cat.); Bates 1881: 196 (distr.); Aurivillius 1923: 574 (cat.); Gilmour 1965: 652 (cat.); Chemsak et al. 1992: 155 (checklist); Chemsak and Noguera 1993: 69; Monné and Giesbert 1994: 278 (checklist); Monné 1995: 29 (cat.); Noguera and Chemsak 1996: 407 (checklist); Chemsak 1999: 77; Toledo et al. 2002: 532 (distr.); Noguera et al. 2002: 626 (distr.); Monné 2005: 656 (cat.); Monné and Hovore 2006: 299 (checklist); Bezark 2020a: 347 (checklist); Monné 2020: 941 (cat.).

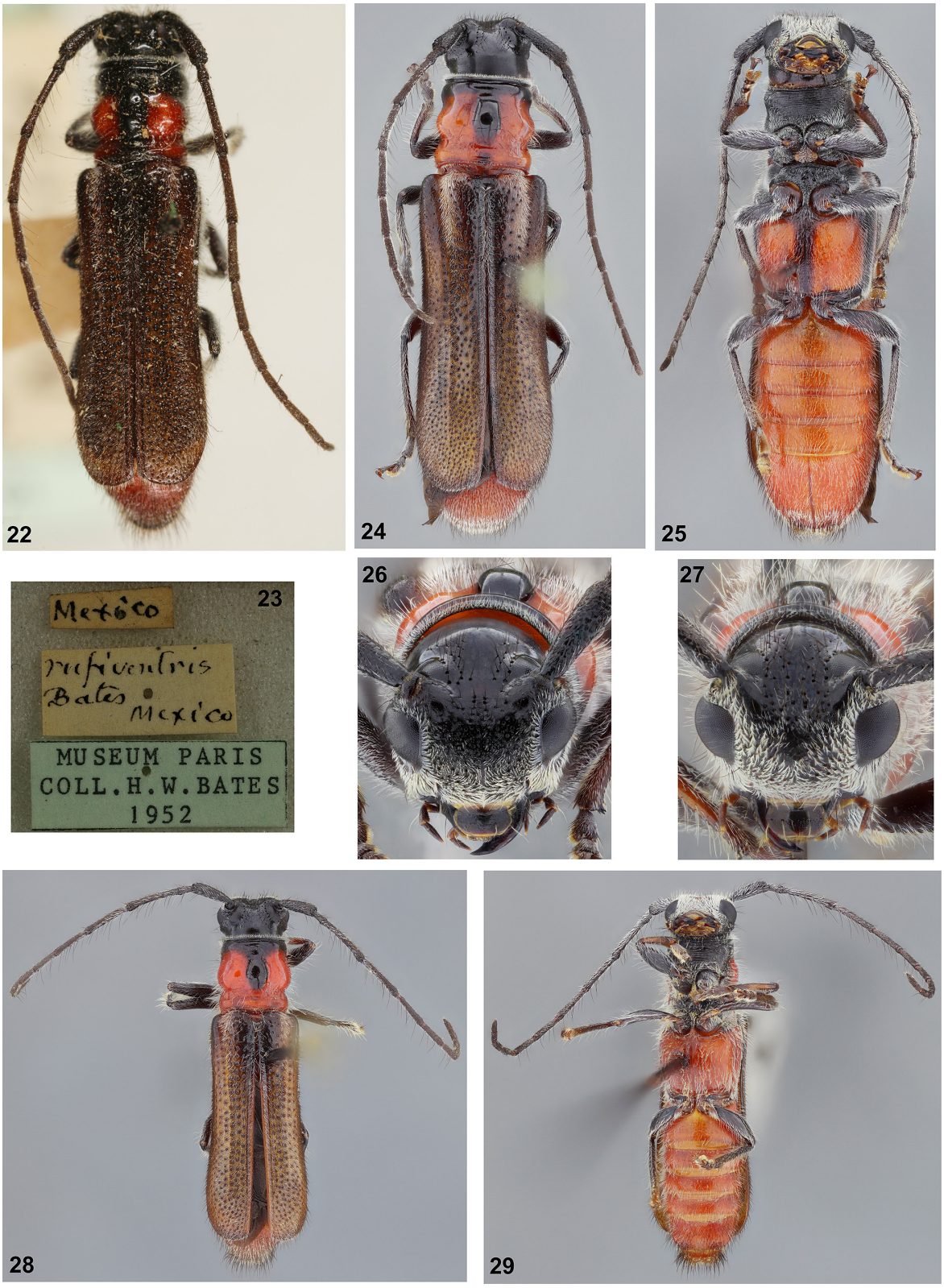
According to Bates (1872) (translated): "Elongated, sublinear, black shiny, setose, abdomen coccineus, elytra brownish-black; masculine thorax with transverse median coccineus band, and feminine thorax with large posterolateral coccineus macula; head punctate; umbone three times longer than wide, slightly punctate, shiny; elytra not coarsely, lineate punctate, irregularly punctate toward apex." Still according to him: "The female is much larger than the male, and the tubercles of the thorax are much more elevated. Besides the sexual difference in colour mentioned above, the female has a red spot on each side of the metasternum." Actually, the type series of *Phaea rufiventris* is composed of two different species which are very similar in general appearance. We examined males and females of both species and determined that the difference in color of the prothorax is not variable and thus, is not sexually dimorphic. Two male syntypes and one female syntype of *P. rufiventris* (Figs. 19–21) belong to the new species described here: *P. tavakiliani*. *Phaea rufiventris* differs from *P. tavakiliani* as follows: Length usually larger (with exceptions); pronotum with umbone black, with the black and transverse anterior band forming a T-shaped macula; vertex lacking dense and bristly pubescence; elytra with dense, oblique pubescent band on anterior third of the dorsal surface. In *P. tavakiliani*, the length is usually smaller, the pronotum has a transverse black band anteriorly and another posteriorly (posterior black band may be partially absent), vertex with dense and bristly pubescence, and elytra lacking oblique pubescent band anteriorly, contrasting with the pubescence around it. Furthermore, the anterior area of the pronotal umbone is usually narrower in *P. rufiventris*, but intermediate forms were observed in both species. Bates pointed out that the umbone in females is more elevated, but we find that they are identical, or nearly so, in males and females of both species (intra- and interspecifically). Also, the reddish macula on the metasternum may be absent, or the metasternum may be mostly reddish in *P. rufiventris*. In summary, two features can be used to separate these species: 1.) vertex with dense pubescence in *P. tavakiliani* (absent in *P. rufiventris*); and 2.) pronotal umbone reddish in *P. tavakiliani* (black in *P. rufiventris*).

