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The Middle American species of *Peridinetus* Schönherr (Coleoptera: Curculionidae: Baridinae)

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Abstract

The weevil genus *Peridinetus* Schönherr is reviewed for mainland Middle America. *Conophoria* Casey is included in *Peridinetus* as a new junior synonym. Twenty-six species are recognized. *Peridinetus ecuadoricus* Casey **stat. res.**, *P. frontalis* Chevrolat and *P. pictus* Kirsch are newly recorded for the study area. Newly described are *P. illabes* **sp. n.** (Panama), *P. imperialis* **sp. n.** (Costa Rica, Panama, Colombia, Ecuador), *P. lugubris* **sp. n.** (Costa Rica, Ecuador), *P. notabilis* **sp. n.** (Costa Rica), *P. odone* **sp. n.** (Costa Rica, Panama), *P. pena* **sp. n.** (Nicaragua, Costa Rica, Panama), *P. rubens* **sp. n.** (Costa Rica, Panama) and *P. wyandoti* **sp. n.** (Nicaragua, Costa Rica, Panama, Ecuador). The overlooked precedence of *P. jelskii* Chevrolat over *P. maculiventris* Chevrolat is reestablished. *Conophoria cana dispersa* Casey is a new junior synonym of *P. canus* Champion. Habitus images for most species and an identification key are provided.

Key words: weevils, taxonomy, Piperaceae, Neotropics, Middle America

Introduction

This paper contributes to the knowledge of baridine weevils associated with Piperaceae in the Neotropical Region. It continues a series of similar studies (Prena 2001, 2003a, 2005, 2006, 2009b), wherein I reviewed other diverse genera in this lineage, which also includes morphologically similar weevils that develop in Rubiaceae (Prena 2003b, 2009a) and Annonaceae (Bondar 1946; Prena, unpublished). The preliminary results may ultimately lead to a phylogenetic study testing the monophyly of these and the numerous small, mostly undescribed or unrecognized genera and their putative palaeotropical relatives, which are currently scattered over no less than seven tribes. Most *Peridinetus* species are common, widespread, comparatively large and with charismatic color patterns. Many of them occupy a rather wide ecological niche and can be found on many *Piper* species, while a few seem specialized on *Peperomia* at high elevations. Several of those widespread generalists include morphologically deviant subpopulations, which can be easily overlooked. Herein, I review the species from Middle America, including the Pacific side of Colombia and Ecuador. I do not include the West Indies, which were treated separately (Prena 2009b). This study contributes to the national inventory of biodiversity in Costa Rica and to the Arthropods of La Selva (ALAS) project.

Material and methods

The study covers the region from central Mexico to Panama and the Pacific side of Colombia and Ecuador. Additional records from outside the study area are included for the widespread species. Some of the latter represent poorly differentiated species complexes, which need to be studied in more detail over their entire range. The species are ordered in the systematic part the way they come out in the key; their synonyms are listed chronologically. Unavailable names, like misspellings or manuscript names, are also included in the lists of synonymy and indicated as such by annotations set in square brackets. Collecting data are arranged by country (starting in the north and then going southward) and administrative units. Collecting dates and collectors are given only for the new taxa. Complete data for INBio material can be accessed online at www.inbio.ac.cr/en/default.html (>Biodiversity, >Biodiversity).

Approximately 2,300 specimens were studied from the following collections: **AMNH**, American Museum of Natural History, New York, USA (L. Herman Jr., S. Lodhi); **BMNH**, The Natural History Museum, London, England (M. Barclay, R. Thompson); **CHAH**, Henry A. Hespenheide personal collection, Los Angeles, USA; **CMNC**, Canadian Museum of Nature, Ottawa, Canada (R. Anderson, F. Genier, H. & A. Howden); **CNCI**, Canadian National Collection of Insects, Ottawa, Canada (D. Bright, P. Bouchard); **CWOB**, Charles W. O'Brien personal collection, Green Valley, Arizona, USA; **DEI**, Deutsches Entomologisches Institut, Müncheberg, Germany (L. Behne, L. Zerche); **FSCA**, Florida State Collection of Arthopods, Gainesville, USA (P. Skelley, M. Thomas); **GBFM**, Museo de Invertebrados G.B. Fairchild, Panama City, Panama (D. Quintero); **HPSC**, Henry P. Stockwell personal collection, Ancón, Panama; **INBC**, Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica (A. Solís, E. Ulate); **JPPC**, Jens Prena

personal collection, Berlin, Germany; **JWPC**, Jim E. Wappes personal collection, San Antonio, Texas, USA; **MNHUB**, Museum für Naturkunde der Humboldt Universität Berlin, Germany (J. Frisch, J. Willers); **MNKM**, Museo Noel Kempff Mercado, Santa Cruz, Bolivia (J. Ledezma); **MNHP**, Museum National d'Histoire Naturelle, Paris, France (H. Perrin); **NHRS**, Naturhistoriska riksmuseet, Stockholm, Sweden (P. Lindskog, B. Viklund); **USNM**, National Museum of Natural History, Washington, DC, USA; **SEAN**, Museo Entomológico León, Nicaragua (J.-M. Maes); **SNSD**, Staatliche Naturhistorische Sammlungen Dresden, Germany (R. Krause, K. Klass, O. Jäger); **TAMU**, Texas A&M University, College Station, Texas, USA (E. Riley); **ZIUH**, Zoologisches Institut Hamburg, Germany (R. Abraham); **ZNUC**, Zoologisk Museum, Copenhagen, Denmark (O. Martin). The codens are used to refer to the collections in the text.

Most specimens collected by Robert Marquis (Marquis 1991) and myself were obtained while monitoring individual plants in the genus *Piper*, often over several days or weeks. The weevils were usually found feeding or resting in the holes they had made in the leaf-blade (Fig. 1), rarely on the inflorescence or elsewhere on the plant. The plants were identified using the keys, descriptions and illustrations in Burger (1971) and, particularly during the initial phase of the study, were compared with herbarium specimens at INBC. Vouchers were herbarized for all recognized species (in JPPC), but not for each individual observation. Robert Marquis' vouchers are deposited at La Selva, Costa Rica.

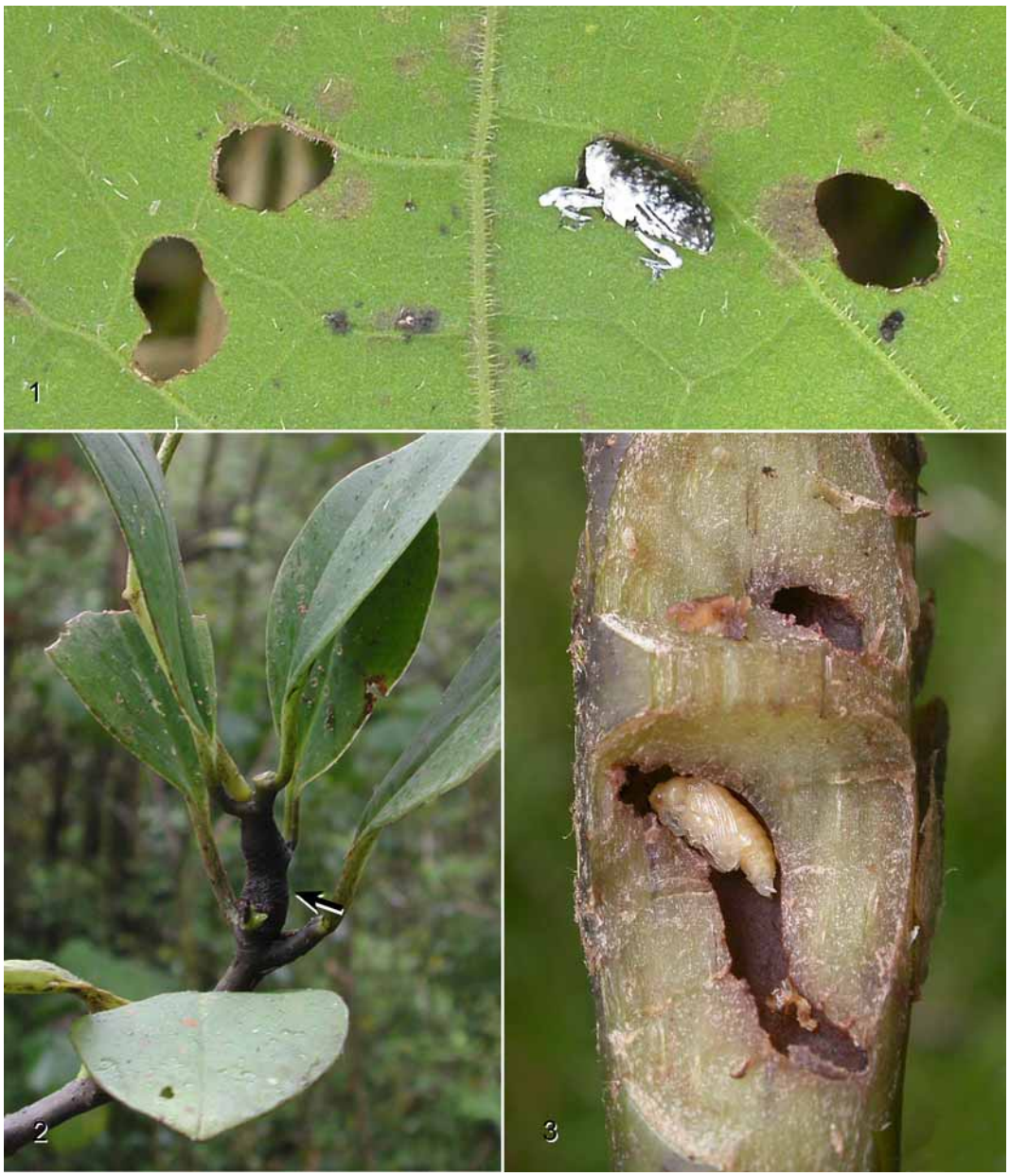
Measurements were taken with an ocular micrometer in a dissecting microscope. Size ranges of specimens are given as total length (without rostrum) and standard length (anterior margin of pronotum to pygidium). Extended focus images were taken with a JVC digital camera KY-F70 and Archimed software (Microvision Instruments). Line drawings were drafted from digital images with Aldus Freehand and rendered with Photoshop. The internal sac of the aedeagus was dissected and inflated as described by Thompson (1988). The term subconnate is used to describe the condition, when the tarsal claws appear to be fused at the base but the connection is still membraneous; truly fused claws do not occur in *Peridinetus*. The term vitta refers to longitudinally arranged marks in the color pattern, fascia to transverse marks.

***Peridinetus* Schönherr**

Peridinetus Schönherr, 1837: 467. Type species: *Curculio irroratus* Fabricius, 1787, by original designation.
Peredinetus [lapsus]. Chevrolat (1880: 38).
Peridenetus [lapsus]. Fiedler (1932: 83), Hustache (1949: 13).
Peridinetuus [lapsus]. Hustache (1949: 17).
Ephimerus Schönherr, 1843: 331. Type species: *Ephimerus sexguttatus* Boheman, 1843 (= *Curculio sexguttatus* Fabricius, 1775), by original designation. Prena (2009b: 54) [synonymy].
Phelambates Jekel, 1883: 84. Type species: *Peridinetus sanguinolentus* Chevrolat, 1883, by indication. Wibmer & O'Brien (1986: 279) [implied synonymy with *Peridinetus* based on placement of type species in Hustache (1938); however, *Phelambates* was overlooked therein], Alonso-Zarazaga & Lyal (1999: 103) [synonymy with *Peridinetus* accepted].
Conophoria Casey, 1922: 9. Type species: *Peridinetus distinctus* Pascoe 1880, by original designation. **New synonymy.**
Peridinetus (*Conophoria*). Hustache (1938: 8).

Diagnosis. *Peridinetus* belongs to a moderately diverse group (ca. 400 species) of predominantly Neotropical weevils, which have a ventral tooth on at least the meso- and metafemora and the pygidium covered by the elytra. This group includes several described and undescribed genera with a distinct prosternal channel and separate procoxae. In Middle America, *Peridinetus* includes all species with this type of prosternum, basally subconnate claws and a rather thick, cylindrical rostrum, which generally is wider than the frons. The body shape varies from ovate to subtriangular (Fig. 11–40, 46–65) and the total length from 2.5–11.5 mm. The closely related genus *Palliolatrix* Prena differs in having the eyes smaller and more widely separated, the rostrum less cylindrical, the antenna inserted more distally on the rostrum and the scrobes more descending. The male genitalia of *Peridinetus* species are remarkably uniform, with the body of the aedeagus almost square and the internal sac long (Fig. 4). The distal part of the duct is a relatively short, sclerotized tube (Fig. 5), whereas it is flagelliform and much longer in *Palliolatrix*. *Peridinetellus subnudus* Champion has a

glabrous surface, subcylindrical prothorax (Fig. 9) and slightly more elongate aedeagus, but otherwise seems to share with *Peridinetus* most morphological character states; the validity of this generic name should be reassessed in connection with an undescribed Ecuadorian species near *P. subnudus*.



FIGURES 1–3. 1, Leaf of *Piper auritum* with *Perdinetus ecuadoricus* resting in self-made hole. **2–3,** *Peperomia* sp. prob. *ternata* with galls induced by *Peridinetus wyandoti*. Photos by K. Nishida, taken in Braulio Carrillo N.P., Costa Rica.

Distribution. Species of *Peridinetus* have been found in Middle America, the immediately adjacent parts of North America (*i.e.*, Veracruz in Mexico) and the Greater Antilles. In South America, species have been found south to Ecuador on the Pacific side and south to Bolivia and Brazil on the Atlantic side. They inhabit moderately dry to very moist situations, from sea level up to 3000 m elevation.

Biology. Adults usually feed on a more or less broad spectrum of species of Piperaceae, especially the genus *Piper*. Larvae of *P. ecuadoricus* Casey, *P. melastomae* Champion and *P. zinckeni* Rosenschöld have been found tunneling the stem and petiole of *Piper* species (Bondar 1943; Stockwell, pers. comm.; Prena, unpubl. observations); *P. wyandoti* Prena has been reared from the stem and petiole of two *Peperomia* species (Branstetter, Nishida, Prena, unpubl. observations). The larvae differ morphologically from those of *Embates*

and *Pardisomus* in having the anus subterminal and the caudal segments less modified (Prena 2003b, 2005). Their development seems to last one year or longer even for the small species (Nishida, pers. comm.; Prena, unpubl. observations). Pupation takes place inside the plant. The adults can be found throughout the year. As with other *Piper*-feeding species in the Ambatini and Cyrionychini, they often rest in holes made in the leaf-blade (Fig. 1), thereby exposing their flank and imitating parts of plants or excrement (Bondar 1943, 1949; Jolivet 1994; Monteiro 1998; Prena 2005).

Color pattern. Several species treated herein have amazingly similar color patterns. These are matched not only by unrelated weevils, particularly in the Baridinae, Conoderinae and Molytinae, but also by flies, bees, ants and various other beetles. For example, Hespenheide (1973) found insects with red anterior, black median and grey to yellow posterior areas in five families, 21 genera and 60 species north of South America and more elsewhere (see Fig. 31–49 for species of *Peridinetus*). He considered this a case of mimicry and speculated that certain fast-flying flies served as a model. Several such mimicry complexes have been recognized in the beetle literature (Lindsley 1959, 1961; Hespenheide 1995) and numerous examples can be found among the Baridinae associated with Piperaceae. I concur with Hespenheide that these color patterns are convergent and without phylogenetic value. It is not rare that morphologically similar (and probably closely related) species have developed completely different strategies for predator avoidance. For example, cryptic coloration occurs in *P. irroratus* (Fabricius) and *P. frontalis* Chevrolat, while *P. imperialis* Prena and *P. laetus* Champion exhibit bright colors that may deceive or warn potential predators about the weevil's identity and edibility. However, unlike most Conoderinae, *Peridinetus* species (and other Baridinae associated with Piperaceae) are relatively unwary; when approached they typically drop to the ground rather than flying away. This behavior does not support well their classification as Batesian mimics of fast-flying insects, as novice predators should soon find out about this resource. On the other hand, the stringent aroma of the consumed host plant may render the weevil unpalatable and this could be signaled by bright colors. Whether or not this is the case and the evolution of convergent color patterns in some *Peridinetus* species is driven by Müllerian mimicry, remains speculative. It is also possible that convergent color patterns are the result of convergent crypsis wherein the weevils (and possibly other insects) are imitating some plant part. The phenomenon of similar color patterns in unrelated species (called mimetic homoplasy by Hespenheide 2005) can be complicated further by the presence of poorly differentiated species complexes. A good example is the *P. sanguinolentus* species complex, where two synapomorphies (plumose setae in the prosternal channel and presence of a dorsal groove on the female rostrum) indicate a close relationship between *P. illabes*, *P. laetus*, *P. pena*, *P. sanguinolentus* and *P. wyandoti*, while the color patterns of *P. coccineifrons*, *P. imperialis* and *P. rufotorquatus* seem to have evolved independently. Very similar color patterns occur also in *Pteracanthus smidtii* (Fabricius) and *Sympages egregius* (Pascoe), which are not associated with Piperaceae.

