

University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Entomology Papers from Other Sources

Entomology Collections, Miscellaneous

9-1991

PETREJOIDES (COL: PASSALIDAE): FOUR
NEW SPECIES FROM MESOAMERICA AND
MEXICO WITH A KEY TO THE GENUS

Jack C. Schuster

Universidad del Valle de Guatemala, jschuste@uvg.edu.gt

Follow this and additional works at: <http://digitalcommons.unl.edu/entomologyother>

Schuster, Jack C., "*PETREJOIDES* (COL: PASSALIDAE): FOUR NEW SPECIES FROM MESOAMERICA AND MEXICO WITH A KEY TO THE GENUS" (1991). *Entomology Papers from Other Sources*. 134.
<http://digitalcommons.unl.edu/entomologyother/134>

This Article is brought to you for free and open access by the Entomology Collections, Miscellaneous at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Entomology Papers from Other Sources by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

PETREJOIDES (COL: PASSALIDAE): FOUR NEW SPECIES FROM MESOAMERICA AND MEXICO WITH A KEY TO THE GENUS

JACK C. SCHUSTER
Instituto de Investigaciones
Universidad del Valle de Guatemala, Apartado 82
Guatemala, GUATEMALA

ABSTRACT

Four new montane species of *Petrejoides* are described, 2 from Mexico, 1 from Guatemala and 1 from Panama. Larvae are described for 2 of the species. A revised key is given including all species of the genus.

RESUMEN

Se describen cuatro nuevas especies montanas de *Petrejoides*. Dos de Mexico, una de Guatemala y una de Panama. Se describen larvas de 2 de las especies. Se presenta una clave modificada, la cual incluye todas las especies del genero.

Most of the 14 described species of *Petrejoides* are found inhabiting rotting logs in mesophytic or cloud forests above 1000 m altitude (the only exceptions being *P. subrecticornis* (Kuwert) in wet lowland forests, and *P. orizabae* Kuwert, whose range extends down to 600 m) (Castillo and Reyes-Castillo 1984, Reyes-Castillo and Schuster 1983, Schuster 1988, 1989). With the possible exception of *P. subrecticornis*, each species is relatively restricted in its geographical range (see maps in Castillo & Reyes-Castillo 1984). Mesoamerica (Chiapas through Panama) is relatively unexplored with respect to Passalidae, especially in the montane areas. Only 5 species of *Petrejoides* are known from this region compared with 9 to the north of the Isthmus of Tehuantepec. Here I describe 1 new species to the north of the isthmus, 3 new mesoamerican species: 1 each from Chiapas, Guatemala and Panama, (Fig. 1) and present a revised key to all described species.

Diagnostic characters of the genus include: razor-thin anterior border of clypeus; a strong fronto-clypeal suture (sometimes erased in the middle); frons twice or less the length of clypeus (measured to base of median frontal structure); usually a high dorsal ridge on tibia II; and body length <33 mm. I find *Coniger* Zang to be quite similar, differing in size (>30 mm) and by having a frons length 4 times that of the clypeus. *Pseudoarrox* Reyes-Castillo is also similar; however, it lacks a fronto-clypeal suture. For explanation of morphological terminology see Reyes-Castillo (1970).

Petrejoides panamae Schuster NEW SPECIES

Figures 2d,e,f

DESCRIPTION. Head: anterior border of labrum concave, anterior angles rounded. Clypeus inclined, short (anterior-posterior), elongate-rectangular or pentagonal shaped; anterior border linear, with or without indentations, anterior angles rounded and directed downwards; smooth and shiny throughout; fronto-clypeal suture curved, absent in middle 1/6th. External tubercles small, rounded, almost absent.

Frontal area long, without frontal ridges or inner tubercles. Frontal fossae glabrous. Median frontal structure of "striatopunctatus" type, center horn elongate with pointed



Fig. 1. Distribution of 4 new species of *Petrejoidea*: open circle—*P. michoacanae*, dark circle—*P. chiapasae*, star—*P. pokomchi*, square—*P. panamae*.