Except for the original description, Gemminger (1873) catalog (which mentioned only the original description), and revision by Chemsak (1999) (which mentioned variations of the color), it is not possible to know if the references on *P. rufiventris* belong to this species, to *P. tavakiliani*, or to both species. This would only be possible by examining the specimens used to establish the record. However, at least in some cases, since the specimens were not appropriately indicated by the author(s) this is not possible.

To maintain the stability of the species, we designate as lectotype the male (Fig. 22) that has the following original labels (Fig. 23):

1. White, handwritten: Mexico
2. White, handwritten: rufiventris / Bates / Mexico
3. White, printed: MUSEUM PARIS / COLL. H. W. BATES / 1952

**Material examined.** MEXICO, CHIAPAS: Aguacera [= El Agaucero], 16 km W Ocozocoautla, 2,500′, 2 males, 26–28.VI.1986, J. E. Wappes col. (ACMT); 1 male, 1–7.VII.1986, J. E. Wappes col., (ACMT); 17 km W Tuxtla Gutierrez, 3,300′, 1 male, 1–8.VII.1986, J. E. Wappes col. (ACMT). GUERRERO: Iguala, 7500–8000′, 1 female, 21.VII.1962, H. E. Milliron col. (MZSP). JALISCO: 7 km N of Malacque. 1 male, 16–19.VII.1990, J. E. Wappes col. (ACMT). MORELOS: Cuernavaca, 1 female, VI.1959, G. Halffter col. (MZSP); 1 female, no collector and date indicated (MZSP); Tepoxtlán, 1 female, 02.VI.1952, R. Macgregor and A. Barrera col. (MZSP); Yautepec, 1




**Figures 22–29.** *Phaea rufiventris*. **22–23)** Lectotype male. **22)** Dorsal habitus. **23)** Labels. **24–26)** Female. **24)** Dorsal habitus. **25)** Ventral habitus. **26)** Head, frontal view. **27–29)** Male. **27)** Head, frontal view. **28)** Dorsal habitus. **29)** Ventral habitus.

female, 30.VI.1956, G. Halffter col. (MZSP). SINALOA: 13 mil. E Concordia, 1500′, 1 male, 01.VIII.1964, W.R.M. Mason col. (MZSP).

**Geographical distribution.** According to Chemsak (1999), *P. rufiventris* occurs in the following Mexican states: Sinaloa, Chiapas, Nayarit, Jalisco, Colima, Guerrero, Morelos, Puebla, and Oaxaca. However, based on the material available we can only confirm Chiapas, Guerrero, Jalisco, and Morelos as valid records.

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