Discussion. Jekel (1883) and Casey (1922) proposed new generic names for a few, seemingly aberrant species without having examined representative material of the entire group. Although their reasoning is not entirely unjustified when applied to a subjectively selected set of species, a satisfying and sufficiently robust concept for the grouping of all described and undescribed species is difficult to accomplish. With the exclusion of *Palliolatrix* and the South American *P. incisicollis* Hustache and *P. suturalis* Chevrolat, which may not be congeneric, the most aberrant species of *Peridinetus* occur in the Greater Antilles, *i.e.*, one complex with a higher degree of sexual dimorphism and another with basally separate tarsal claws. The validity of the currently monospecific *Peridinetellus* Champion (Fig. 9) needs to be reassessed in connection with the South American fauna, where at least one other, still undescribed species of this complex occurs. *Conophoria* Casey was described to accommodate species with a conical pronotum and usually distinct color pattern. However, the pronotum exhibits gradual rather than discrete shapes and the shapes do not correlate with the color pattern. Even though I have used the shape of the pronotum in the first couplet of the key, in combination with the carination of the interstriae, this criterion separates very closely related weevils, such as *P. irroratus* (Fabricius) and *P. jelskii* Chevrolat or *P. lateralis* Champion and *P. melastomae* Champion. Hustache (1938) placed *Conophoria* as a subgenus of *Peridinetus* and was followed therein by O'Brien & Wibmer (1982), Wibmer & O'Brien (1986), Alonso-Zarazaga & Lyal (1999) and Prena (2009b). However, Bondar (1949) claimed *Conophoria* was monotypic and accepted its generic rank. Because *Conophoria* lacks

a meaningful concept and general acceptance, it is placed here in synonymy with *Peridinetus*. *Piazambates* Voss, originally described in the Peridinetini, was synonymized with *Pardisomus* Pascoe by Prena (2003b). Not included in this study is one undescribed, morphologically isolated species near *Peridinetus* (INBC, JPPC, USNM) known by a few specimens collected from the inflorescence of *Piper* species in Costa Rica; it is part of a complex that stands in conflict with the current tribal classification of the Baridinae. Also not included herein are the small species near *Cyrionyx oblongoguttatus* Champion, which morphologically approach *Peridinetus* but have basally separate claws and lack a frontal fovea.

List of Middle American species of *Peridinetus* (without West Indies)

P. canus Champion
    = *Conophoria canus dispersus* Casey, **syn. n.**
P. coccineifrons Champion
P. collaris Champion
P. costatus Champion
P. cretaceus Pascoe
    = *P. luctuosus* Chevrolat
P. distinctus Pascoe
P. ecuadoricus Casey, **stat. res.**
P. frontalis Chevrolat
    = *P. humilis* Hustache
P. illabes Prena, **sp. n.**
P. imperialis Prena, **sp. n.**
P. irroratus (Fabricius)
    = *P. incertus* Casey
    = *P. latiusculus* Casey
    = *P. variegatus* (Perty)
P. laetus Champion
P. lateralis Champion
P. lugubris Prena, **sp. n.**
P. melastomae Champion
P. nodicollis Champion
P. notabilis Prena, **sp. n.**
P. odone Prena, **sp. n.**
P. opacus Champion
P. pena Prena, **sp. n.**
P. pictus Kirsch
P. rubens Prena, **sp. n.**
P. rufotorquatus Champion
P. stigmatipleura Champion
P. trifasciatus Champion
P. wyandoti Prena, **sp. n.**

Key to the Middle American species of *Peridinetus*

1 Shape of pronotum subconical, greatest width at base; elytral interstriae without median, longitudinal ridge 2
- Pronotum subparallel in basal half or constricted toward base; if shape indistinctly conical, then at least some interstriae with median, longitudinal ridge 9
2 Elytra subtriangular, sides evenly converging from noticeably protruding humeri to apical fourth (Fig. 11); hind tibia

with apical tooth long and perpendicular to long axis 3
- Elytra subovate, with humeri less protruding and sides rather gently converging; hind tibia with apical tooth moderate and oblique 4
3 Elytron with ill-defined pattern of light-colored setae in apical half and on flank; ventrite 1 glabrous ..... 1. *P. melastomae* Champion
- Elytron with 3 well-defined fasciae of light-colored setae; ventrite 1 laterally with setae 2. *P. trifasciatus* Champion
4 Elytron with basic vestiture of black setae in addition to yellow macula 5
- Elytron either glabrous with yellow macula or with basic vestiture of light grey setae 6
5 Each elytron with 1 median macula of yellow setae (Fig. 13, 14); total length 4.8–6.1 mm ..... 3. *P. notabilis* **sp. n.**
- Elytra with single, subapical macula of yellow setae (Fig. 15, 16); total length 3.6–4.2 mm ..... 4. *P. pictus* Kirsch
6 Basal vestiture uniformly grey, with black maculae below subapical callosity and in distal portion of sutural interstria, ventrites with setae (Fig. 17, 18) ..... 5. *P. canus* Champion
- Basal vestiture microscopic, pronotum and elytron with well-defined maculae of light-colored setae, ventrites glabrous 7
7 Integument rufous, metepisternum and flank of metasternum glabrous (Fig. 19, 20) ..... 6. *P. rubens* **sp. n.**
- Integument black, metepisternum and flank of metasternum with light-colored setae 8
8 Elytron with whitish median and apical fasciae (Fig. 21, 22); Honduras to Ecuador ..... 7. *P. cretaceus* Pascoe
- Elytron with whitish median fascia, apical fascia absent (Fig. 23, 24); Mexico, Guatemala and Belize ..... 8. *P. distinctus* Champion
9 Elytral interstria 7 usually with continuous median ridge between humerus and subapical callosity; if ridge incomplete, then interstria 9 with ridge 10
- Elytral interstria 7 usually without continuous median ridge; if ridge incomplete, then interstria 9 without ridge .. 20
10 All elytral interstriae ridged at least distally 11
- Only odd-numbered interstriae ridged distally 12
11 Elytron with conspicuous fascia of yellow, imbricate setae near declivity; pronotal flank with few ochreous setae (Fig. 25, 26); Mexico and Guatemala ..... 9. *P. costatus* Champion
- Elytron with inconspicuous fascia of whitish, widely spaced setae near declivity; pronotal flank densely covered with ochreous setae (Fig. 27, 28); Costa Rica and Panama ..... 10. *P. odone* **sp. n.**
12 Anterior portion of pronotum with red setae; elytron with uniform vestiture of khaki and some white setae, scutellar area black with pair of white striae 13
- Anterior portion of pronotum with brown, white or without setae; elytral vestiture mottled, flank white (Fig. 29, 30) ..... 11. *P. irroratus* (Fabricius)
13 Size larger (5.0–8.1 mm); both sexes with base of rostrum depressed and frontal fovea deep, male with fringe of long hairs on ventral edge of metatibia; prosternal channel without plumose setae ..... 12. *P. imperialis* **sp. n.**
- Size smaller (2.7–4.8 mm); male with base of rostrum depressed and frontal fovea shallow, metatibia without conspicuous fringe of hairs; female with transition between head and rostrum continuous, frontal fovea absent; prosternal channel with plumose setae 14
14 Pronotal disk punctate, median carina glabrous, red setae covering apical one-half (Fig. 33); elytral flank with spot of white setae above metepisternum (Fig. 34); rostrum not thicker than femora; female frons with raised comb of setae (Fig. 43); total length 2.7–4.4 mm ..... 13. *P. wyandoti* **sp. n.**
- Pronotal disk microreticulate, punctures inconspicuous, median carina dull if present, red setae covering apical one-third; elytral flank with or without spot of white setae above suture between ventrites 1 and 2; rostrum thicker than femora; female frons without raised comb of setae; total length 3.3–4.8 mm 15
15 Frons with shallow depression (Fig. 41); rostrum without fine dorsal groove; male 16
- Frons convex; rostrum with fine dorsal groove near base or middle (Fig. 42, 44, 45); female 18
16 Elytral flank without patch of white setae above ventrites 1 and 2 (Fig. 36); pronotum laterally without patch of raised setae (Fig. 35); antenna inserted near distal fourth; Panama ..... 14. *P. illabes* **sp. n.** (part)
- Elytral flank usually with patch of white setae above ventrites 1 and 2 (Fig. 38, 40); pronotum laterally with patch of raised setae (Fig. 37, 39); antenna inserted more basally; Nicaragua to Panama 17
17 Interstria 7 with median ridge evenly curved throughout; interstria 5 without white setae in front of ridge; elytral flank with white, in lateral view usually horizontal spot on interstriae 9 and 10 (Fig. 38) ..... 15. *P. laetus* Champion (part)
- Interstria 7 with median ridge more curved in apical half and separated from distal section by angular depression; interstria 5 often with white setae in front of ridge (Fig. 39); elytral flank with white, in lateral view usually vertical spot on interstriae 8 to 10 (Fig. 40) ..... 16. *P. pena* **sp. n.** (part)
18 Rostrum with dorsal groove near base, approximately at apex of scape in repose (Fig. 42), groove with setae usually visible in lateral view; pronotum laterally with patch of raised setae ..... 15. *P. laetus* Champion (part)
- Rostrum with dorsal groove in middle third (Fig. 44, 45), groove without setae; pronotum laterally with or without raised setae 19

19 Dorsal groove on rostrum forming short, inverted V, separated from point of antennal insertion by distance equivalent to full width of rostrum (Fig. 44); elytral flank without patch of white setae above ventrites 1 and 2; pronotum laterally without erect setae; Panama .....14. *P. illabes* **sp. n.** (part)
- Dorsal groove on rostrum forming inverted Y, seaparated from point of antennal insertion by distance equivalent to half width of rostrum (Fig. 45); elytral flank with patch of white setae above ventrites 1 and 2 (Fig. 40); pronotum laterally with patch of erect setae (Fig. 39); Nicaragua and Costa Rica ..... 16. *P. pena* **sp. n.** (part)
20 Frons and apex of pronotum with red setae, elytron with uniform vestiture of khaki and some white setae 21
- Frons and pronotum without red setae, elytral vestiture not uniformly khaki 22
21 Size larger on average (4.4–6.5 mm); metepisternum with whitish setae on distal half; rostrum shorter, thicker and less curved; pronotum with flank finely rugose, disk with median vitta of white setae; profemur with ventral tooth in distal third; interstriae 2 and 3 ridged in distal half (Fig. 46, 47) ..... 17. *P. coccineifrons* Champion
- Size smaller on average (2.7–4.5 mm); metepisternum with whitish setae in middle section; rostrum longer, more slender and more curved; pronotum with flank coarsely punctate, disk with incomplete basolateral vittae of khaki setae; profemur with ventral tooth near mid-length; interstriae 2 and 3 ridged on declivity (Fig. 48, 49) .... 18. *P. rufotorquatus* Champion
22 Elytron with well-defined markings of yellow setae 23
- Elytron at most with indistinct clusters of light-colored setae 24
23 Body elongate, lateral margins of elytra subparallel in basal half; pronotum with dorsolateral vittae; metasternum and portions above covered with imbricate, light-colored setae (Fig. 50, 51) ..... 19. *P. stigmatipleura* Champion
- Body stout, elytra subtriangular; pronotum without dorsolateral vittae; metasternum without imbricate, light-colored setae (Fig. 52, 53) ..... 20. *P. lugubris* **sp. n.**
24 Total length 6–8 mm 25
- Total length <5 mm 27
25 Body slender, prothorax nearly as long as wide (Fig. 54); ventrite 1 glabrous (Fig. 38); legs reddish; Costa Rica and Panama ..... 21. *P. lateralis* Champion
- Body wider, prothorax distinctly transverse; ventrite 1 with setae; legs dark; other distribution 26
26 Dorsal vestiture rather uniform kakhi, elytra with raised median fascia (Fig. 56, 57); interstria 9 with distinct ridge; Mexico to Honduras ..... 22. *P. collaris* Champion
- Dorsal vestiture mottled with white and brown setae; interstria 9 without distinct ridge; Honduras to Ecuador .... 23. *P. ecuadoricus* Casey
27 Body matte, dorsum with inconspicuous vestiture of slender setae 28
- Body at least partially glabrous, dorsal vestiture with some wide setae 29
24 Pronotum bell-shaped, sides roundly constricted at middle; elytral disk generally not depressed in basal third (Fig. 60, 61) ..... 24. *P. frontalis* Chevrolat
- Pronotum subparallel in basal half, sides angularly constricted at middle; elytral disk generally depressed in basal third (Fig. 62, 63) ..... 25. *P. opacus* Champion
29 Dorsum and flank with khaki and white setae; pronotum abruptly tubulate in front (Fig. 64, 65) .... 26. *P. nodicollis* Champion
- Dorsum glabrous, base of pronotum and elytron with white setae; pronotum indistinctly tubulate in front (Fig. 9, 10) ..... [*Peridinetellus subnudus* Champion]

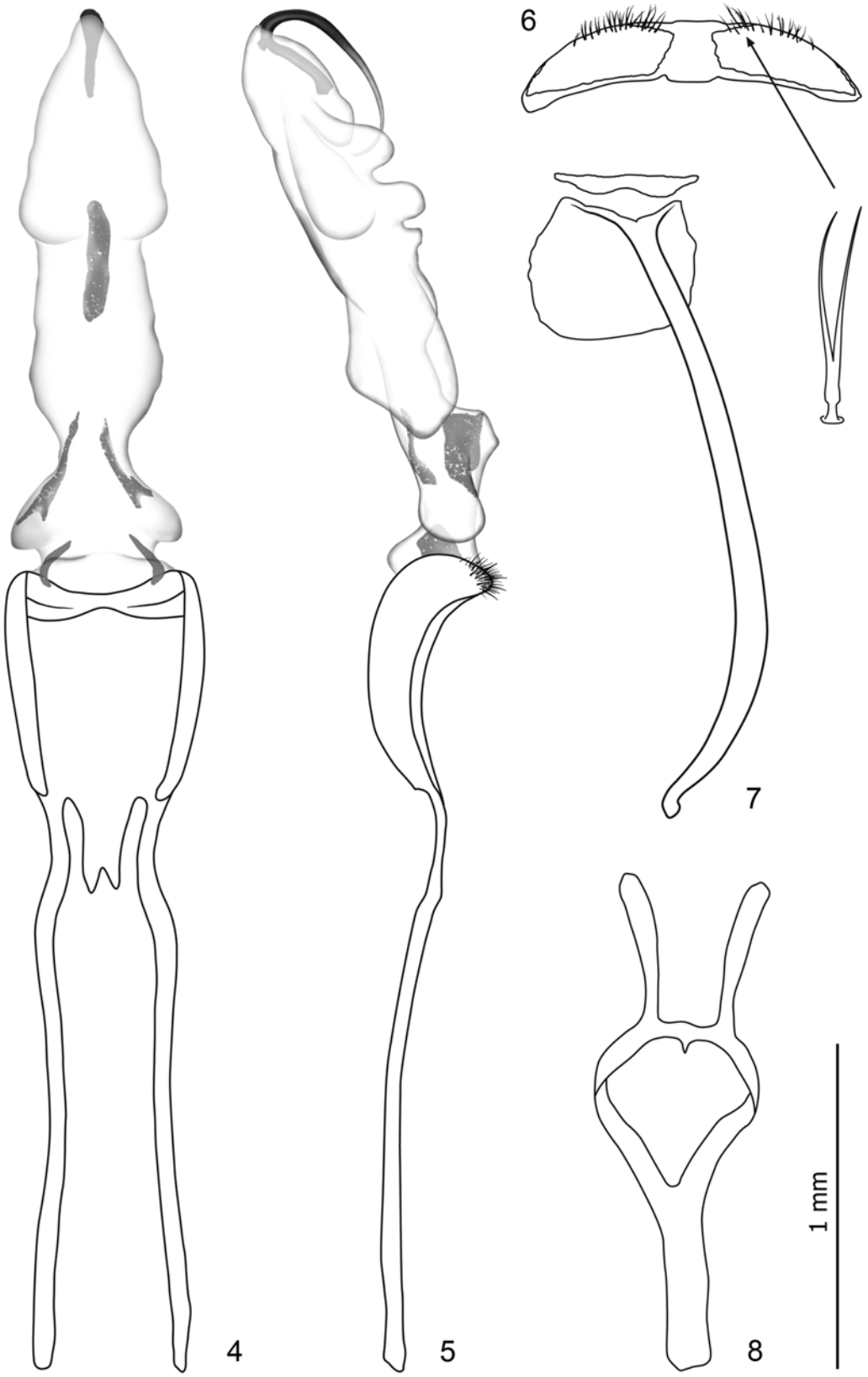
1. *Peridinetus melastomae* Champion
(Fig. 11, 12)

Peridinetus melastomae Champion, 1907: 174. Seidlitz (1909: 326).
Conophoria melastomae. Casey (1922: 9).
Peridinetus (Conophoria) melanostoma. Hustache (1938: 9) [lapsus or uncommented emendation].
Peridinetus (Conophoria) melanostomae. Blackwelder (1947: 887) [lapsus].
Peridinetus (Conophoria) melastomae. O'Brien & Wibmer (1982: 178).