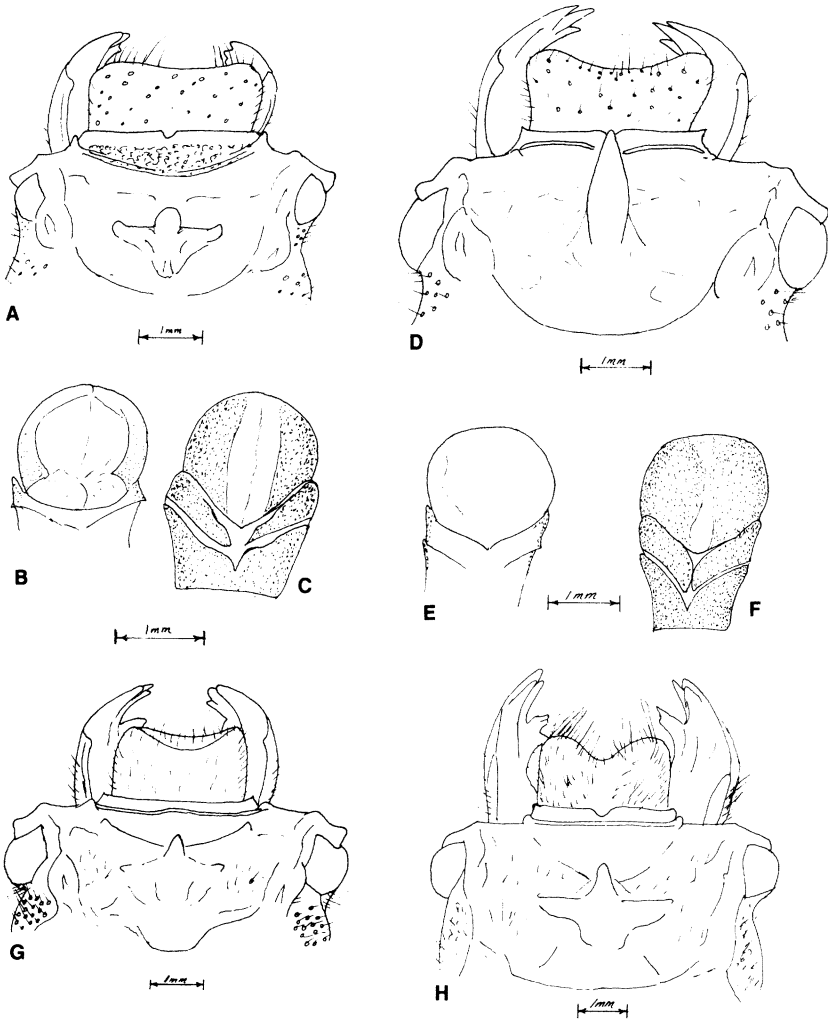


Fig. 2. New species of *Petrejoidea*. a-c. *P. pokomchii* a. head, b. aedeagus, dorsal view, c. aedeagus, ventral view; d-f. *P. panamae* d. head, e. aedeagus, dorsal view, f. aedeagus, ventral view; g. *P. chiapasae*—head; h. *P. michoacanae*—head.

INDEX WORDS: *Petrejoidea* Passalidae Mesoamerica montane

apex reaching clypeus or beyond, without median longitudinal groove, without lateral ridges. Occipital groove well marked, terminating at supraorbital ridge.

Anterior 1/2 of supraorbital ridge bituberculate, anterior tubercule more pronounced; posterior 1/2 bifurcate. Anterior cephalic angle rounded or slightly protruding. Canthus narrow or slightly swollen distally, not reaching lateral eye margin. Eyes small, dorsal width of an eye 1/10 head width (though 1/10 is the same measure as *P. guatemalae*, the eyes do not appear to be as reduced due to the small canthus).

Ligula between insertions of labial palps wide to narrow, flat. Lateral lobes of mentum with anterior external border rounded, whole surface pubescent, lateral border straight. Medial basal mentum bare, anterior border convex to slightly biconvex. Hypostomal process with slight lateral depression, separated from mentum by distance less than process width. Infraocular ridge indistinct, pubescent.

Superior and inferior apical mandibular teeth approximately same length. Dorsal tooth occupies 1/2 length of mandible. Internal tooth of left mandible bifid.

Thorax: lateral fossa of pronotum with 2-4 punctations, 2-6 punctations in lateral pronotum posterior to fossa. Pronotum with marginal groove narrow, with punctations; anterior angles rounded. Prosternum rhomboidal with post-apex truncated. Lateral margins of mesosternum shiny, marginal grooves well marked, pubescent and punctate. Center of mesosternal shield without punctations.

Metasternum with 25-35 punctations delimiting each latero-posterior side of disc, anterior angles pubescent, lateral fossa wide and very pubescent.

Anterior elytral profile convex, elytral striations marked uniformly with small, light punctations, somewhat heavier in lateral striations; junction of striations 1 and 10 with extra punctations giving appearance of 2 rows in places.