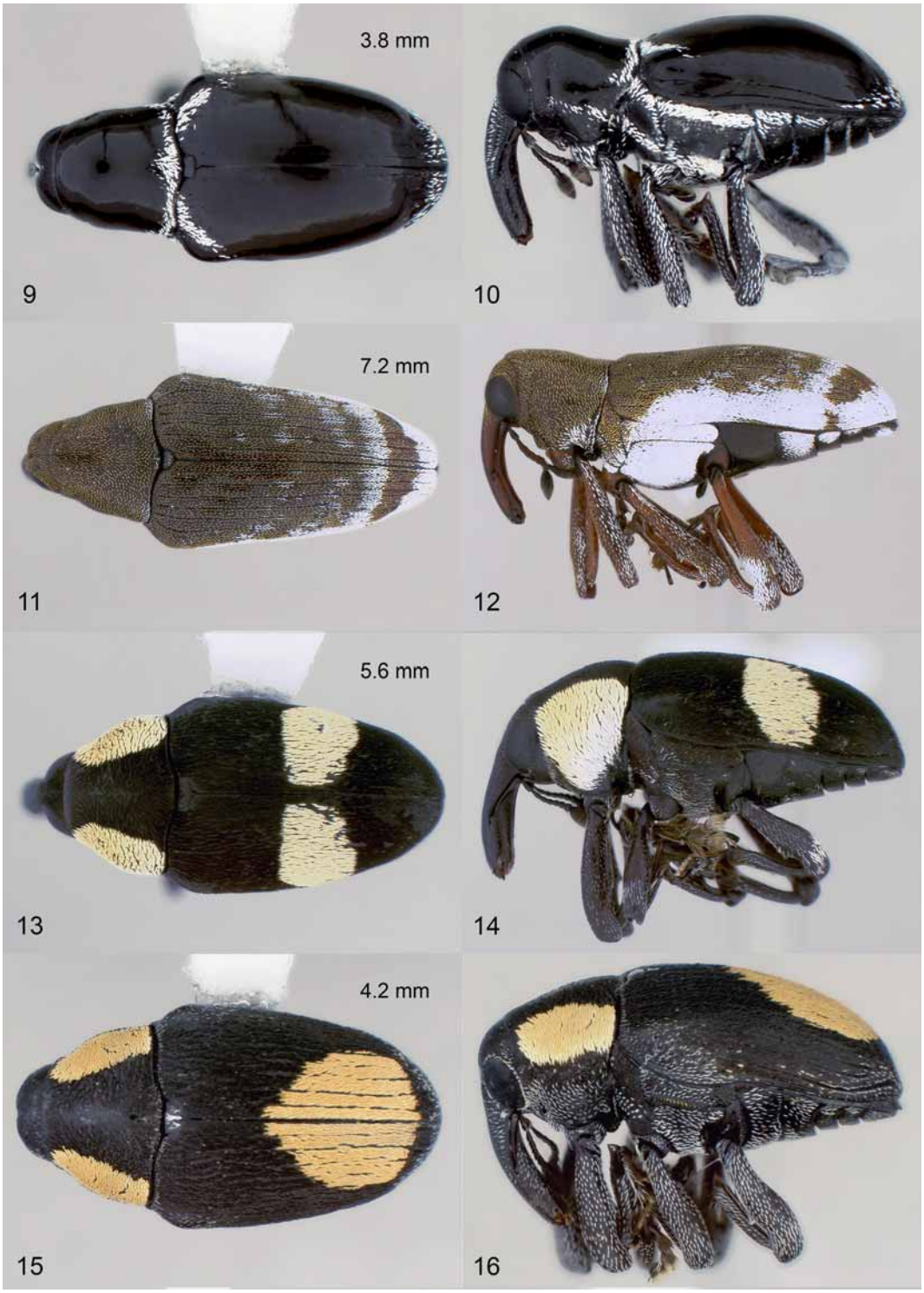
Diagnosis. *Peridinetus melastomae* is very similar to *P. lateralis* (see diagnosis there). It differs from that species by the subconical shape of the pronotum (Fig. 11, 54), absence of white spots on the pronotal disk and less depressed elytral disk. The studied specimens were 6.7–10.1 mm long (standard length 6.4–9.8 mm).

Distribution. The species has been found in Costa Rica and Panama at 1000–2900 m elevation.

Plant association. *Piper pittieri* (Prena 15×, larvae and adults), *P. tenuimucronatum* (Prena 8×), *P. lanceaefolium* (Prena 2×), *P. obliquum* (Prena 2×), *P. epigynium* (Prena 1×).



FIGURES 4–8. Male terminalia of *P. ecuadoricus*, Matagalpa (Nicaragua). **4–5,** aedeagus, dorsal and lateral view, internal sac everted. **6,** sternite 8, ventral view, with modified seta (not to scale). **7,** sternite 9, dorsal view. **8,** tegmen, dorsal view.



FIGURES 9–16. Dorsal and lateral habitus of *Peridinetellus* and *Peridinetus* species. **9–10,** *Peridinetellus subglaber*, La Selva (Costa Rica); **11–12,** *Peridinetus melastomae*, Monteverde (Costa Rica); **13–14,** *P. notabilis*, Guanacaste N.P. (Costa Rica); **15–16,** *P. pictus*, Río Tuquesa (Panamá).

Type material. Holotype, Costa Rica, [Valle de los] Arcángeles (BMNH).

Material examined. Costa Rica. Cartago: R.F. Río Macho, Hwy. km 96, 2900 m (INBC 1, JPPC 12); R.F. Río Macho, La Esperanza del Guarco, Hwy. km 61, 2400 m (INBC 1); Cañon, Hwy. km 58, Genesis II, 2300 m (JPPC 7). Heredia: P.N. Braulio Carrillo, 6 km ENE Vara Blanca, 2000 m (INBC 1, JPPC 8), Est. Barva, 2500 m (INBC 4). Limón: Cerros Tararia, 2650 m (INBC 2); P.N. La Amistad, Valle del Silencio, 2500 m

(JPPC 8). Puntarenas: R.F. Los Santos, Hwy. km 70, Mirador de Quetzales, 2650 m (JPPC 2); San Gerardo de Dota, 2400 m (INBC 1, JPPC 3); Monteverde, 1500–1600 m (CHAH 1, INBC 1, JPPC 3). San José: Valle de los Arcángeles, 1500 m (BMNH 1); 3 km NE Esperanza (HPSC 1). Panamá. Chiriquí: Volcán, 2600 m (BMNH 1). Total 65 specimens.

2. *Peridinetus trifasciatus* Champion

Peridinetus trifasciatus Champion, 1907: 174. Seidlitz (1909: 326).
Conophoria trifasciata. Casey (1922: 9).
Peridinetus (Conophoria) trifasciatus. Hustache (1938: 10), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus trifasciatus* differs from the morphologically similar *P. lateralis* and *P. melastomae* by the presence of three distinct elytral fasciae. The type, which is illustrated in Champion (1907), is said to be 8.2 mm long.

Distribution. This species has been found in the Cordillera de Talamanca in western Panama.

Plant association. Unknown.

Type material. Holotype, Panamá, Chiriquí (BMNH).

Material examined. Panamá. Chiriquí: Volcán Barú, 1 km S Respingo, 2200–2500 m (HPSC 1). Total 1 specimen.

3. *Peridinetus notabilis* Prena, sp. n.
(Fig. 13, 14)

Peridinetus rugipes. Faust [manuscript name].
Peridinetus sp. 7. Marquis (1991: 181).

Diagnosis. Because of the relatively wide pronotum and slightly protruding humeri, *P. notabilis* has a conspicuous ovate shape (Fig. 13) that is shared in the study area only by *P. pictus* (Fig. 15). The yellow elytral mark is separated in the middle and transverse, but continuous and subspherical in *P. pictus*.

Description. Total length 4.8–6.1 mm, standard length 4.6–5.8 mm. Integument black; vestiture of elongate setae dense, yellow in large macula on pronotal flank and in elytral fascia, black elsewhere (Fig. 13). Rostrum 0.93–1.10× length of pronotum, anteantennal portion 0.45–0.50 (male) and 0.49–0.55× (female) length of rostrum. Pronotum 0.71–0.74× longer than wide, greatest width near base, then gradually rounded and tubulate in front; disk finely punctate, indistinctly costate. Elytra 1.39–1.43× longer than wide, humeri 1.18–1.25× wider than pronotum, sides curved gently; striae subtle, interstriae not ridged, preapical callus inconspicuous; tarsal claws subconnate, male protarsi laterally with long setae.

Distribution. This species has been found on the Caribbean side of the Cordillera Central in Costa Rica.

Plant association. *Piper arboreum* (Marquis 1×), *P. auritum* (Marquis 1×), *P. biseriatum* (Marquis 3×), *P. cenocladum* (Marquis 9×, Prena 2×), *P. imperiale* (Marquis 1×, Prena 3), *P. melanocladum* (Marquis 1).

Type material. Holotype male, dissected, labeled "COSTA RICA: Prov. Heredia:/ 10km SE La Virgen, 450–/ 550m, 10°20'N 84°05'W/ 17.–23.2.2003/ INBio-OET-ALAS transect", "handcollecting/ leg. Jens Prena", INB0003229804, "HOLOTYPUS/ Peridinetus/ notabilis/ Prena, 2010" (INBC). Paratypes 43 (17 males, 26 females): Costa Rica. Alajuela: Est. San Ramón Oeste, 620 m, 11.–15.iv.1994, C. Moraga, CRI001 779835 (INBC 1). Cartago: Turrialba, 900 m, A. Heyne (MNHUB). Guanacaste: 9 km S Santa Cecilia, Est. Pitilla, 700 m, iv.1991, P. Ríos, CRI000 535475 (INBC 1), viii.1991, CRI000 608174 (INBC 1), 2.–19.iii.1992, CRI000 740209 (INBC 1), 24.viii.–11.ix.1992, CRI000 845927–28 (INBC 2), C. Moraga, 6.–28.i.1992, CRI000 353673 (INBC 1), 2.–9.iii.1992, CRI000 424644 (INBC 1), 12.–30.i.1993, CRI001 207689 (INBC 1), 19.v.–3.vi.1993, CRI001 315528 (INBC 1), P. Ríos, C. Moraga & R. Blanco, iii.1990, CRI000 211271, CRI000 211274 (INBC 2), E. Ureña & A. Mora, 12.ix.1992, CRI001 110045–47 (INBC 3),

curso II, v.1990, CRI000 261410 (INBC 1), GNP Biodiversity Survey, ix.1989, CRI000 035692 (INBC 1), R. Anderson, 14.ii.1996 (CMNC 1), J. Prena, 6.–12.iii.1996 (JPPC 1). Heredia: Puerto Viejo, Est. La Selva, 100 m, R. Marquis, 20.viii.1980, no. 79; 21.viii.1980, no. 81; 31.x.1980, no. 134; 28.ii.1981, no. 188; 1.vi.1981, no. 447; 27.ix.1981, no. 512; 14.x.1981, no. 562; 15.x.1981, no. 578; 18.x.1981, no. 588; 24.x.1981, no. 603; 27.x.1981, no. 621; 8.xi.1981, no. 656, 657; 19.xi.1981, no. 710; 15.xii.1981, no. 732; 15.i.1982, no. 768; 23.iv.1982, no. 921; 25.v.1982, no. 997; 9.vi.1982, no. 1035; 1.ix.1982, no. 757; 29.xi.1982, no. 722 (USNM 21), J. Prena, 19.–22.ii.2000, 16.iv.2001 (JPPC 2); 10 km SE La Virgen, 450–550m, J. Prena, 8.–13.iv.2003, INB0003230114 (JPPC 1).

Specific epithet. The name is a Latin adjective meaning "remarkable".

4. *Peridinetus pictus* Kirsch
(Fig. 15, 16)

Peridinetus pictus Kirsch, 1870: 207. Brauer (1870: 134), Gemminger & Harold (1871: 2617), Chevrolat (1883: 81), Hustache (1938: 10), Blackwelder (1947: 887), Wibmer & O'Brien (1986: 280).
Peridinetus flavopictus. Chevrolat [manuscript name].

Diagnosis. *Peridinetus pictus* is a small, stout species with a conspicuous yellow mark on the elytra (Fig. 15); it cannot be confused with any other Middle American weevil. The studied specimens were 3.6–4.2 mm long (standard length 3.5–4.0 mm).

Plant association. Unknown.

Distribution. This species occurs in South America (Colombia, French Guiana, Peru, Uruguay, Venezuela) and ranges into eastern Panama. It is here newly recorded for Middle America.

Type material. Holotype, Colombia, Bogotá (SNSD).

Material examined. Panamá. Darién Prov.: Río Tuquesa at Marraganti, 20 m (HPSC 1, USNM 1). Colombia. Cundinamarca: Bogotá (USNM 1, SNSD 1); Honda (NHRS 1). Meta: Ciénaga (USNM 4); Restrepo (CWOB 1, JPPC 1). Tolima: Ibagué (MNHP 2). Without collecting site: (AMNH 1). French Guiana. St. Laurent (ZIUH 2). Venezuela. Mérida: El Playon (CWOB 1). Peru. "or[iente]" (Chevrolat 1883). Uruguay. (ZIUH 1). Total 19 specimens.

5. *Peridinetus canus* Champion
(Fig. 17, 18)

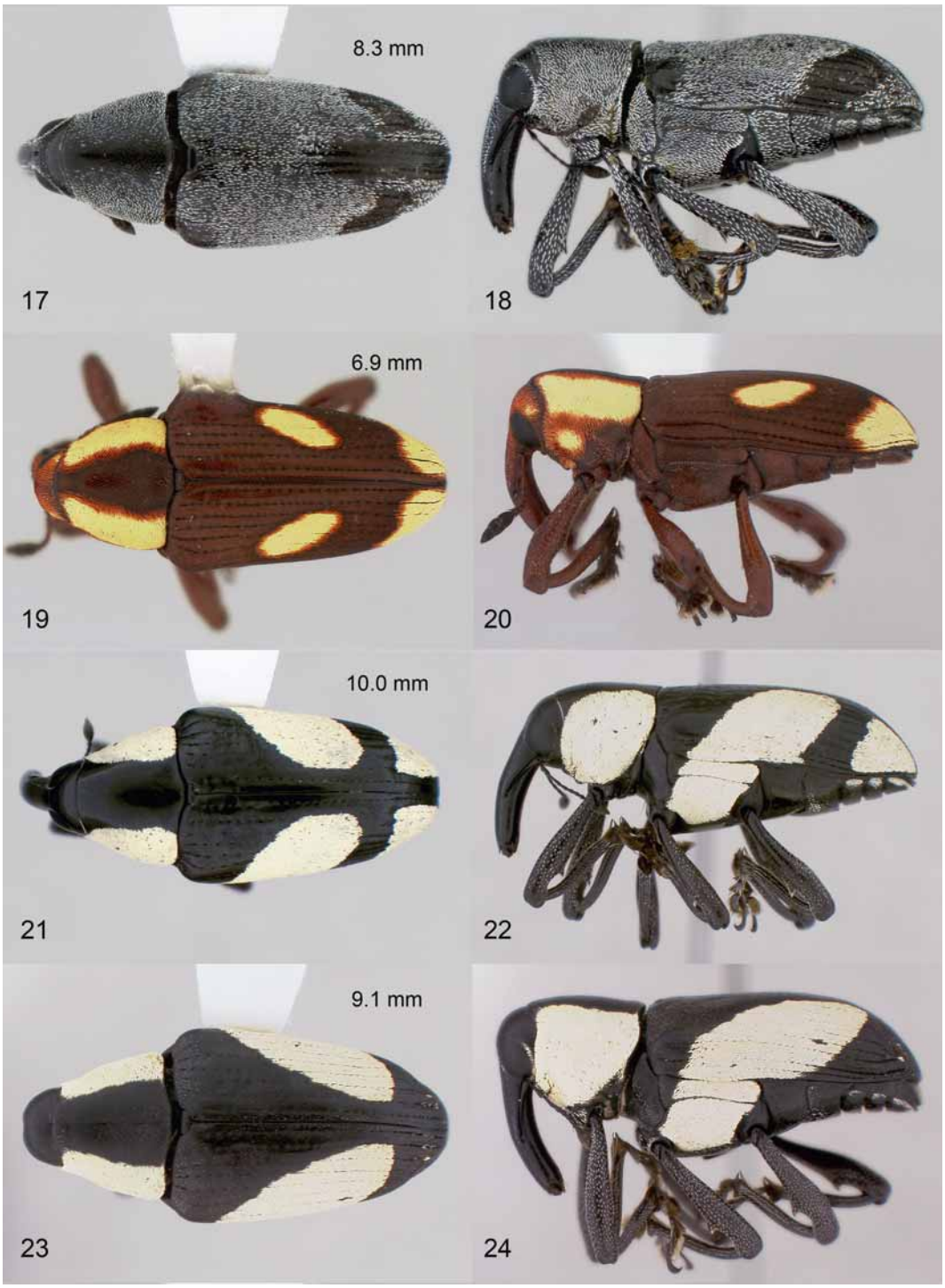
Peridinetus canus Champion, 1907: 172. Champion (1909: 484), Seidlitz (1909: 325).
Conophoria cana. Casey (1922: 9).
Peridinetus (Conophoria) canus. Hustache (1938: 8), Blackwelder (1947: 886), O'Brien & Wibmer (1982: 178).
Conophoria cana dispersa Casey, 1922: 9. **New synonymy.**
Peridinetus (Conophoria) canus dispersus. Hustache (1938: 8), Blackwelder (1947: 886), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus canus* has a distinctive, uniformly grey color pattern with dark marks on the apical part of the elytron (Fig. 17) and cannot be confused with any other species. The studied specimens were 6.4–9.7 mm long (standard length 6.0–9.0 mm).

Distribution. This species occurs on the Pacific side of Cordillera de Talamanca in Costa Rica and Panama.

Plant association. *Piper aereum* (Prena 1×), *P. glabrescens* (Prena 2×), *P. hispidum* (Prena 8), *P. phytolaccaefolium* (Prena 1×).

Type material. *P. canus*: 36 syntypes, Panamá, Bugaba (BMNH 11, MNHUB 2, USNM 3) and Volcán (BMNH 16, DEI 2, USNM 2 [including HT of *C. cana dispersa*]). *Conophoria cana dispersa*: holotype, Panamá, Volcán (USNM).



FIGURES 17–24. Dorsal and lateral habitus of *Peridinetus* species. **17–18,** *P. canus*, Volcán (Panamá); **19–20,** *P. rubens*, Cerro Campana (Panamá); **21–22,** *P. cretaceus*, Turrialba (Costa Rica); **23–24,** *P. distinctus*, Columbia Forest (Belize).

Material examined. Costa Rica. Guanacaste: Taboga, near Cañas (CHAH 3). Puntarenas: P.N. Corcovado, without site (INBC 2), Est. Agujas, 300 m (INBC 1, JPPC 4), Est. Sirena, 50 m (CHAH 1, INBC 10), Est. Esquinas, 10 m (INBC 7); Osa, Río Rincón (JPPC 2); Osa, 2.5 mi SW Rincón (CHAH 4); Osa, Rancho Quemado, 200 m (INBC 6); Osa, Piedras Blancas, Cerro Anguciana, 100 m (INBC 1); Quebrada Piedras Blancas, 400 m (INBC 2), R.B. Carara, Est. Quebrada Bonita, 50 m (INBC 9); P.N. Manuel Antonio, 80 m (INBC 4, JPPC 1); P.N. La Amistad, Sector Altamira, Buenos Aires (INBC 2); Las Mellizas, Fca.

Cafrosa, 1300 m (INBC 1, JPPC 5); Tigra, 1300 m (INBC 5); Fundación Dúrika, 1700 m (JPPC 2); Est. Pittier, 1700-1800 m (INBC 1); Coto Brus, Est. Las Alturas, 1500 m (INBC 5); Cotoncito, 3.5 km N de la Lucha, 1600 m (INBC 1); Fila Cruces, Laguna Gamboa, 1400 m (INBC 1); Las Cruces (AMNH 1, CHAH 2, CMNC 1, JPPC 1); Agua Buenas, Est. Boscosa (CMNC 1); Piedras Negras (USNM 1). San José: 12 km NE San Isidro del General, Cerro Chucuyo, 1350 m (JPPC 3). Panamá. Chirquí: Las Lagunas, 4 km W El Hato del Volcán, 1360 m (CMNC 1, HPSC 5, JWPC 1); Sta. Clara (CMNC 1, HPSC 1); Río Sereno, 1000 m (HPSC 1); Volcán, 1600 m (BMNH 1, HPSC 1, USNM 2); Cerro Punta (CMNC 1); Bugaba (USNM 3, MNHUB 2). Panamá: near Gamboa, Plantation rd. (USNM 1). Total 138 specimens.

Note. Casey (1922) was mincing Champion's (1907) words when he described one syntype of *P. canus* (a homogeneous series from two sites in Chiriquí) as *Conophora cana dispersa*. The available records show that this is a single, well-defined species that is restricted to the Pacific side of the Cordillera de Talamanca. *Conophora cana dispersa* is a new subjective synonym of *P. canus*.

6. *Peridinetus rubens* Prena, sp. n.
(Fig. 19, 20)

Diagnosis. *Peridinetus rubens* has a conspicuous reddish integument with yellow marks on the pronotum and elytron which vary in size and shape depending on the elevation of the collecting site.

Description. Total length 5.1–7.2 mm, standard length 4.8–6.9 mm. Integument rufous; basic vestiture inconspicuous, yellow maculae on pronotum and elytron narrow and with vermilion edge at low elevations (Fig. 19), maculae increasingly wider and without edge at high elevations, head with vermilion and some yellow setae. Rostrum 1.05–1.07× length of pronotum, antenna inserted slightly before (male) or at mid-length of rostrum (female). Pronotum 0.84–0.93× longer than wide, greatest width near base, gradually narrowed to front; disk finely punctate, not costate. Elytra 1.54–1.65× longer than wide, humeri 1.32–1.42 wider than pronotum, sides gradually narrowed; striae subtle, punctures internal and visible through integument, interstriae not ridged, preapical callus inconspicuous; tarsal claws subconnate; sexual dimorphism indistinct, male with ventrite 5 medially depressed, tibiae and tarsi usually with longer hairs.

Plant association. Unknown

Distribution. This species has been found in Costa Rica and Panama.

Type material. Holotype male, labeled "Est. Pitilla, 700 m, 9 km S Sta./ Cecilia, P. N. Guanacaste, Prov./ Guan., COSTA RICA. Feb a mar/ 1993. P. Ríos. L-N-330200, 380200", CRI001 188028, "HOLOTYPUS/ Peridinetus/ rubens/ Prena, 2010" (INBC). Paratypes 30 (15 males, 13 females, 2 not sexed): Costa Rica. Alajuela: P.N. Tenorio, Sector El Pilon, Yarda, 700 m, 20.vii.2004, J. Azofeifa, INB0003879028 (INBC 1); P.N. Tenorio, Valle Río Roble, Palmital arriba la caliza, 1000–1100 m, 6.x.–12.xi.2006, A. J. Azofeifa, INB0004049275 (INBC 1). Cartago: Tapantí, Est. La Esperanza, 18.xi.2001, R. Gonzales Tenorio, INB0003397259 (INBC 1). Guanacaste: 9 km S Santa Cecilia, 700 m, ix.1991, C. Moraga, CRI000 460678 (INBC 1), iii.1995, CRI002 253935 (INBC 1), 3.–18.x.1991, P. Ríos, CRI000 402689 (INBC 1), v.1994, CRI001 877775 (INBC 1), xi.1990, C. Moraga & P. Ríos, CRI000 396061 (INBC 1), ix.1989, GNP Biodiversity Survey, CRI000 035684 (INBC 1), iii.1990, P. Ríos, C. Moraga & R. Blanco, CRI000 211386 (INBC 1); P.N. Rincon de la Vieja, 28.xii.1992, Hinman (CWOB 1). Heredia: P.N. Braulio Carrillo, Est. Barva, 2500 m, iv.1989, M. Zumbado & A. Fernandez, CRI001 045412 (INBC 1); P.N. Braulio Carrillo, Est. El Ceibo, 450 m, 17.–20.iii.2003, J. Prena, INB0003229984 (JPPC 1), 20.iii.2003, D. Brenes, 05/RG/DBM/0/0 (INBC 2). San José: Zurquí de Moravia, 1600 m, viii.1995, P. Hanson (CWOB 1); Est. Las Nubes de Santa Elena, Finca Olman Bonilla, 1450 m, 1.x.1995, B. Gamboa, CRI002 324956 (INBC 1). Panamá. Bocas del Toro: Quebrada Gato, 1400 m, 4.viii.1993, H.P. Stockwell (HPSC 1). Canal Zone: Gamboa, 9.xi.1969, H.P. Stockwell (HPSC 1). Chiriquí: La Fortuna Reserve, 16.v.1978, 18.v.1978, C.W. O'Brien & B. Marshall (CWOB 2); Continental Divide Trail, 20.vii.1995, C.W. & L.B. O'Brien (CWOB 1). Coclé: El Valle, 700m, 4.xi.1979, H.P. Stockwell (HPSC 1). Panamá: Cerro Campana, 850 m, 18.iv.1972, 12.v.1974, H.P. Stockwell (HPSC 2), 25.vi.1974, H.P. Stockwell (CMNC 1), 29.vi.1974, C.W. & L. O'Brien & B. Marshall (CWOB 1),

13.vii.1977, H. Hespenheide (CHAH 1), 1.–2.vi.1983, J.E. Wappes (CWOB 1), 27.iii.1972, W. Bivin (USNM 1).

Specific epithet. The name is a Latin present participle derived from *rubeo*.

7. *Peridinetus cretaceus* Pascoe
(Fig. 21, 22)

Peridinetus cretaceus Pascoe, 1880: 181. Harold (1881: 401), Bertkau (1883: 214), Jekel (1883: 86), Champion (1907: 173, 1909: 484), Seidlitz (1909: 326), Marquis (1991: 201), Coto et al. (1995: 48), Lyal & King (1996: 751), Davis (2009: 44).
Conophoria cretacea. Casey (1922: 9).
Peridinetus (Conophoria) cretaceus. Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).
Peridinetus luctuosus Chevrolat, 1883: 82. Bertkau (1883: 247), Jekel (1883: 96), Ganglbauer (1884: 282), Champion (1907: 173) [synonym of *P. cretaceus*].

Diagnosis. *Peridinetus cretaceus* is a common species and can be recognized by the presence of three characteristic whitish marks on the pronotum and elytron (Fig. 21). It may be confused with *P. distinctus* (Fig. 23), *Embates championi* (Casey), *E. cretifer* (Champion) and *Pardisomus biplagiatus* (Desbrochers), all superficially similar but with differently arranged fasciae (see note below). The studied specimens were 6.4–11.5 mm long (standard length 6.0–10.8 mm).

Distribution. This species has been found from Honduras south to the Pacific side of Colombia and Ecuador.

Plant association. *Piper bisasperatum* (Marquis 1×), *P. culebranum* (Marquis 1×), *P. glabrescens* (Prena 1×), *P. hispidum* (Prena 5×), *P. imperiale* (Prena 1×), *P. sancti-felicis* (Marquis 6×), *Piper* sp. 4 [*virgultulum*?] (Marquis 4×).

Type material. *P. cretaceus*: holotype, Nicaragua, Chontales (BMNH); *P. luctuosus*: holotype, Nicaragua (NHRS).

Material examined. Honduras. Atlantida: Tela (USNM 2). Cortés: Lago Yojoa (USNM 1). Gracias a Dios: Río Plántano, Las Marias, 50 m (JPPC 1). Olancho: Culmi (USNM 1). Nicaragua. Chontales: [probably Santo Domingo] (BMNH 1). Matagalpa: Matagalpa, Fuente Pura, 1400 m (CMNC 5, JPPC 1, SEAN 1); Matagalpa, Selva Negra, 1300–1400m (USNM 2); Matagalpa - Jinotega road km 147, 1200 m (JPPC 1). Atlantico Sur: Las Americas (CMNC 1); no site (USNM 1). Costa Rica. Alajuela: P.N. Guanacaste, Est. San Ramón, 620 m (CMNC 1, INBC 1); R.B. San Ramón, Río San Lorencito, 900 m (INBC 1, JPPC 2); Dos Ríos, Fca. San Gabriel, 600 m (INBC 1); Zarcero, Alfaro Ruiz, 1700 m (INBC 1); P.N. Volcán Arenal, San Carlos, La Fortuna, 650 m (INBC 1); San Carlos (BMNH 1, USNM 2); Cariblanco (BMNH 1, CHAH 1, USNM 3). Cartago: M.N. Guayabo, 1100 m (INBC 1, JPPC 1); Grano de Oro, Chirripó, 1100 m (INBC 1); San Cristobal, 600 m (INBC 1); Azahar (BMNH 1); Carchí (BMNH 1, USNM 1); Turrialba (CMNC 2, CNCI 1, JWPC 1, USNM 8); Tuís, 900 m (JPPC 2); Pejibaye, 900–1100 m (JPPC 1, USNM 1). Guanacaste: Río San Lorenzo, Tierras Morenas, 1050 m (INBC 1); P.N. Rincón de la Vieja, Est. Las Pailas, 800 m (INBC 1), Est. Santa Maria, 800 m (CHAH 1, INBC 1); P.N. Guanacaste, Sector Gongora, 600 m (INBC 1), Est. Cacao, 1100 m (JPPC 1), Est. Pitilla, 700 m (JPPC 1); Monteverde (CMNC 13). Heredia: Puerto Viejo, Est. La Selva, 100 m (CHAH 4, USNM 11); P.N. Braulio Carrillo, Est. El Ceibo, 400–500 m (INBC 3, JPPC 3), Est. Magsasay, 200 m (INBC 1), Est. Cantarrana, 300 m (INBC 3), Sardinalito, 400 m (INBC 1), Cerro Zurquí, 5 km N San Isidro, 1500 m (JPPC 1); Santa Clara, 200 m (USNM 3). Limón: Puerto Limón (USNM 1); Cahuita (USNM 2); Hamburg Farm, 55 m (USNM 2); Guápiles (USNM 1); RNFS Gandoca y Mazanillo, 10 m (INBC 1); R.B. Hitoy Cerere, 100–300 m (INBC 1, JPPC 3); Pandora (CMNC 3); Est. Miramar, 500 m (INBC 1); Amubri, 70 m (INBC 1); Sector Cerro Cocorí, 150 m (INBC 1); P.N. Tortuguero, 30 m (INBC 1); Sardinas, Barra del Colorado, 15 m (INBC 1). Puntarenas: Monteverde, 800–1500 m (CHAH 1, INBC 1); Coto Brus, Est. Las Alturas, 1500–1600 m (INBC 1). San José: 12 km NE San Isidro del General, Cerro Chucuyo, 1350 m (JPPC 2); Guaitil de Pirrís, 1030 m (BMNH 1); Sabanillas de Pirrís (BMNH 1); Coronado, 1400–1500 m (USNM 1); San José, 1000–1200 m (USNM 2). Panamá. Bocas del Toro: Almirante, 150 m (HPSC 2); Corriente Grande,

100 m (HPSC 3); 4 km W Chiriquí Grande, 100 m (JPPC 4, JWPC 1); 15 km SSW Changuinola, 300 m (JPPC 4). Canal Area: Gatun Spillway (HPSC 1). Coclé: El Valle, 900 m (HPSC 1). Darién: Cana, P.N. Darién (CMNC 1, HPSC 1). Panamá: Cerro Campana, 850 m (CHAH 1, HPSC 1, USNM 1). Colombia. Valle del Cauca: Buenaventura (BMNH 1); Anchicaya dam (CMNC 2). Ecuador. Without locality (NHRS 1). Total 147 specimens.

Note. The well-defined whitish marks, which stand in stark contrast to the black derm, have the delusive effect of dissolving the contour of the beetle so it blends in with the natural environment. As discussed for *Embates* species (Prena 2005), these marks seem to have evolved from a light-colored circumferential line of a previously existing dark elytral spot. It is an odd phenomenon (at least in human perception) that an extravagant appearance almost inevitably leads to a noticeable loss in the ability to discriminate less striking details. *Peridinetus distinctus, P. trifasciatus, Embates championi* (Casey), *E. cretaceus* (Champion), *E. paludicola* Prena, *Pardisomus biplagiatus* (Desbrochers) and some *Cholus* species exhibit the same general color pattern like *P. cretaceus*, but the number and arrangement of the fasciae is different. Although speculative, I consider this as an example of convergent crypsis.

8. *Peridinetus distinctus* Pascoe
(Fig. 23, 24)

Peridinetus distinctus Pascoe, 1880: 180. Harold (1881: 401), Bertkau (1883: 214), Chevrolat (1883: 82), Jekel (1883: 86), Champion (1907), Seidlitz (1909: 326), Lyal & King (1996: 751).
Conophoria distincta. Casey (1922).
Peridinetus (Conophoria) distinctus. Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).
Peridinetus linnei. Jekel [manuscript name].
Peridinetus niveopictus. Chevrolat [manuscript name].

Diagnosis. *Peridinetus distinctus* is recognizable by the presence of a single, oblique elytral fascia (Fig. 23). It may be confused with *P. cretaceus* (Fig. 21), *Embates championi* (Casey), *E. cretifer* (Champion) and *Pardisomus biplagiatus* (Desbrochers), all superficially similar but with two differently arranged fasciae (see note under *P. cretaceus*). The studied specimens were 6.6–9.0 mm long (standard length 6.1–8.6 mm).

Distribution. This species occurs in southern Mexico, Guatemala, Belize and Honduras. Two specimens in historic collections are [erroneously?] labeled as being from Costa Rica and Brazil.

Plant association. Unknown.

Type material. 2 syntypes, Mexico [without site] (BMNH 2).

Material examined. Mexico. Chiapas: Tenejapa Paraje Yashanal (HPSC 1); 47 km S Palenque (CMNC 1); 105 km SE Palenque on Bonampak Rd. (CMNC 1); Lagos de Montebello (CMNC 1); Pacific slope, 800–1000 m (USNM 2); Laguna Belgica, 18 km N Ocozocoautla (JWPC 1). Tabasco: Teapa (BMNH 1, USNM 3). Veracruz: Sontecomapan (BMNH 1); Lake Catemaco (CNCI 2); Los Tuxtlas Biol. St. (CHAH 1, CMNC 2); Tuxpan? [labeled Toxpam] (BMNH 1); Tlacotalpan (MNHUB 1). Without site: (MNHUB 3). Belize. Río Sarstoon (BMNH 1); San Antonio (USNM 1). Guatemala. Alta Verapaz: San Gerónimo (BMNH 1); Purulhá (BMNH 1,CMNC 1, JWPC 1); San Juan (BMNH 1); Senahú (BMNH 1); Cubilguitz (BMNH 1); Panimá (BMNH 1, MNHUB 1). Guatemala: Zapote (BMNH 1, USNM 2). Quetzaltenango: Las Mercedes (BMNH 1). Sacatepéquez: Capetillo (BMNH 1). San Marcos: El Tumbador (BMNH 1). Zacapa: La Union, 1600 m (CMNC 1). Honduras. Cortés: Lago Yojoa (USNM 1); Muchilena (USNM 1). [Provenance suspect: Costa Rica (MNHUB 1). Brazil (USNM 1)]. Total 44 specimens.