Wings: as in *P. recticornis* (Burmeister), not reduced (see Fig. 5 in Castillo and Reyes-Castillo (1984)).

Legs: femur I with antero-ventral groove distinctly marked for 4/5 of anterior border; posterior 1/2 of ventral face pubescent; dorsal ridge extends total length of tibia II, with 2 rows of setae same length as that of lateral border.

Abdomen: marginal groove of last sternite complete or almost complete. Form and coloring of aedeagus given in Figs. 2 and 3.

Dimensions (mm): total length, mandibles to tip of elytra 24.5-26, \bar{x} = 25.5, males 24.5-25, female 26; elytral length 13.8-15.0, \bar{x} = 14.5; pronotal length 5.7-6.0, \bar{x} = 5.9; pronotal width 7.8-8.0; \bar{x} = 7.9; humeral width 7.6-7.8, \bar{x} = 7.7; head width 5.4-5.6, \bar{x} = 5.5; aedeagal length 2.4.

MATERIAL EXAMINED. Four whole specimens, including 2 teneral males, 1 teneral female and 1 black adult of unknown sex, plus pieces of at least 3 other individuals, 5 third instar larvae partially decomposed (head widths: 3.8, 4.2, 4.2, 4.2, 4.5 mm).

TYPE MATERIAL. Holotype: teneral male-PANAMA, Chiriqui Dept., Respingo 7-XII-1985. Altitude 2450 m. J. C. Schuster collector. Wet *Quercus* - *Alnus* forest. In oak log 90 cm dia. Log field number PAN-2e. Will be deposited in the Florida State Collection of Arthropods in Gainesville (FSCA).

Paratypes: 3, all from same log as holotype. Types will be divided between the collections of the FSCA, Pedro Reyes-Castillo, Instituto de Ecología, Mexico; and the author's personal collection.

ETYMOLOGY. This species is named after the country where discovered.

LARVA. The larva has the same basic setal pattern of other species of *Petrejoides* (Schuster & Reyes-Castillo 1981, Schuster 1988). It differs from other *Petrejoides*, except *P. guatemalae*, in having 14 anal ring setae instead of 12. It is similar to *P. olmecae* and *P. recticornis* in having 5 or more internal coxal setae. *P. panamae* is a relatively large species, slightly smaller than *P. reyesi* (Schuster 1988). Instar III head width 3.8-4.5mm.

DISTRIBUTION AND ECOLOGY. Known only from Respingo, Chiriqui Dept., Panama at 2450 m altitude in *Quercus-Alnus* wet forest (Fig. 1). Also known from this forest are *Publius* sp. nov. and *Passalus (Pertinax)* sp. The *Publius* (= *Publius* sp. A of Schuster & Reyes-Castillo 1981) is a large high altitude species known from Costa Rica and Panama. The *Passalus* may be a new species.

AFFINITIES. *P. panamae* seems to be in the "orizabae" group; however, it lacks, or has very weak, infraocular ridges. It is similar to the "guatemalae-reyesi-salvadorae"

unit (Schuster 1989) of northern Central America in size and in lacking inner tubercles. It is distinct from all other *Petrejoides* in lacking lateral ridges on the median frontal structure.

Petrejoides pokomchii Schuster NEW SPECIES

Figure 2a,b,c

DESCRIPTION. Head: anterior border of labrum concave, anterior angles rounded. Clypeus inclined, long (anterior-posterior), almost rectangular shaped; anterior border linear with median indentation, anterior angles rounded and directed downward; posterior 1/2-2/3 rugose. External tubercles distinct, rounded.

Frontal area short, without inner tubercles. Frontal ridges absent or lightly present as short lines parallel to lateral ridges of median frontal structure. Frontal fossae glabrous. Median frontal structure of "falsus" type, center horn short with apex not free, with median longitudinal groove in posterior 1/3, lateral ridges at 90 degrees or slightly less, straight and prominent, terminal tubercles rounded and set slightly forward, pronounced. Occipital groove well marked except extreme posterior portion, terminating in frontal fossae.

Anterior 1/2 of supraorbital ridge bituberculate, anterior tubercles more pronounced; posterior 1/2 bifurcate. Anterior cephalic angle rounded or slightly protruding. Canthus swollen distally, apex rounded, protruding slightly beyond lateral eye margin. Eyes small, dorsal width of an eye less than 1/12 head width, ratio eye width to length = 0.7.