9. *Peridinetus costatus* Champion
(Fig. 25, 26)

Peridinetus costatus Champion, 1907: 179. Seidlitz (1909: 326), Hustache (1938: 8), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus costatus* and *P. odone* differ from all known congeners by noticeably ridged elytral interstriae, which are raised on the mid-sections of interstriae 3 and 5. *Peridinetus costatus* has a distinct subapical elytral fascia of yellow setae (Fig. 25) and dorsolateral vittae on the pronotum, which are inconspicuous in *P. odone* (Fig. 28). The four studied specimens were 3.4–4.2 mm long (standard length 3.3–4.0 mm).

Distribution. This species has been found in southern Mexico and Guatemala.

Plant association. Unknown.

Type material. 2 syntypes, Mexico [without site] (BMNH 1) and Guatemala, Zapote (BMNH 1).

Material examined. Mexico. Veracruz: Los Tuxtlas Biol. Station (CMNC 2, JPPC 1). Guatemala. Izabal: 8 km N Las Escobas, 800 m (CMNC 1). Total 4 specimens.

10. *Peridinetus odone* Prena, sp. n.

(Fig. 27, 28)

Peridinetus sp. 2. Marquis (1991: 181).

Diagnosis. *Peridinetus odone* and the closely related *P. costatus* have all interstriae costate at least apically. While *P. costatus* has a distinct elytral fascia (Fig. 25) and occurs in Mexico and Guatemala, *P. odone* has a more inconspicuous color pattern without a fascia (Fig. 27) and occurs in Costa Rica and Panama.

Description. Total length 3.0–4.3 mm, standard length 2.8–4.1 mm. Integument brown to nearly black; basic vestiture yellowish, white setae clustered on elytra, sterna, ventrites and legs, some also on base and flank of pronotum and on frons. Rostrum 0.91–1.13× length of pronotum, anteantennal portion 0.51–0.53× length of rostrum, not sexually dimorphic. Pronotum [0.80–] 0.86–0.90× longer than wide, sides subparallel in basal one-third, disk somewhat gibbous and confluently punctate. Elytra 1.39–1.56× longer than wide, humeri 1.28–1.42× wider than pronotum, sides gradually narrowed; striae distinct, odd-numbered interstriae 3–9 ridged at least in apical half, others at least on declivity, disk with interstriae 2 and 3 raised and with anterior and posterior transverse depressions; preapical callus distinct; all femora with ventral tooth; tarsal claws subconnate, male with fringe of yellow hairs on ventral edge of metatibia, female subdistally with tuft of hairs.

Distribution. This species has been found in Costa Rica and western Panama.

Plant association. *Piper augustum* (Marquis 1×), *P. auritum* (Marquis 1×), *P. carrilloanum* (Marquis 1×), *P. cenocladum* (Marquis 1×), *P. multiplinervium* (Marquis 1×), *P. phytolaccaefolium* (Marquis 1×), *P. sancti-felicis* (Marquis 6×), *P. sinugaudens* (Marquis 1×), *P. tonduzii* (Marquis 1×), *P. umbellatum* (Stockwell 1×), *P. urophyllum* (Marquis 2×); *Piper arieianum*, *P. biseriatum*, *P. culebranum*, *P. decurrens*, *P. dolichotrichum*, *P. glabrescens*, *P. otophorum*, *P. peracuminatum*, *P. silvivagum*, *P. urostachyum* (all Marquis 1991).

Type material. Holotype male, labeled "COSTA RICA/ Pr. Heredia/ Puerto Viejo/ Finca La Selva", "R. J. Marquis coll./ No. 1126 15-viii 1982", "Piper/ tonduzii", "Voucher", "HOLOTYPUS/ Peridinetus/ odone/ Prena, 2010" (USNM). Paratypes 105 (12 males, 20 females, 71 not sexed): Costa Rica. Alajuela: Bijagua, 29.vii.1990, W.F. Chamberlain (TAMU 1); Peñas Blancas, 14.iv.1987, E. Cruz (CMNC 1); San Ramon de Dos Ríos, 620 m, 28.iv.–11.v.1995, C. Cano (INBC 2); 25 km SE Arenal, C.W. & L. O'Brien, 2.ix.1996 (CWOB 3). Cartago: M.N. Guayabo, 4.–5.iv.2000, J. Prena (JPPC 8); P.N. Tapantí, 1250 m, iii.1992, G. Mora (INBC 1), 3.v.2004, J. Prena (JPPC 1); Tuís, 1000 m, 16–22.vii.1993, W.J. Hanson (CWOB 1), 8.v.2004, J. Prena (JPPC 2); 40 km NE Turrialba, 18.v.1979, H. & A. Howden (CMNC 2), Schild & Burgdorf, 16395 (SNSD 1), 9.viii.1972, J. Maldonado (USNM 1). Heredia: P.N. Braulio Carrillo, 450 m, 6.iv.2004, J. Prena (JPPC 2); Puerto Viejo, La Selva, G. Gentry, 23.vi.1991 (CHAH 1), 8.vii.1982, 9.iv.1985, 18.viii.1996, H. Hespenheide (CHAH 2, INBC 1), 18.ii.1980, H. & A. Howden (CMNC 2), 23.ii.1998, N. Franz (CMNC 1), 1.ix.1998, C.W. & L. O'Brien (CWOB 1), 30.iii.1990, R.W. Flowers (CWOB 1), 26.vii.1989, 12.i.1995, D.G. Furth (CHAH 1, CWOB 2), 19.ii.2000, J. Prena (JPPC 8), 16.vii.1980, 8.x.1980, 13.iv.1981, 20.iv.1981, 7.x.1981, 27.x.1981, 8.xi.1981, 26.xi.1981, 11.xii.1981, 26.xi.1981, 2.ii.1982, 8.ii.1982, 25.ii.1982, 10.iv.1982, 8.v.1982, 6.vii.1982, 22.viii.1982, 17.ix.1982, R.J. Marquis (USNM 18). Limón: 30 km N Cariari, 100 m,

vii.1991, 10.–30.ix.1992, xii.1992, iii.1993, vi.1993, x.1993 (2x), i.1994, iii.1994, ii.1995, E. Rojas (INBC 10); P.N. Tortuguero, xi.1992, iii.1993, R. Delgado (INBC 2); Valle de la Estrella, Pandora, 17.–20.ii.1984, H. & A. Howden (CMNC 2); R.B. Hitoy Cerere, 100 m, 6.–25.xi.1991, 7.–26.i.1992 (INBC 2), 8.viii.–14.ix.1994, G. Garballo (INBC 1), 21.–29.i.1996, J. Prena (JPPC 6), 23.vii.2002, W. Arana (INBC 1), 695 m, 8.xi.1999, W. Arana (INBC 1). Puntarenas: Monteverde, 24.viii–25.ix.1992, F.A. Quesada (INBC 2), 30.vi.–9.vii.2009, J. Prena (JPPC 1), 3.vi.1984, E. Riley & D.A. Rider (CWOB 1). San José: P.N. Braulio Carrillo, La Ventana, 1300 m, vii.1990 (INBC 1). Panamá. Bocas del Toro: 8º 42' N, 82º 11' W, 400 m, H. & A. Howden (CMNC 1); Hwy to La Fortuna, 950 m, 28.vi.1996, 3.ii.2007, H.P. Stockwell (HPSC 2); Isla Colon, 27.ii.2003, H.P. Stockwell (HPSC 3); 15 km SSW Changuinola, Wekso, 30.iii.–4.iv.2001, J. Prena (JPPC 3); Río Changuinola nr. Guabo, 20.i.1980, K.H. Joplin (CWOB 2).

Specific epithet. The name is an arbitrary combination of letters and dedicated to the coleopterist Donald R. Whitehead in recognition of his well-founded contribution to Robert Marquis' studies on herbivorous insects in La Selva.

11. *Peridinetus irroratus* (Fabricius)

(Fig. 29, 30)

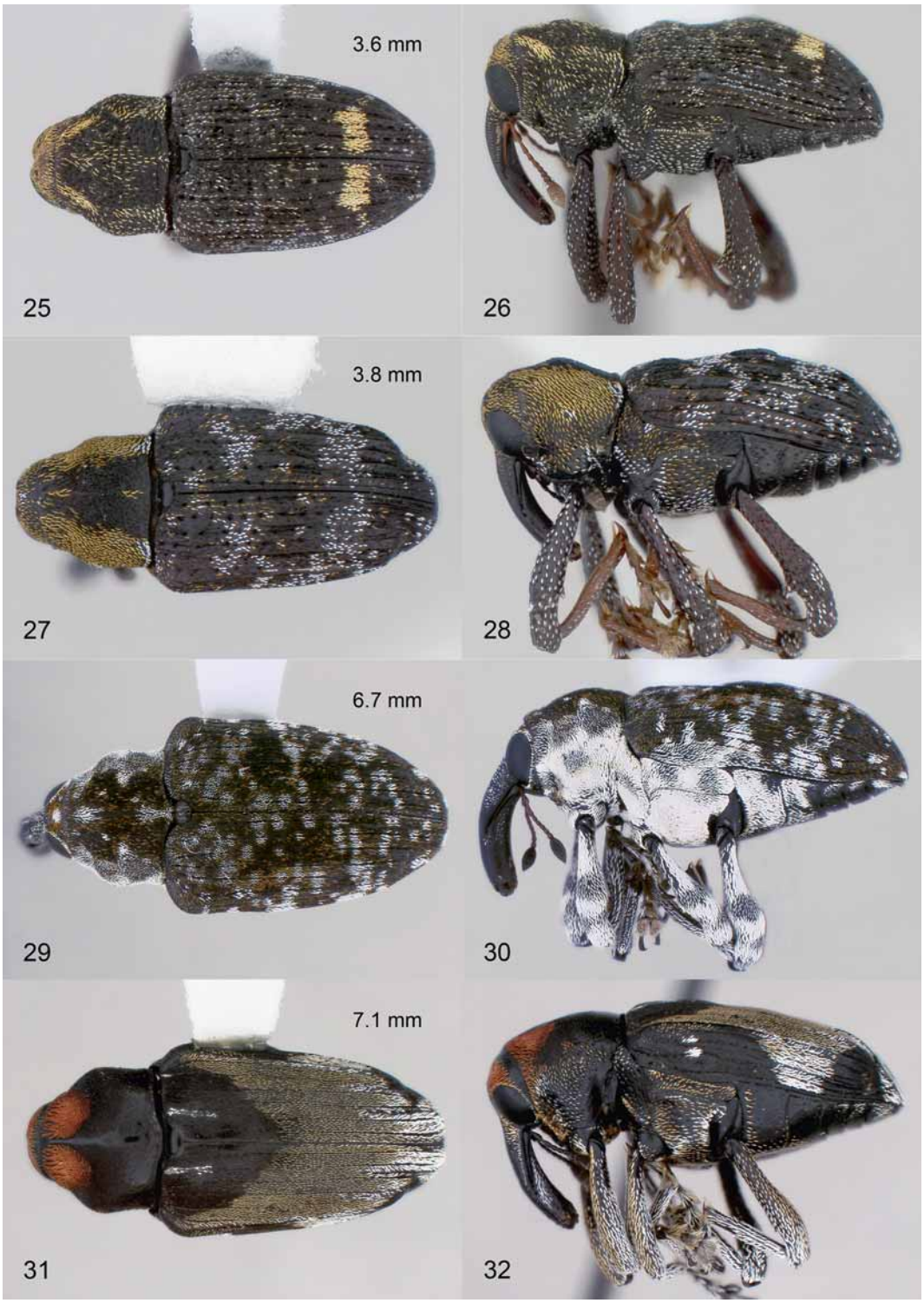
Curculio irroratus Fabricius, 1787: 106. Gmelin (1790: 1763), Olivier (1791: 509), Fabricius (1793: 429), Herbst (1795: 467).
Rhynchaenus irroratus. Fabricius (1801: 467).
Conotrachelus irroratus. Dejean (1835: 296, 1836: 321).
Peridinetus irroratus. Rosenschöld (1837: 468), Schönherr (1845: 56), Schmarda (1853: 571), Guérin-Méneville (1855: 597), Lacordaire (1866: 210), Taschenberg (1869: 226), Gemminger & Harold (1871: 2617), Kirsch (1874: 412), Chevrolat (1883: 79), Champion (1907: 175, 1909: 484), Seidlitz (1909: 326), Casey (1922), Hustache (1938: 9), Blackwelder (1947: 887), Voss (1954: 306), O'Brien & Wibmer (1982: 178), Wibmer & O'Brien (1986: 279), Coto et al. (1995: 48), Lyal & King (1996: 751), Lyal et al. (2006: 219), Davis (2009: 44) [attributed to Schönherr 1837].
Rhinobatus marmoreus. Dejean (1821: 97) [nomen nudum].
Peridinetus marmoratus auctt. [lapsus for *marmoreus*, unavailable name]. Chevrolat (1883: 79).
Peridinetus irroratus marmoratus auctt. [lapsus for *marmoreus*, unavailable name]. Hustache (1938: 9).
Heilipus variegatus Perty, 1832: 76. Blackwelder (1947: 820), Kuschel in Wibmer & O'Brien (1986: 279) [synonym of *P. irroratus*].
Baridius variegatus. Perty (1832: pl. 15, fig. 14).
Hilipus variegatus. Gemminger & Harold (1871: 2430), Dalla Torre et al. (1932:38).
Peridinetus variegatus (Perty; not Hustache, 1949: 19). Kuschel (1955: 271).
Peridinetus incertus Casey, 1922: 8. Blackwelder (1947: 887) [error, duplicate record], Kuschel in Wibmer & O'Brien (1986: 279) [synonym of *irroratus*].
Peridinetus irroratus incertus. Hustache (1938: 9), Blackwelder (1947: 887), Voss (1954: 306).
Peridinetus latiusculus Casey, 1922: 8. Kuschel in Wibmer & O'Brien (1986: 279) [synonym of *irroratus*].
Peridinetus irroratus latiusculus. Hustache (1938: 9), Blackwelder (1947: 887), Voss (1954: 306).
Peridinetus sp. 5. Marquis (1990:107, 1991: 181).
Peridinetus sp. 6. Marquis (1990:107, 1991: 181).

Diagnosis. *Peridinetus irroratus* and *P. ecuadoricus* have a mottled dorsal vestiture (Fig. 29, 58) and this distinguishes them from all other Middle American species. *Pardisomus albescens* Prena is superficially similar but lacks a prosternal channel. *Peridinetus irroratus* was originally described from Cayenne in French Guiana. Specimens from there and other places east of the Andes have distinctly ridged interstriae 7 and 9, which are poorly developed in the otherwise very similar *P. ecuadoricus* (see note under that species). The color pattern differs slightly between South and Middle American specimens but there is gradual change in northern South America. The studied specimens were 4.8–8.5 mm long (standard length 4.6–8.0 mm) and on average somewhat smaller than South American specimens.

Distribution. This species is widespread from Honduras south to Bolivia and Brazil, but does not seem to occur above 1500 m elevation.

Plant association. *P. arieianum* (Marquis 14×; Prena, many), *P. auritum* (Ballou 3×), *P. peltatum* (Prena 3×; Stockwell, pers. comm.), *P. phytolaccaefolium* (Marquis 3×; Prena, many).

Type material. *P. irroratus*: holotype, French Guiana, Cayenne (ZNUC). *P. variegatus*: studied by Kuschel (1983), not seen by me. *P. incertus*: holotype, Peru, Chanchamayo (USNM). *P. latiusculus*: 2 syntypes, Bolivia, Yungas de la Paz (USNM 2).



FIGURES 25–32. Dorsal and lateral habitus of *Peridinetus* species. **25–26,** *P. costatus*, Los Tuxtlas (Mexico); **27–28,** *P. odone*, Monteverde (Costa Rica); **29–30,** *P. irroratus*, Refugio Bartola (Nicaragua); **31–32,** *P. imperialis*, Cerro Campana (Panamá).

Material examined. Honduras. Cortés: Muchilena (USNM 2). Nicaragua. Río San Juan: 7 km SE El Castillo, Refugio Bartola, 30 m (JPPC 3, SEAN 1). Costa Rica. Heredia: Puerto Viejo, Est. La Selva, 100 m (CHAH 2, CWOB 1, INBC 7, JPPC 8, USNM 18); 10 km SE La Virgen, 450–550 m (INBC 4, JPPC 4).