Ligula between insertions of labial palps wide, flat, pubescent or bare anteriorly. Lateral lobes of mentum with anterolateral border rounded, whole surface pubescent-punctate, lateral border straight. Medial basal mentum with abundant setae and punctations, anterior border convex. Hypostomal process narrow, without lateral depression. Infraocular ridge absent or slightly present, area very punctate-pubescent. Superior and inferior apical mandibular teeth approximately same length. Dorsal mandibular tooth occupies >1/2 mandible length. Internal tooth of left mandible bifid.

Thorax: lateral fossa of pronotum with at most 1-2 punctations, fossa may be absent; at most 1-2 other punctations on pronotum outside narrow marginal groove. Anterior angles of pronotum rounded. Prosternum rhomboidal with posterior apex truncated.

Lateral margin of mesosternum opaque, marginal grooves present only slightly. Center of mesosternal shield with at most 1 or 2 punctations.

Metasternum totally glabrous, with 2-6 punctations delimiting each latero-posterior side of disc; marginal fossa very narrow entire length, with a few short hairs.

Anterior elytral profile convex; elytral striations marked uniformly with small, light punctations, slightly heavier in lateral striations; junction of striations 1 and 10 without extra punctations. Rounded elytral form suggests reduced wings.

Legs: femur I with antero-ventral groove distinctly marked for 4/5 of anterior border; posterior 1/2 of ventral face pubescent; dorsal ridge extends most of length of tibia II, with 2 rows of setae same length as that of lateral border.

Abdomen: marginal groove occupies median 3/5 of last sternite. Form and patterning of aedeagus given in Figure 2b,c.

Dimensions (mm): total length, mandible to elytral tip 26-29, \bar{x} = 27; elytral length 13.9-16.1, \bar{x} = 14.8; pronotal length 6.2-7.0, \bar{x} = 6.5; pronotal width 8.2-9.0, \bar{x} = 8.5; humeral width 7.7-8.6, \bar{x} = 8.3; head width 5.4-6.0, \bar{x} = 5.6; eedeagal length 2.3-2.6, \bar{x} = 2.4 (n = 4 for all measurements, except total body length and aedeagal length n = 3).

MATERIAL EXAMINED. Three whole specimens and 1 specimen found in pieces, and 1 instar II larva (head width 3.1 mm).

TYPE MATERIAL. Holotype: male-GUATEMALA, El Progreso Dept., Cerro Pinalón above Los Albores. 1-VII-1989. Altitude 2710 m. J. C. Schuster collector. In log in oak cloud forest. Field number WGe-1. It will be deposited in the FSCA.

Paratypes: 2 males with same data as holotype. Field numbers WGe-2,3. Another beetle with same data as holotype except at 2700 m in oak cloud forest with more pine interspersed than in area of holotype. A *Chondrocephalus debilis* (Bates) also in this log, both beetles dead and in pieces. Field number WGj-1.

ETYMOLOGY. This species is named for the Pokomchi speaking Mayans which inhabit the region of the Sierra de las Minas where this species was found.

LARVA. Has same basic setal patterns of other species of *Petrejoides* (Schuster & Reyes-Castillo 1981, Schuster 1988). It is similar to the larvae of *P. reyesi* and *P. guatemalae* in having 2 internal coxal setae and differs from all other instar II *Petrejoides* known in lacking raster setae.

DISTRIBUTION AND ECOLOGY (Fig. 1). Known only from Cerro Pinalón in the Sierra de las Minas of Guatemala at approximately 2700 m altitude in virgin oak cloud forest. This forest extends to the top of Pinalón and down to approximately 2450 m where more tree species appear and the passalid fauna changes as well. In the genus *Ogyges* above this limit I found only *O. furcillatus* Schuster & Reyes-Castillo; below it I found only *O. laevior* (Kaup). Other passalids in the forest with *P. pokomchii* were *Chondrocephalus debilis*, *C. granulifrons* (Bates) and a species of *Vindex*. *P. pokomchii* was the rarest species, *O. furcillatus* and *C. debilis* the commonest.

AFFINITIES. *P. pokomchii* is a member of the "orizabae" group (Castillo & Reyes-Castillo 1984). The partially rugose clypeus, and body size indicate a close relationship to the "guatemalae-reyesi-salvadorae" group, the other component high altitude *Petrejoides* species of northern Central America. All of these species are geographically quite isolated from *P. pokomchii*, the closest being *P. guatemalae* in the Cuchumatán Mountains and the María Tecún ridge of Guatemala. I suspect other new species of this group will be found on other, unexplored, high mountains in northern Mesoamerica.