Limón: R.N.F.S. Barra del Colorado, Río Sardinas, 10 m (INBC 1). Puntarenas: P.N. Corcovado (INBC 8, USNM 2), Est. Sirena (INBC 5), Est. Esquinas (INBC 1), Est. Los Patos (JPPC 1); Rancho Quemado (INBC 3); Rincón, Fundacion Neotropica, 60 m (CHAH 2, INBC 1); Est. Agujas (INBC 4); P.N. Manuel Antonio (INBC 1); San Vito, 1100 m (CHAH 1, JPPC 1). San José: Ciudad Colon, 1200 m (JPPC 3); La Caja, 900 m (USNM 1); Puriscal, camino a Concepción, 500 m (INBC 1); San Pedro (USNM 3); San José (USNM 8); Zeledón (USNM 1). Panamá. Bocas del Toro: Chiriqui Grande, 100 m (JPPC 1); Canal Area: Alhajuelo (USNM 1); Ciricito (USNM 11); Gamboa (CHAH 1, USNM 1); Gatun (CHAH 5, HPSC 2, USNM 1); Lion Hill (USNM 1); Madden Dam (HPSC 1, USNM 1); Madden Forest (CHAH 2); 7 mi W Margarita (CHAH 2); Summit (USNM 2). Coclé: El Valle (USNM 2). Colón: Portobelo (USNM 47); Puerto Pilón (CHAH 1); XX Plantation (USNM 2). Panamá: Cerro Campana, 850 m (CHAH 9, USNM 7); Trinidad River (USNM 1). Total 199 specimens [plus numerous records from Brazil, Bolivia, Colombia, Ecuador, French Guiana, Peru, Suriname, Venezuela].

12. *Peridinetus imperialis* Prena, sp. n.

(Fig. 31, 32)

Peridinetus sp. 1. Marquis (1991: 181).

Diagnosis. *Peridinetus imperialis* is one of several species with red anterior, black median and olive posterior portions. Among the species with a black semicircular elytral base, it can be recognized by large size, lack of plumose setae in the prosternal channel and reduced profemoral tooth.

Description. Total length 5.0–7.7 mm, standard length 4.7–7.4 mm. Integument black; basic vestiture predominantly yellowish brown on portions of elytron, flank and femora, setae red on frons and anterior portion of pronotum, some white setae on elytral base and apex, metasternum, tibiae and tarsi (Fig. 25). Rostrum 0.76–0.90× (male), 0.91–1.00× (female) length of pronotum, anteantennal portion 0.32–0.39× (male), 0.39–0.43× (female) length of rostrum. Pronotum 0.80–0.91× longer than wide, gibbous, greatest width at middle; disk finely punctate, base and median line glabrous, frontal section raised. Elytra 1.41–1.61× longer than wide, humeri 1.16–1.31× wider than pronotum, sides more or less gradually narrowed; striae subtle, interstria 7 ridged throughout, 3, 5 and 9 ridged distally; preapical callus moderate; profemur usually sexually dimorphic, sublinear and ventrally concave in male, subclavate in female; tarsal claws subconnate, male with long, light yellow hairs on ventral edge of metatibia and on ventrites, female without hairs.

Distribution. This species is currently known from Costa Rica, Panama and the Pacific side of Colombia and Ecuador.

Plant association. *Piper imperiale* (Marquis 17×, Prena 43×, Stockwell 1×), *P. biseriatum* (Marquis 2×).

Type material. Holotype male, dissected, labeled “COSTA RICA: Prov. Heredia:/ 11km SE La Virgen, 450–/ 550m, 10º20'N 84º04'W/ 16.4.2003/ INBio-OET-ALAS transect”, “handcollecting/ leg. Jens Prena”, INB0003230216, “HOLOTYPUS/ Peridinetus/ imperialis/ Prena, 2010” (INBC). Paratypes 90 (22 males, 28 females, 40 not sexed): Costa Rica. Cartago: Turrialba, 900 m, A. Heyne (MNHUB). Heredia: Puerto Viejo, Est. La Selva, 100 m, R. Marquis, 16.x.1980, no. 115; 5.iii.1981, no. 214; 9.iii.1981, no. 236; 3.v.1981, no. 369; 25.v.1981, no. 411; 5.vi.1981, no. 468 (2x); 19.ix.1981, no. 503; 25.x.1981, no. 608; 22.xi.1981, no. 685 (2x); 28.xi.1981, no. 702; 19.xii.1981, no. 731; 24.xii.1981, no. 736; 26.i.1982, no. 776; 3.iii.1982, no. 871; 29.v.1982, no. 982; 30.v.1982, no. 985 (USNM 18), J. Prena, 16.iii.2001 (JPPC 17), 18.iii.2001 (JPPC 2), 7.iv.2001 (JPPC 7), 18.iv.2001 (JPPC 5), 13.ii.2005 (JPPC 1); 10 km SE La Virgen, 450 m, J. Prena, 8.–13.iv.2003, INB0003230116 (INBC 1); 11 km SE La Virgen, 16.iv.2003, INB0003230217 (INBC 1); 11 km ESE La Virgen, Est. Cantarrana, 300 m, J. Prena, 6.–11.iv.2004 (JPPC 8). Limón: 30 km N Cariari, Finca Elias Rojas, 100 m, E. Rojas, x.1994, CRI002 126239 (INBC 1), iii.1994 (INBC 1); P.N. Tortuguero, Est. Cuatro Esquinas, 0 m, R. Delgado, x.1991, CRI000 630378 (INBC 1), U. Chavarría, vii.1990, CRI000 244604 (INBC 1), J. Solano, ix.1989, CRI000 053087 (INBC 1), x.1989, CRI000 109116 (INBC 1), x.1989, CRI000 109149 (INBC 1), D. García, 27.iv.–9.v.1992, CRI000 797689 (INBC 1), 27.iii.–29.iv.1992, CRI000 915390 (INBC 1). Panamá. Colon: Río Guanche, 3 km E Portobello rd., 100 m, H.P. Stockwell, 11.iii.1995

(HPSC 1). Panamá: Cerro Campana, H.A. Hespenheide, 23.vii.1969, 14.vii.1974 (CHAH 1), H.P. Stockwell, 26.xii.1969, 3.vi.1975, 1.ix.1996 (CHAH 1, HPSC 2), C.W. O'Brien, L. O'Brien & B. Marshall, 29.vi.1974 (CWOB 1), W. Bivin, 29.vi.1974 (USNM 2). Colombia. Valle: 70 km E Buenaventura, Anchicaya dam, 400 m, H. & A. Howden, 23.vii.1970 (CMNC 2). Ecuador. Pichincha: 47 km S Santo Domingo, Est. Río Palenque, S. & J. Peck, 25.v.1975 (CMNC 1), H. & A. Howden, 27.ii.1976 (CMNC 1), L. Masner & L. Huggert, 5.ii.1983 (CMNC 1); Maquipucuna Res., Cerro de Nanegal, R.W. Flowers, 27.vii.2001 (CWOB 3).

Specific epithet. The name is a Latin adjective and adopted from that of the putative host plant.

Note. The available material includes three morphologically deviating subpopulations, one from Costa Rica and Panama, one from Colombia and one from Ecuador. Differences occur in (1) the ventral tooth on the profemur, (2) the shape of the mesotibial spine, (3) the setal fringe on the middle and hind legs and (4) the hairiness of the ventrites (characters 2–4 present only in males). These differences may justify the distinction of subspecies, but more material from a wider range would be needed for better delineation.

13. *Peridinetus wyandoti* Prena, sp. n.

(Fig. 2, 3, 33, 34, 43)

Peridinetus sp. 3. Marquis (1990: 107, 1991: 181).

Diagnosis. *Peridinetus wyandoti* is one of several species with red anterior, black median and olive posterior portions. Of diagnostic value for this relatively small species are the white spot above the metepisternum (Fig. 34) and the Mohawk-style frontal crest of the female.

Description. Total length 2.7–4.4 mm, standard length 2.6–4.2 mm, width 1.2–2.0 mm. Integument dark reddish brown to black, rostrum, legs and often apical portion of elytron reddish to dark brown; color pattern formed by red, olive green, white and small dark setae, with basal half of elytra with conspicuous semicircular black area and anterior half of pronotum red (Fig. 33), elytral flank with conspicuous white spot above metepisternum (Fig. 34). Frons with shallow fovea (male) or crest of stiff setae (female; Fig. 43). Rostrum 0.84–1.15× length of pronotum, antenna inserted at mid-length of rostrum (male) or slightly more basally (female). Pronotum 0.82–0.95× longer than wide (with considerable variation in size), sides curved in basal half, constricted and tubulate in front; disk punctate, median line impunctate and often raised. Prosternum with plumose setae. Elytra 1.50–1.64× longer than wide, humeri 1.33–1.69× wider than pronotum, sides gradually converging in basal half; striae distinct, odd-numbered interstriae ridged at least apically (7 and 9 complete or nearly so), preapical callus inconspicuous; tarsal claws subconnate.

Distribution. This species is known from southern Nicaragua, Costa Rica, western Panama and the Pacific side of Ecuador.

Plant association. *Piper arieianum* (Marquis 1×), *P. cenocladum* (Marquis 1×), *P. conceptionis* (Marquis 3×), *P. melanocladum* (Marquis 1×), *P. urostachyum* (Marquis 4×), *Piper* sp. 3 (Marquis 11×); *Peperomia* sp. poss. *ternata*, ex stem (Nishida 4×; Fig. 2, 3); *Peperomia hernandiifolia*, ex apex of petiole (Branstetter 1×).

Type material. Holotype male, labeled "COSTA RICA: Prov./ Heredia, F. La Selva/ 3 km S Pto. Viejo/ 10° 26' N 84° 01' W", "13.vii.1982/ H.A. Hespenheide", "Piper vine", "141", "Peridinetus", "HAH #141", INB0003659942, "HOLOTYPUS/ Peridinetus/ wyandoti/ Prena, 2010" (INBC). Paratypes 57 (27 males, 23 females, 7 not sexed): Nicaragua. Río San Juan: 7 km SE El Castillo, Refugio Bartola, 6.–9.ii.2000, J. Prena (JPPC 2). Costa Rica. Guanacaste: Volcán Tenorio, 1650 m, 5.viii–5.x.2003, J. Azofeifa, INB0003770619 (INBC 1). Heredia: La Selva, 3 km S Pto. Viejo, 50–150 m, 29.x.1980, 8.ii.1981, 9.ii.1981, 11.ii.1981, 5.iii.1981, 14.iii.1981, 25.v.1981, 12.ix.1981, 13.ix.1981, 19.ix.1981 (2×), 2.x.1981, 8.viii.1982 (2×), 10.viii.1982, 12.viii.1982, 13.viii.1982, 20.xi.1982 (2×), 5.xii.1982, 27.ix.1983, R.J. Marquis (USNM 21), 1.vii.1993, INB0003672771, INB0003672872 (INBC 2), 17.vii.1995, CRI002 065477 (INBC 1); P.N. Braulio Carrillo, 5 km N San Isidro, Cerro Zurquí, 1800 m, 1.iv.2000, J. Prena (JPPC 1); P.N. Braulio Carrillo, 10 km SE La Virgen, 450–550 m, 14.–20.iv.2003, J. Prena (INBC 3), 16 km SSE La Virgen, 1050–1150 m, 10.–14.iii.2001, J. Prena, INB0003209899–901 (INBC 2, JPPC 1), 10.–14.iv.2001, J. Prena, INB0003209933–35 (INBC 2, JPPC 1); 9 km NE Vara Blanca, 1450–1550 m, 14.–20.ii.2005, J. Prena (JPPC 1), 14.–20.iii.2005, J.

Prena (JPPC 1), ex *Peperomia hernandiifolia*, 14.–20.iii.2005, M. Branstetter (JPPC 1); 6 km ENE Vara Blanca, 1950–2050 m, 11.iii.2000, J. Prena (JPPC 1), reared ex stem of *Peperomia* sp. prob. *ternata*, i–ii.2003, K. Nishida (INBC 1, JPPC 4). Puntarenas: Cerro Chomogo, 1800 m, 24.v.1989, J. Ashe, R. Brooks, R. Leschen (CMNC 1); Monteverde, Est. Biológica, 1600 m, 11.vii.1989, D. G. Furth (CWOB 1), 30.vi.–9.vii.2009, J. Prena (JPPC 1). San José: Zurquí de Moravia, 1600 m, x.1995, P. Hanson & C. Godoy (CWOB 1). Panamá. Canal Zone: Fort Clayton, iii.1970, H.P. Stockwell (CWOB 1). Chiriquí: La Fortuna Reserve, 1100 m, 21.vii.1995, C.W. & L. O'Brien (CWOB 1), 21.–25.iii.2001, J. Prena (JPPC 2). Panamá: Cerro Campana, 5.iv.1980, K. Joplin (CWOB 1). Ecuador. Pichincha: 16 km SE Sto. Domingo, Tinalandia, 500 m, 4.–14.vi.1976, S. & J. Peck (CMNC 1); 47 km S Sto. Domingo, Río Palenque Station, 400 m, 17.–25.ii.1979, L. Ling (CMNC 1).

Specific epithet. The name is a noun and refers to the indigenous North American peoples who purportedly came up with what became known as the Mohawk cut.

14. *Peridinetus illabes* Prena, sp. n.

(Fig. 35, 36, 44)

Diagnoses. *Peridinetus illabes* is one of several species with red anterior, black median and olive posterior portions. Five of them have a large, black, semicircular area on the elytral base and plumose setae in the prosternal channel. *Peridinetus illabes* is the only species without a patch of white setae on the elytral flank (Fig. 36). Females have the dorsal rostral groove near the basal third (Fig. 44); males have the antenna inserted near the distal fourth (Fig. 36; more basally in all other species).

Description. Total length 3.8–4.8 mm, standard length 3.7–4.7 mm, width 2.1–2.5 mm. Integument black, head, rostrum, tibia and tarsi reddish to dark brown, antenna red; color pattern formed by red, olive green, white and small dark setae, basal half of elytra with conspicuous semicircular black area, anterior half of pronotum red (Fig. 35), elytral flank with semicircular dark area without adjacent white spot (Fig. 36), interstria 5 without white spot in front of ridge. Frons shallowly depressed (male) or convex (female). Rostrum 0.79–0.89× length of pronotum, antenna inserted in apical third of rostrum (male) or before middle (female); female with dorsal groove at about mid length between antennal insertion and base of rostrum (Fig. 44). Pronotum 0.92–1.00× longer than wide, sides subparallel in basal half and then curved inward without lateral tumidity or raised setae, front tubulate; disk microreticulate, impunctate. Prosternum with plumose setae. Elytra 1.33–1.39× longer than wide, humeri 1.44–1.58× wider than pronotum, subtriangular, sides gradually converging in basal two thirds; striae distinct, interstriae 3 and 5 ridged in distal third, 7 and 9 throughout, preapical callus moderate; tarsal claws subconnate.

Distribution. This species has been found only in Panama.

Plant association. Unknown.

Type material. Holotype female, labeled "Fort Clayton/ Panama C.Z./ 1 Mar. '70/ H. Stockwell", "compared/ with type/ Peridinetus/ laetus Champ.", "HOLOTYPUS/ *Peridinetus*/ *illabes*/ Prena, 2010" (CWOB). Paratypes 4 (2 males, 2 females): Panamá. Canal Zone: Albrook Airforce Base, 23.ii.1971, R. Belzer (CHAH 1); Fort Clayton, 1.iii.1970, H. Stockwell (CMNC 1). Chiriquí: Res. For. La Fortuna, Quebrada Aleman, 21.vii.1995, C.W. & L. B. O'Brien (CWOB 1). Panamá: Cerro Campana, 900 m, 5.iv.1980, K. Joplin (JPPC 1).

Specific epithet. The name is a noun in apposition composed of *il-* (without) and *labes* (spot).

15. *Peridinetus laetus* Champion

(Fig. 37, 38, 41, 42)

Peridinetus laetus Champion, 1907: 177. Seidlitz (1909: 326), Hustache (1938: 9), Blackwelder (1947: 887), Hespenheide (1973: 50), O'Brien & Wibmer (1982: 178), Marquis (1984:539).
Peridinetus sp. 9. Marquis (1990: 107, 1991: 181).

Diagnosis. *Peridinetus laetus* is one of several species with red anterior, black median and olive posterior portions. Five of them have a large, black, semicircular area on the elytral base and plumose setae in the prosternal channel. *Peridinetus laetus* and *P. pena* have a lateral tumidity with erect setae on the pronotum, whereas *P. illabes*, *P. sanguinolentus* and *P. wyandoti* have a laterally rounded pronotum with appressed setae. Female *P. laetus* and *P. pena* can be distinguished by details of the dorsal rostral groove, which is more basally and has setae in *P. laetus* (Fig. 42) and is more medially and lacks setae in *P. pena* (Fig. 45). Male *P. laetus* usually have a more evenly arched ridge on the seventh interstria than male *P. pena* and the white spot on the elytral flank is transverse, but these character are somewhat variable and therefore not always reliable for species identification. The studied specimens were 3.3–4.6 mm long (standard length 3.1–4.4 mm).

Distribution. This species has been found in Costa Rica and western Panama.

Plant association. *Piper arieianum* (Marquis 7×), *P. garagaranum* (Marquis 2×), *P. phytolaccaefolium* (Marquis 1×), *P. sancti-felicis* s.l. (Marquis 1×).

Type material. Lectotype female, here designated, labeled "Type", "Sp. figured", "Bugaba/ Panama/ Champion", "B.C.A. Col. IV.5./ Peridinetus/ laetus,/ Champ." (BMNH). Paralectotype male, same locality data (BMNH 1).

Material examined. Costa Rica. Alajuela: San Ramón de Dos Ríos, 620 m (INBC 2); San Carlos, Pital, Fca. S. Murillo, 100 m (INBC 1). Guanacaste: 9 km S Sta. Cecilia, Est. Pitilla, 700 m (INBC 1). Heredia: Puerto Viejo, Est. La Selva, 100 m (CHAH 2, CWOB 1, INBC 5, USNM 11); P.N. Braulio Carrillo, Est. El Ceibo, 450 m (INBC 1); Sarapiquí, Fca. Flores del Bosque, 50 m (INBC 2). Limon: P.N. Tortuguero, Cerro Tortuguero, 100 m (INBC 2), Est. Agua Fria (INBC 1), Est. Cuatro Esquinas (INBC 4); Sector Cerro Cocori, Fca. E. Rojas, 150 m (INBC 3); R. B. Hitory Cerere, 560–700 m (INBC 2). Puntarenas: P.N. Manuel Antonio, 80 m (INBC 5); P.N. Corcovado (USNM 1), Est. Sirena (CWOB 1, INBC 3), Est. Esquinas (INBC 1); Golfo Dulce, Quebrada Aguabuena, 100 m (INBC 1); Buenos Aires, Est. Altamira, 1400 m (INBC 3); Fila Cruces, Fca. Ilama, 1200 m (INBC 1). Panamá. Chiriquí: Bugaba (BMNH 2). Total 56 specimens.

Note. Champion described *P. laetus* from Panama obviously being unaware of Chevrolat's *P. sanguinolentus* from French Guiana. The South American specimens I have seen have a laterally more rounded pronotum than specimens from Middle America; the dorsobasal groove on the female rostrum is similar in both populations. Because specimens with dorsobasal rostral groove are presently unknown from the Panamanian Isthmus, between the Cordillera de Talamanca and South America, I maintain *P. laetus* and *P. sanguinolentus* as distinct species.

16. *Peridinetus pena* Prena, sp. n.

(Fig. 39, 40, 45)

Peridinetus sp. 10. Marquis (1990: 107, 1991: 181).

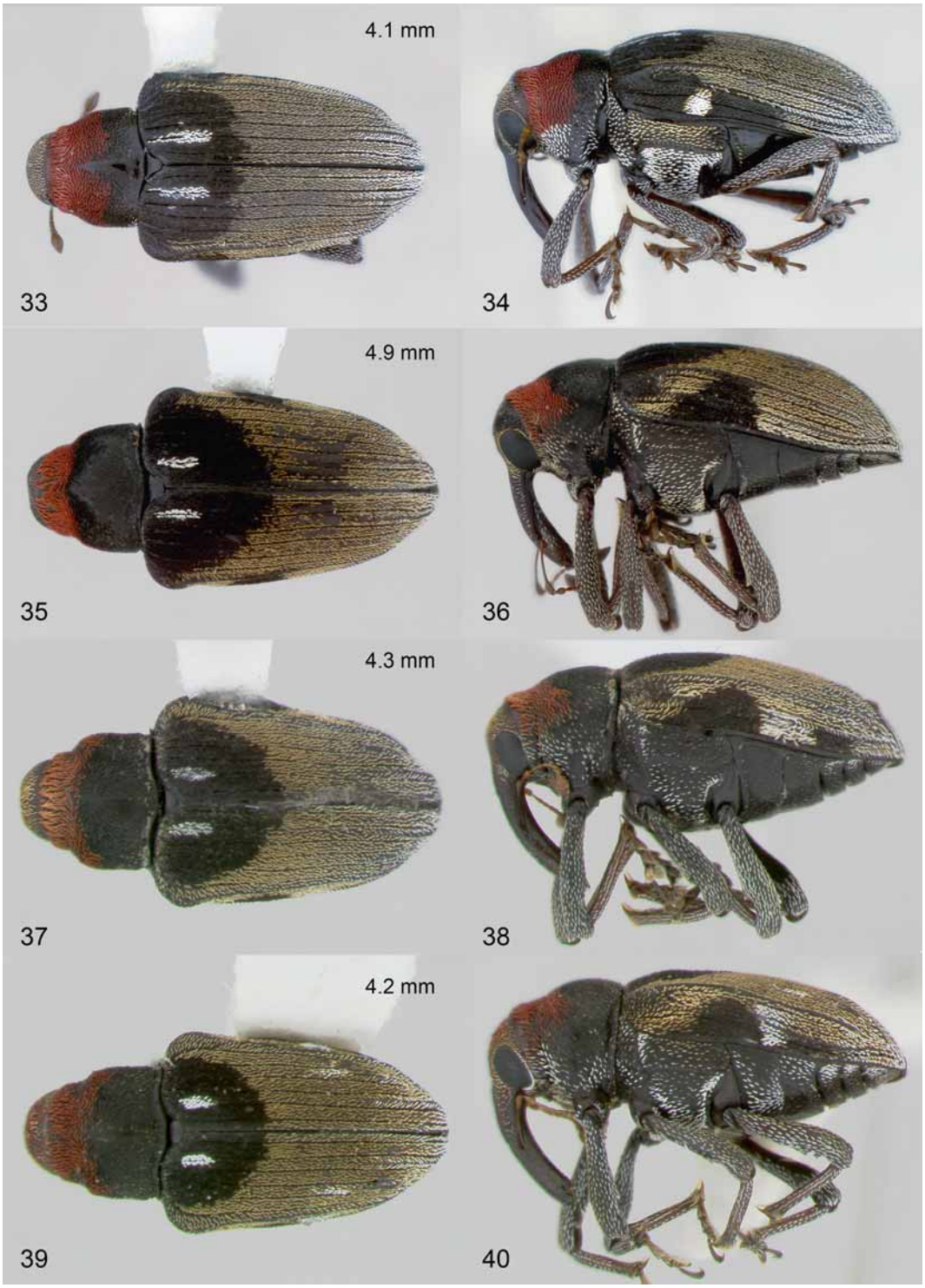
Diagnosis. See under diagnosis of 15. *Peridinetus laetus*. Small or partially abraded male *P. pena* are very difficult to distinguish from *P. laetus*.

Description. Total length 3.3–4.6 mm, standard length 3.2–4.4 mm, width 1.7–2.3 mm. Integument black, head, rostrum and legs reddish to dark brown, antenna red; color pattern formed by red, olive green, white and small dark setae, basal half of elytra with conspicuous semicircular black area, anterior half of pronotum red (Fig. 39), elytral flank with semicircular dark area with white, in lateral view usually vertical spot above ventrites 1 and 2 (Fig. 40), interstria 5 often with white spot in front of ridge. Frons shallowly depressed (male) or convex (female). Rostrum 0.89–1.02× length of pronotum, antenna inserted slightly anterior of (male) or at middle (female); female with dorsal groove basally (*ca*. half diameter of rostrum; Fig. 45) of antennal insertion. Pronotum 0.88–0.98× longer than wide, sides subparallel in basal half, with lateral tumidity and raised setae giving angular outline in dorsal view, front tubulate; disk arched, microreticulate, impunctate. Prosternum with plumose setae. Elytra 1.33–1.39× longer than wide, humeri 1.44–1.60× wider than pronotum, subtriangular, sides gradually converging in basal two thirds; striae distinct, interstriae 3 and 5

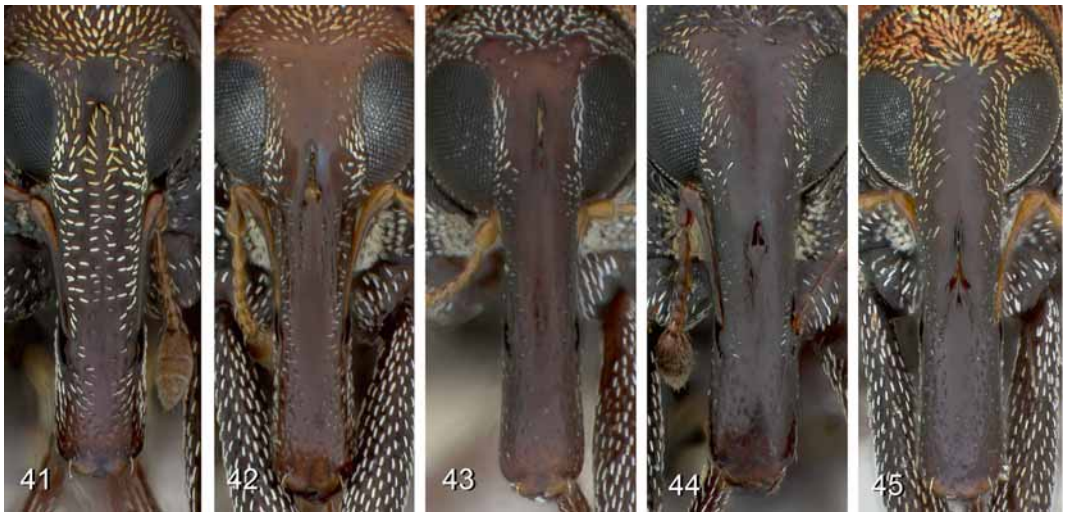
ridged in distal third, 7 throughout with median depression, 9 with ridge fading toward front, preapical callus moderate; tarsal claws subconnate.

Distribution. This species has been found in Nicaragua, Costa Rica and western Panama.

Plant association. *Peridinetus arieianum* (Marquis 3×), *P. bisasperatum* (Marquis 3×), *P. colonense* (Marquis 3×), *P. phytolaccaefolium* (Marquis 1×), *P. reticulatum* (Marquis 1×), *P. sancti-felicis* s. l. (Marquis 7×), *P. silvivagum* (Marquis 1×).



FIGURES 33–40. Dorsal and lateral habitus of *Peridinetus* species. **33–34,** *P. wyandoti*, Vara Blanca (Costa Rica); **35–36,** *P. illabes*, La Fortuna (Panamá); **37–38,** *P. laetus*, La Selva (Costa Rica); **39–40,** *P. pena*, La Selva (Costa Rica).



FIGURES 41–45. Rostrum of species of the *Peridinetus sanguinolentus* complex, dorsal view. **41,** *P. laetus*, male; **42,** *P. laetus*, female; **43,** *P. wyandoti*, female; **44,** *P. illabes*, female; **45,** *P. pena*, female.

Type material. Holotype female, labeled "Est. Cuatro Esquinas, 0 m,/ P.N. Tortuguero Prov./ Limon. COSTA RICA./ R. Delgado, Oct 1991,/ L-N-280000, 590500", INBIO CRI000 630350, "HOLOTYPUS/ Peridinetus/ pena/ Prena, 2010" (INBC). Paratypes 113 (67 males, 46 females): Nicaragua. Matagalpa: Selva Negra Reserve, 1300–1400 m, 15.–20.vi.2007, A. Konstantinov (JPPC 1); 8 mi N Matagalpa, 5000' [1524 m], 15.vii.1974, C.W. & L. O'Brien, B. Marshall (CWOB 1). Costa Rica. Alajuela: 20 km S Upala, 22.–30.ix.1991, F. D. Parker (CWOB 1); La Pena, 4.vi.2000, A. Solís, R. W. Flowers (CWOB 1); San Carlos, P.N. Arenal, Sendero Pilón, 600 m, 14.x.–3.xii.1998, G. Carballo, INB0003163091 (INBC 1), 26.viii.–8.ix.1999, G. Carballo, INB0003163837 (INBC 1), 19.–25.xi.2005, J.A. Azofeifa, INB0003984906 (INBC 2); R.F. San Ramon, Río San Lorencito, 900 m, iii.1990, CRI000 158757 (INBC 1); San Ramon de Dos Ríos, 620 m, 10.–21.vi.1994, H. García, CRI001 875090 (INBC 1), 16.i.–3.ii.1995, C. Cano, CRI002 132709 (INBC 1), F.A. Quesada, 20.ii.–5.iii.1995, CRI002 138933 (INBC 1); P.N. Volcán Tenorio, Sendero Laguna Dantas, 1190 m, 19.viii.2001, A. López, INB0003433343 (INBC 1). Cartago: Turrialba, CATIE, 26.–29.vi.1986, G. Bohart, W. Hanson (CWOB 1), 25.v.1995, J. Rifkind (CWOB 1), 11.ix.1998, C. W. & L. B. O'Brien (CWOB 1); Pejibaye, Reserva El Copal, 1100 m, 12.–15.x.2007, J. Prena (JPPC 1); P.N. Tapantí, 1250 m, viii.1991, F.A. Quesada, CRI000 485834 (INBC 1). Guanacaste: Volcan Cacao, 1000-1400 m, vi.1990, CRI000 254789, 255859, 255882, 255885, 255891, 255924, 255931, 237089 (CMNC 6, INBC 2), 1988–1989, CRI000 038324 (INBC 1), ix.1989, R. Blanco & C. Chavez, CRI000 043797, 044841 (INBC 2), x.1989, R. Blanco & C. Chavez, CRI000 029261 (INBC 1), iv.1991, C. Chaves, CRI000 328682 (INBC 1), ix–xii.1989, B. Guadamuz, CRI000 256674 (INBC 1), 13.–17.ii.1995, E. Fletes, CRI002 143059 (INBC 1), 21.–28.v.1992, R. Vargas, CRI000 876398 (INBC 1), 21.–29.v.1992, G. Rodriguez, CRI000 391523 (INBC 1). Heredia: Puerto Viejo, Est. La Selva, 100 m, 16.vii.1980, no. 8; 8.x.1980, no. 108; 14.x.1980, no. 114; 20.x.1980, no. 122; 8.ii.1981, no. 141; 14.ii.1981, no. 143; 17.ii.1981, no. 164; 27.ii.1981, no. 184; 23.ii.1982, no. 854; 8.viii.1982, no. 1101; 22.viii.1982, nos. 1146, 1150; 12.ix.1982, no. 1169; 13.9.1982, no. 1181; 16.x.1982, no. 1222; 1.xi.1982, no. 1236; 17.xi.1982, no. 1312, R.J. Marquis (USNM 17), 20.iii.1980, 7.iv.1980, 4.iv.1983, 26.vi.1986, 26.iv.1990, 23.vi.1992, 3.viii.1992, H.A. Hespenheide (CHAH 7), x–xi.1991, P. Hanson (CWOB 1), 25.iii.1988, CRI001 216184; 1.vii.1993, CRI001 228890; 10.vii.1993, CRI001 262358; 16.vii.1993 (3x), CRI001 262359–61; 29.vii.1993, CRI001 262357; 11.viii.1993, INB0003672717; 10.ix.1997, CRI002 269773; 27.xii.1999, CRI002 727589, H.A. Hespenheide (INBC 10), x–xi.1991, P. Hanson (CWOB 1); La Virgen de Seguro, R.J. Marquis, 7.v.1982, no. 945 (USNM 3); 11 km ESE La Virgen, 250–350 m, 6.–11.iv.2004 (2x), J. Prena, INB0003660514–15 (INBC 2). Limon: P.N. Tortuguero, Est. Cuatro Esquinas, 0 m, J. Solano, 26.viii.–6.ix.1989, CRI000 023104; ix.1989, CRI000 053552; ix–x.1989, CRI001 108316; x.1989 (5x), CRI000 108422, 108490, 108535, 109252, 109309; xi.1989 (8x), CRI000 155742, 155836, 156345,

285393, 285401, 285411, 285419, 285420; xii.1989 (3x), CRI000 184688, 184732, 184754, 184774 (INBC 19), R. Delgado, x.1990, CRI000 285212; vi.1991 (2x), CRI000 948545, 968676; xi.1991, CRI000 566118; iii.1992, CRI000 893916; 26.iii.–14.iv.1992, CRI000 933654; vii.1992, CRI000 803989; ix.1992 (2x), CRI000 840268, 948268; xi.1992, CRI000 926464; xii.1992, CRI000 830404; i.1993, CRI001 352102 (INBC 14), M. Barrelier, vi.1990, CRI000 233871 (INBC 1); Cerro Tortuguero, 0–120 m, R. Delgado, iii.1993 (2x), CRI001 353090, 353640 (INBC 2). Puntarenas: 6 km S San Vito, 11.iii.1968, H.A. Hespenheide (CHAH 1), 24.iii.2003, A. Cline, A. Tishechkin (CWOB 1). Panama. Chiriquí: La Fortuna, Continental Divide Trail, 20.vii.1995, C. W. & L. B. O'Brien (CWOB 1).

Specific epithet. The name is a noun in apposition.

Note. *Peridinetus pena* was treated by Marquis (1990, 1991) as morphospecies 10, *P. laetus* as morphospecies 9. Whitehead, who made this distinction for the specimens collected at La Selva, did not reveal the underlying criteria in his letters and notes (Systematic Entomology Lab, unpublished).

17. *Peridinetus coccineifrons* Champion

(Fig. 46, 47)

Peridinetus coccineifrons Champion, 1907: 176. Seidlitz (1909: 326), Hustache (1938: 8), Blackwelder (1947: 886), O'Brien & Wibmer (1982: 178), Marquis (1991: 201).

Diagnosis. *Peridinetus coccineifrons* is one of numerous species with red anterior and khaki posterior vestiture (Fig. 46). It differs from similarly colored species by having median ridges on the apical one-third of the elytral interstriae but none on the anterior portion of interstria 7. The studied specimens were 4.4–6.4 mm long (standard length 4.2–6.2 mm) and on average larger than the similar *P. rufotorquatus*.

Distribution. This species has been found in Costa Rica and Panama on both sides of Cordilleras.

Plant association. *Piper aequale* (Prena 1×), *P. carrilloanum* (Marquis 1991), *P. riparense* (Marquis 1×), *P. urophyllum* (Marquis 1991).

Type material. 2 syntypes, Panamá, Bugaba (BMNH 1) and Volcán (BMNH 1).