This species also suggests a close relationship of *Petrejoides* to *Chondrocephalus* in its similarity to *C. granulifrons* in the distribution of rugosity on the clypeus and the form of the median frontal structure.

Petrejoides chiapasae Schuster NEW SPECIES

Figure 2g

DESCRIPTION. Head: anterior border of labrum concave, anterior angles rounded. Clypeus inclined, short (anterior-posterior), rectangular shaped; anterior border linear without median indentation, anterior angles slightly rounded and directed downward; shiny throughout. External tubercles indistinct, rounded.

Frontal area long, frontal ridges and inner tubercles distinct but only slightly elevated. Frontal fossae pubescent. Median front structure of "falsus" type (Reyes-Castillo 1970), center horn short with apex free and median longitudinal groove in posterior 1/3. Lateral ridges indistinct, marked by grooves running slightly posteriorly to terminal tubercles which are rounded and only slightly pronounced. Occipital groove well marked, terminating in frontal fossae.

Anterior 1/2 of supraorbital ridge bituberculate, anterior tubercles more pronounced but smaller; posterior 1/2 bifurcate. Anterior cephalic angles rounded or slightly protruding. Canthus swollen distally, apex rounded, not protruding beyond eye margin. Eyes normal size, approximately 1/10 head width, ratio eye width to length = 0.6.

Ligula between insertions of labial palps narrow, pubescent. Lateral lobes of mentum with anterior external borders rounded, whole surface pubescent, lateral border straight. Medial basal mentum bare, posterior 1/2 opaque, anterior border slightly convex. Hyposomal process with slight lateral depression, separate from mentum by distance less than process width. Infraocular ridge indistinct, punctate and pubescent.

Superior and inferior apical mandibular teeth approximately same length. Dorsal mandibular tooth occupies approximately 1/2 mandible length. Internal tooth of left mandible bifid.

Thorax: lateral fossa and surrounding area of pronotum with >30 punctations. Pronotum with marginal groove narrow with indistinct punctations; anterior angles rounded. Prosternum rhomboidal with posterior apex truncated.

Lateral margin of mesosternum opaque, marginal grooves shallow, pubescent slightly punctate. Center of mesosternal shield with longitudinal depression, lightly punctate.

Metasternum with >40 punctations delimiting each latero-posterior side of disc, anterior angles pubescent, lateral fossae wide and very pubescent.

Anterior elytral profile slightly convex. Elytral striations marked uniformly with small, round, light punctations, somewhat heavier in lateral striations; junction of striations 1 and 10 with extra punctations giving appearance of 2 rows in places.

Legs: femur I with antero-ventral groove distinct for only 1/4 of anterior border; posterior 1/4 of vertical face pubescent; dorsal ridge extends total length of tibia II, with 2 rows of setae same length as that of lateral border.

Abdomen: marginal groove of last sternite complete.

Dimensions (mm): total length, mandibles to tip of elytra 25.5, elytral length 14.5, pronotal length 5.8, pronotal width 7.8, humeral width 7.7, head width 5.8.

MATERIAL EXAMINED. One female specimen.

TYPE MATERIAL. Holotype: female-MEXICO, Chiapas, 2 miles north of Ejido Leiva Velasquez (approximately 29 miles northeast of Las Margaritas). Altitude 2060 m. J. C. Schuster collector. Wet pine forest with hardwood understory; grades into cloud forest with *Podocarpus*, *Quercus* and tree ferns. Field number TS-1. Hardwood log. It will be deposited in the FSCA.

ETYMOLOGY. *P. chiapasae* is named for the state of Chiapas where it was found.

DISTRIBUTION AND ECOLOGY. The holotype was the only specimen of *Petrejoides* in the tunnel; however, at end of the tunnel was a specimen of *Chondrocephalus* sp. In over 20 years of collecting passalids, this is only the second time I have found 2 species in the same or connecting tunnel systems. Also, apart, in the same log were an *Ogyges laevior* and pieces of *Odontotaenius* sp. In the same forest I found *Spurius dichotomus* Zang and *Oileus sargi* (Kaup).

I suspect this species is endemic to this small, isolated cloud forest. To the north, the forest ends at a broad, deep river valley with the lower Lancandón ridges beyond. To the southwest are many mountain ridges and valleys, mostly with pine or relatively dry pine-oak forest. Other passalid species associated with this specimen are usually restricted to cloud forest or mesophytic habitats above 1000 m. Other isolated montane areas of Chiapas have also shown endemism in Passalidae (Reyes-Castillo, da Fonseca & Castillo, 1987; Reyes-Castillo & Castillo 1985). Many of these isolated forests in Chiapas are relatively unexplored, but are disappearing fast to ax and saw.

AFFINITIES. This species belongs to the "orizabae" group of Castillo & Reyes-Castillo (1984). It seems most related to *P. orizabae* Kuwert and *P. silvaticus* Castillo & Reyes-Castillo, found in the southern and northern Sierra Madre Oriental, respectively. It differs from them in having the internal left mandible tooth bifurcate instead of trifurcate and by possessing many punctations delineating the metasternal disc. It is similar in size to *P. silvaticus*.

Petrejoides michoacanae Schuster NEW SPECIES

Figure 2h

DESCRIPTION. Head: anterior border of labrum highly concave, more so than any other species of *Petrejoides*; concavity not as wide as *P. salvadorae* and without its bare depression posteriorly; anterior angles rounded. Clypeus inclined, short (anterior-posterior), rectangular; anterior border linear with a strong median indentation, anterior angles sharp and directed downward; smooth and brilliant. External tubercles distinct and rounded.

Frontal area long, without inner tubercles. Frontal ridges poorly marked. Frontal fossae with numerous long setae. Median frontal structure of "falsus" type; center horn short, reaching less than 1/2 the distance of clypeus, apex free, without median longitudinal groove posteriorly; lateral ridge at right angles to median horn, rounded, terminal tubercles absent. Occipital groove well marked, terminating in supraorbital ridges.

Anterior 1/2 of supraorbital ridge bituberculate; posterior 1/2 not bifurcate. Anterior cephalic angle rounded. Canthus not swollen distally, apex rounded, not reaching lateral eye margin. Dorsal width of an eye 1/9 head width.

Ligula between insertions of labial palps somewhat narrow, flat, pubescent. Lateral lobes of mentum with anterior, external border rounded, whole surface punctate and pubescent, lateral border straight. Medial basal mentum smooth, glabrous throughout, anterior border slightly convex. Hypostomal process narrow, without lateral depression. Infraocular ridge almost absent, punctate and pubescent.

Mandibles with 3 apical teeth. Dorsal mandibular tooth occupies <1/2 mandible length. Internal tooth of left mandible trifid.

Thorax: lateral fossa of pronotum with approximately 10 very light punctations and 1 or 2 setae, rest of pronotum smooth. Anterior angles of pronotum rounded. Prosternum rhomboidal with posterior apex truncate.

Mesosternum mostly brilliant throughout, with many punctations, glabrous. Lateral depressions obsolete.

Metasternum pubescent in anterior corners, without punctations delimiting latero-posterior sides of disc; marginal fossae narrow, pubescent.

Anterior elytral profile convex; elytral striations marked with small, light punctations, slightly heavier in lateral striations; junction of striations 1 and 10 with few extra punctations.

Legs: femur I with antero-ventral groove distinctly marked for 4/5 of anterior border; posterior 1/4 of ventral face pubescent; dorsal ridge extends most of length of tibia II, though height not very pronounced, with 2 rows of setae with hairs longer than those of lateral border row.

Abdomen: marginal groove complete around last sternite.

Dimensions (mm): total length, mandible to elytral tip 30, elytral length 17.8, pronotal length 7.1, pronotal width 9.1, humeral width 6.3, head width 6.3.

TYPE MATERIAL. Holotype: male-MEXICO, Michoacan, 16 km N.W. Coalcoman. 15-16 VIII 1982. T. W. Taylor, P. M. Sullivan Collectors. It will be deposited in the FSCA.

ETYMOLOGY. The name refers to the Mexican state in which the holotype was collected.

DISTRIBUTION. This species is known only from this presumably high altitude site in Michoacan.

AFFINITIES. This is the largest species of the "recticornis" group.

Key to the Species of *Petrejoides*
(modified from Castillo & Reyes-Castillo 1984)

- | | | |
|------|--|----|
| 1 | Dorsal ridge of tibia II long, same height (usually high) for most of tibial length | 2 |
| 1' | Dorsal ridge of tibia II short, high for <1/2 tibial length | 13 |
| 2(1) | Frons without inner tubercles | 3 |
| 2' | Frons with inner tubercles | 8 |
| 3(2) | Clypeus entirely or partly rugose and opaque, long | 4 |
| 3' | Clypeus entirely glossy, short, rectangular | 7 |
| 4(3) | Central horn of medial frontal structure [MFS] elongate, apex free, reaching, or almost reaching clypeus | 5 |

- 4' Central horn of MFS short, apex not free, not reaching clypeus. Body length 26-29 mm. GUATEMALA, Sierra de las Minas *P. pokomchii* n. sp.
- 5(4) Labrum with a glabrous depression or concavity behind its mid-anterior border, clypeus totally rugose. EL SALVADOR, Trifinio area *P. salvadorae* Schuster
- 5' Labrum without a distinct depression behind anterior border, clypeus partially rugose 6
- 6(5') Clypeus trapezoidal rugose and opaque throughout except for narrow, glossy anterior margin; fronto-clypeal suture indistinct medially. Lateral ridges of median frontal structure at right angles to longitudinal body axis. Femur I with anterior-ventral groove indistinct or absent. Body length 24.5-32 mm. GUATEMALA *P. guatemalae* Schuster & Reyes-Castillo
- 6' Clypeus sub-trapezoidal, rugose and opaque only in posterior-medial area; fronto-clypeal suture curved and distinct throughout. Lateral ridges of median frontal structure curve slightly forward. Femur I with anterior-ventral groove distinct. Body length 27.5-30 mm. HONDURAS *P. reyesi* Schuster
- 7(3') Frontal-clypeal suture incomplete in middle, curved. Anterior border of labrum slightly concave. Body length 24.5-26 mm. PANAMA, Chiriqui *P. panamae* n. sp.
- 7' Frontal-clypeal suture complete, straight. Anterior border of labrum highly concave. Body length 30 mm. MEXICO, Michoacán *P. michoacanae* n. sp.
- 8(2♂) Infraocular ridge glabrous and smooth, internal tooth of left mandible bidentate 9
- 8' Infraocular ridge pubescent and punctate, or absent; internal tooth of left mandible bi- or tridentate 10
- 9(8) Mesosternum with lateral opaque areas, anterior angle of pronotum not projecting. Body length 22.5-26.5 mm. MEXICO: Sierra Madre del Sur, Oaxaca *P. jalapensis* (Bates)
- 9' Mesosternum with central opaque areas, anterior angle of pronotum projecting. Body length 21.9-24.9 mm. COSTA RICA (also cited [erroneously?] from Guatemala and El Salvador) *P. subrecticornis* (Kuwert)
- 10(8') Horn of MFS short, not reaching clypeus 11
- 10' Horn of MFS long and narrow, extending past clypeus. Body length 19.0-20.7 mm. COSTA RICA, Sierra de Talamanca *P. tenuis* Kuwert
- 11(10) Body length >22 mm, femur I with antero-ventral groove weak and incomplete 12
- 11' Body length 18.4-21.8 mm, femur I with antero-ventral groove absent. MEXICO, southern Sierra Madre Oriental *P. orizabae* Kuwert
- 12(11) Ligula with protuberance between insertion of labial palps, metasternum without punctations delimiting posterior-lateral corners of disc. Body length 23-27 mm. MEXICO, northern Sierra Madre Oriental, Nuevo León. *P. sylvaticus* Castillo & Reyes-Castillo
- 12' Ligula flat between insertion of labial palps, metasternum with >40 punctations delimiting each posterior-lateral corner of disc. Body length 25.5 mm. MEXICO, Chiapas *P. chiapasae* n. sp.
- 13(1') Horn of MFS short, not reaching clypeus 14
- 13' Horn of MFS long, reaching clypeus. Body length 23-28mm. MEXICO, southern Sierra Madre Oriental, Veracruz *P. laticornis* (Truqui)
- 14(13) Frons without central longitudinal ridge 15
- 14' Frons with central longitudinal ridge. Body length 21.7-25.5 mm. MEXICO, southern Sierra Madre Oriental, Oaxaca *P. mazatecus* Castillo & Reyes Castillo

- 15(14) Horn of MFS with dorsal groove, dorsal anterior profile of elytra straight 16
- 15' Horn of MFS without dorsal groove, dorsal anterior profile of elytra V-shaped 17
- 16(15) Femur I without anterior-ventral groove. Union of striae 1-10 with a row of fine punctations. Dorso-lateral pronotum punctate. Body length 16.6-19.0 mm. MEXICO, Sierra Madre Oriental...*P. nebulosus* Castillo & Reyes Castillo
- 16' Femur I with anterior-ventral groove. Union of striae 1-10 with various rows of punctations. Dorso-lateral pronotum smooth, without punctations. Body length 24.1-26.7 mm. MEXICO, Sierra Madre del Sur, Guerrero *P. olmecae* Castillo & Reyes Castillo
- 17(15') Infraocular ridge present. Clypeus inclined. Left internal mandibular tooth bidentate. Body length 18.0-21.4 mm. MEXICO, Oaxaca *P. reticornis* (Burmeister)
- 17' Infraocular ridge absent. Clypeus vertical. Left internal mandibular tooth tridentate. Body length 19.0-21.8 mm. MEXICO, Sierra Madre del Sur, Guerrero *P. imbellis* (Casey)

DISCUSSION

At the time of the recent monograph of *Petrejoides* (Castillo & Reyes-Castillo 1984), only 1/4 of the described species were from Mesoamerica. The presence of only 1 highland species from northern Mesoamerica (the Central American Nucleus) was postulated to be due to the diversification of another passalid, *Chondrocephalus* Kuwert, which occupies similar habitats. *Chondrocephalus* is known only from Nuclear Central America (Chiapas, Guatemala, Honduras and El Salvador) above 1200 m elevation in wet forests and cloud forests. Since then, however, the discovery of additional *Petrejoides* species in Honduras (Schuster 1988), and El Salvador (Schuster 1989), as well as those described here from Chiapas and Guatemala, raise the number of species from Nuclear Central America to 5. Of these, all except the Honduran species are found in areas where at least 1 species of *Chondrocephalus* is present. With the additional Panamanian species, the total Mesoamerican assemblage is 8, almost 1/2 of the species in the genus. Also, other possible new species from Chiapas and Colombia, in the collection at the Instituto de Ecología, Xalapa, Veracruz, are yet to be described. I believe further new species may be found, especially in high mountains of Honduras, and perhaps eastern Panama.

ACKNOWLEDGMENTS

Thanks to C. MacVean for reading the manuscript and the Universidad del Valle de Guatemala for support. Thanks to M. Rojas for his interest and help in collecting *P. panamae* and logistics and to C. Castillo and P. Reyes-Castillo for their opinions. Special thanks to Defensores de la Naturaleza, Magalí Rey-Rosa and Francisco Asturias for arranging the trip to the Sierra de las Minas to collect *P. pokomchii*, and don Carlos Mendez Montenegro and family for his expert field guidance and their warm hospitality. Thanks to Ronaldo Perez and Luis Rodriguez for aid in collecting *P. chiapasae*, and Camelia Castillo and Pedro Reyes-Castillo for confirming its identification as a new species. Thanks to Pat Sullivan for providing the type specimen of *P. michoacanae*.

REFERENCES CITED

- CASTILLO, C. AND P. REYES-CASTILLO. 1984. Biosistemática del género *Petrejoides* Kuwert (Coleoptera, Lamellicornia, Passalidae). Acta Zool. Mexicana 4: 1-84.

- REYES-CASTILLO, P. 1970. Coleoptera: Passalidae: morfología y división en grandes grupos; géneros americanos. Folia Entomol. Mexicana 20-22: 1-240.
- REYES-CASTILLO, P., AND C. CASTILLO. 1985. Nuevas especies de Coleoptera Passalidae de la zona de transición Mexicana. An. Inst. Biol. Univ. Nat. Autón. Mexico 56(1): 141-154.
- REYES-CASTILLO, P., C. R. V. DA FONSECA, AND C. CASTILLO. 1987. Descripción de un nuevo género mesoamericano de Passalidae (Coleoptera: Lamellicornia). Folia Entomol. Mexicana 73: 47-67.
- REYES-CASTILLO, P. AND J. SCHUSTER. 1983. Notes on some Mesoamerican Passalidae (Coleoptera: *Petrejoides* and *Pseudacanthus*). Coleopt. Bull. 37(1): 49-54.
- SCHUSTER, J. C. 1988. *Petrejoides reyesi* sp. nov. (Passalidae) from Honduras. Coleopt. Bull. 42(4): 305-309.
- SCHUSTER, J. C. 1989. *Petrejoides salvadorae* sp. nov. (Coleoptera: Passalidae) from El Salvador. Florida Entomol. 72(4): 693-696.
- SCHUSTER, J. C. AND P. REYES-CASTILLO. 1981. New World genera of Passalidae (Coleoptera): a revision of larvae. An. Esc. nac. Cienc. Biol., Mexico 25: 79-116.