Material examined. Costa Rica. Alajuela: R.B. San Ramón, 800 m (INBC 1); Sector Colonia Palmareña, 700 m (INBC 1). Cartago: Turrialba (CMNC 1). Heredia: Puerto Viejo, Est. La Selva, 100 m (CMNC 1, USNM 5); La Virgen del Seguro, Cariblanco (USNM 1); 10 km SE La Virgen, 450 m (JPPC 1). Puntarenas: Las Mellizas, 1400 m (JPPC 1); P.N. Corcovado (USNM 3), Est. Sirena, 0-100 m (CMNC 1, INBC 8, JPPC 2), Est. Agujas, 300 m (INBC 1); Est. La Leona, 50 m (JPPC 2); Tigra, 1300 m (INBC 1). San José: 12 km NE San Isidro del General, Cerro Chucuyo, 1350 m (JPPC 1). Panamá. Canal Area: Cacao Plantation Road (HPSC 2). Chiriquí: Bugaba (BMNH 1); Volcán (AMNH 1, BMNH 1). Coclé: El Valle, 700 m (CHAH 1). Panamá: Cerro Campana, 850 m (HPSC 2). San Blas: Nusagandi, 450 m (HPSC 1). Total 40 specimens.

18. *Peridinetus rufotorquatus* Champion

(Fig. 48, 49)

Peridinetus rufotorquatus Champion, 1907: 177. Seidlitz (1909: 326), Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).
Peridinetus sp. 8. Marquis (1990:107, 1991: 181).

Diagnosis. *Peridinetus rufotorquatus* is one of several species with red anterior and olive posterior vestiture. It differs from similar-colored *Peridinetus* species by the presence of incomplete dorsolateral pronotal vittae (Fig. 48) and the arrangement of the interstrial ridges, which are confined to the elytral declivity. The studied specimens were 2.7–4.5 mm long (standard length 2.6–4.2 mm).

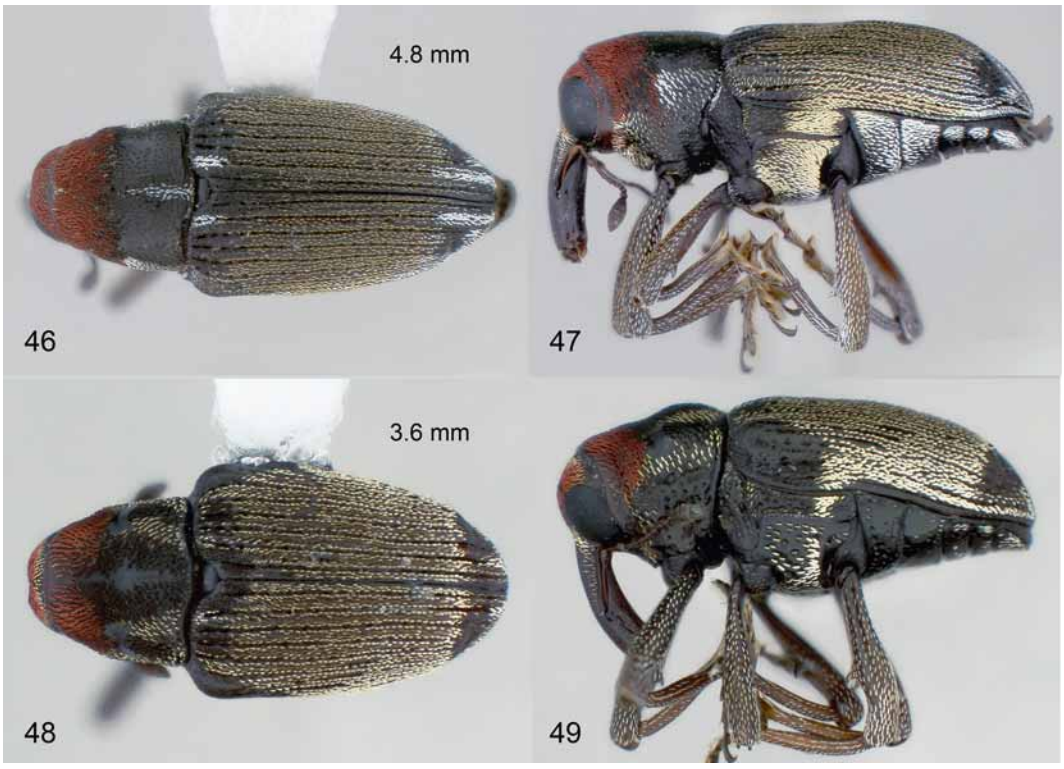
Plant association. *Piper aequale* (Prena 1×), *P. arieianum* (Marquis 7×), *P. biseriatum* (Marquis 1×), *P. culebranum* (Marquis 1×), *P. decurrens* (Marquis 1×), *P. glabrescens* (Marquis 2×), *P. multiplinervium*

(Marquis 1×), *P. phytolaccaefolium* (Marquis 7×), *P.* aff. *sancti-felicis* (Marquis 3×), *P. sinagaudens* (Marquis 1×), *P. tonduzii* (Marquis 3×), *P. urostachyum* (Marquis 2×).

Distribution. This species has been found from southern Mexico to Brazil

Type material. 11 syntypes, Mexico, Teapa (BMNH 8, USNM 1), Guatemala, Chacoj (BMNH 1) and San Juan (BMNH 1).

Material examined. Mexico. Tabasco: Teapa (USNM 1). Guatemala. Alta Verapaz: Chacoj (BMNH 1); San Juan (BMNH 1). Belize. Toledo: 5 km N San Antonio (USNM 1). Honduras. Atlantida: Lancetilla near Tela, 100 m (JPPC 1). Cortés: P.N. Cusuco, 1600 m (JPPC 2). Gracias a Dios: Río Platano/ Río Cuyamel, 50 m (JPPC 1). Nicaragua. Río San Juan: 7 km SE El Castillo, Refugio Bartola, 30 m (SEAN 1). Costa Rica. Cartago: M.N. Guayabo, 1100 m (INBC 1); Pejibaye, 1100 m (JPPC 1). Limón: Cerro Cocorí, Fca. Elias Rojas, 150 m (INBC 48); R.B. Hitoy Cerere, 100 m (INBC 1); Guápiles 16 km W, 400 m (INBC 1); P.N. Tortuguero, Est. Cuatro Esquinas, 10 m (INBC 3), Cerro Tortuguero, 100 m (INBC 5). Guanacaste: P.N. Guanacaste, Est. Pitilla, 700 m (INBC 2). Heredia: Puerto Viejo, Est. La Selva, 100 m (CHAH 1, CWOB 2, JPPC 2, USNM 33); 11 km ESE La Virgen, 300 m (JPPC 2); 10 km SE La Virgen, 450 m (JPPC 1); Pueblo Nuevo Sarapiquí, 90 m (INBC 1). Puntarenas: Buenos Aires, Sector Altamira, 1400 m (INBC 2, JPPC 1); Fundación Dúrika, 1700 m (JPPC 1); R.B. Monteverde, 1500 m (INBC 1); Fila Cruces, Linda Vista de Río Claro, 900 m (INBC 1); P.N. Manuel Antonio, 80 m (INBC 1). Panamá. Bocas del Toro: 4 km W Chiriquí Grande, 100 m (JPPC 16); 15 km SSW Changuinola, 300 m (JPPC 5). Darién: Pirre, Est. Rancho Frío, 80 m (HPSC 3). Brazil. Pará: (USNM 1). Mato Grosso: Sinop (CWOB 1). Rondônia: 62 km SW Ariquemes, Fzda. Rancho Grande (CWOB 1). Peru. Madre de Dios: Río Tambopata Res. (FSCA 1). Total 146 specimens.



FIGURES 46–49. Dorsal and lateral habitus of *Peridinetus* species. **46–47,** *P. coccineifrons*, La Selva (Costa Rica); **48–49,** *P. rufotorquatus*, La Selva (Costa Rica).

19. *Peridinetus stigmatipleura* Champion

(Fig. 50, 51)

Peridinetus stigmatipleura Champion, 1907: 179. Seidlitz (1909: 326), Hustache (1938: 10), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus stigmatipleura* is a small species with white flank and two pairs (the anterior pair sometimes missing) of elytral spots (Fig. 50, 51). The color pattern is shared by one undescribed *Palliolatrix* species so far known from Peru. The studied specimens were 3.2–3.7 mm long (standard length 3.0–3.5 mm).

Distribution. This species has been found on the Pacific side of the Cordillera de Talamanca (Costa Rica, Panama) and in central Panama.

Plant association. *Piper augustum* (Prena 20×), *P. hispidum* (Prena 1×), *P. dilatatum* (Prena 1×).

Type material. 9 syntypes, Panamá, Bugaba (BMNH 6) and Volcán (BMNH 2, USNM 1).

Material examined. Costa Rica. Puntarenas: P.N. Manuel Antonio, 80 m (INBC 7, JPPC 1); Osa, P.N. Corcovado, Est. Esquinas, 10 m (INBC 12, JPPC 2), Est. Sirena, 50 m (INBC 4), Est. La Leona, 50 m (JPPC 1); Osa, Rancho Quemado, 200 m (INBC 7); Altamira, 1800 m (JPPC 2); 4 km S San Vito, 1100 m (JPPC 2). San José: 13 NE San Isidro del General, Cerro Chucuyo, 1300 m (CMNC 1, JPPC 19). Panamá. Coclé: El Valle 850 m (CHAH 1, HPSC 1); Panamá: Cerro Campana, 850 m (HPSC 2, USNM 2). Chiriquí: Sta. Clara (HPSC 2); Volcán (USNM 1). Total 67 specimens.

20. *Peridinetus lugubris* Prena, sp. n.

(Fig. 52, 53)

Diagnosis. *Peridinetus lugubris* is a stout species near *P. frontalis* that can be recognized by the conspicuous yellow marks on frons and elytron (Fig. 52).

Description. Total length 4.2–4.8 mm, standard length 4.0–4.6 mm. Integument dark brown, antenna and tarsi rufous; basic vestiture of small whitish, cupreous and brown setae; large yellow setae on frons and at base of rostrum, in median pronotal vitta and in spots on pronotum and elytron (Fig. 52). Rostrum 1.05–1.07× length of pronotum, antenna inserted at mid-length of rostrum. Pronotum 0.76–0.83× longer than wide, subparallel to slightly rounded in basal half, constricted and tubulate in front; disk densely punctate to granulose, not costate. Elytra 1.42–1.54× longer than wide, humeri 1.41–1.46× wider than pronotum, sides gradually converging in basal half; striae distinct and punctate, interstriae not ridged, preapical callus inconspicuous; tarsal claws subconnate.

Distribution. This species has been found in Costa Rica and on the Pacific side of Ecuador.

Plant association. *Peperomia pseudoalpina* (Prena 1×).

Type material. Holotype male, labeled "COSTA RICA: Heredia/ Est. Biol. La Selva, 50–/ 150 m, 10 26 N 84 01 W/ Proy. ALAS, INBio-OET", "FOT/46/01–40/ Eugenia sp. / 05 Enero 2000", CRI002 228252, "HOLOTYPUS/ Peridinetus/ lugubris/ Prena, 2010" (INBC). Paratypes 6 (4 males, 2 females): Costa Rica. Guanacaste: Tierras Morenas, Río San Lorenzo, 1050 m, 23.3.–21.4.1992, A. Marin, CRI000 413159 and 413164 (INBC 2). Puntarenas: Monteverde, Campbell's Woods, 1550 m, 26.v.1989, J. Ashe, R. Leschen, R. Brooks (CMNC 1); Monteverde, Est. Biológica, 1600 m, 30.vi.–9.vii.2009, J. Prena (JPPC 1). San José: Zurquí de Moravia, 1600 m, Malaise trap, iv–v.1993, P. Hanson (CWOB 1). Ecuador. Pichincha: E Santo Domingo, 8.–14.v.1988, Bohart & Hanson (CWOB 1).

Specific epithet. The name is a Latin adjective meaning "mourning".

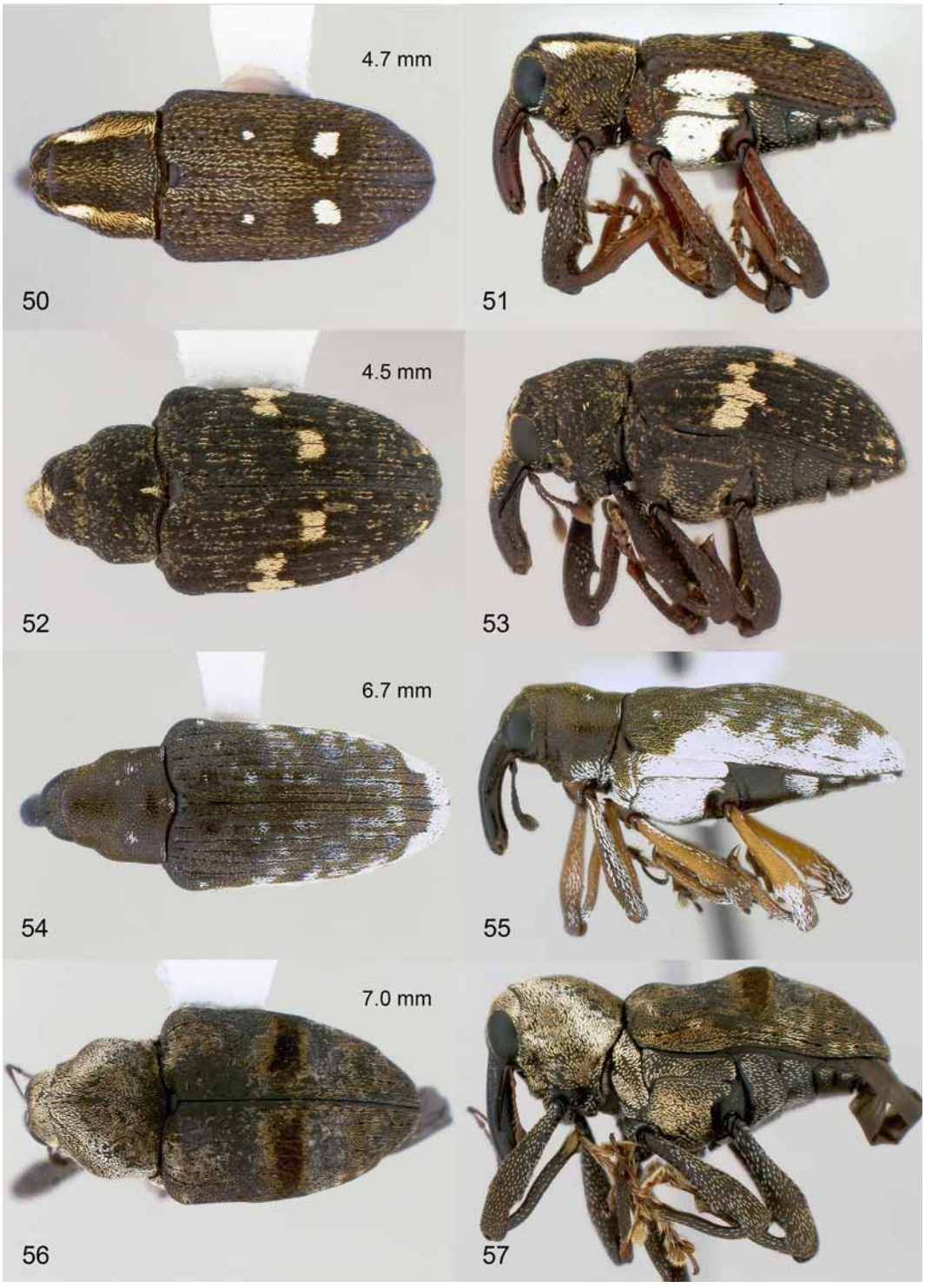
21. *Peridinetus lateralis* Champion

(Fig. 54, 55)

Peridinetus lateralis Champion, 1907: 175. Seidlitz (1909: 326), Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus lateralis* and the very similar *P. melastomae* are rather conspicuous by having reddish legs and slender, subtriangular elytra with white apices and ill-defined subapical fasciae. Initially, I had lumped the two species, but further collecting revealed stable though subtle differences. The main differences occur on the pronotum, *i.e.*, base subparallel and disk with pair of white spots in *P. lateralis* (Fig. 54) versus

subconical and without spots in *P. melastomae* (Fig. 11). *Peridinetus lateralis* also has the basal one-fourth of the elytral disk more depressed. The studied specimens were 6.0–8.1 mm long (standard length 5.8–7.8 mm).



FIGURES 50–57. Dorsal and lateral habitus of *Peridinetus* species. **50–51,** *P. stigmatipleura*, San Isidro del General (Costa Rica); **52–53,** *P. lugubris*, Monteverde (Costa Rica); **54–55,** *P. lateralis*, Cerro Zurquí (Costa Rica); **56–57,** *P. collaris*, Cusuco N.P. (Honduras).

Distribution. The species has been found in Costa Rica and Panama at 1100–2440 m elevation.

Plant association. *Piper* sp. (Prena 2×).

Type material. Holotype, Panamá, Volcán (BMNH).

Material examined. Costa Rica. Cartago: transecto Irazú - Braulio Carrillo, camp 1, 1760 m (INBC 1). Guanacaste: P.N. Guanacaste, Est. Cacao, 1000–1400 m (INBC 6), Est. Mengo, 1400 m (INBC 1). Heredia:

P.N. Braulio Carrillo, 5 km N San Isidro, Cerro Zurquí, 1800 m (JPPC 1). Puntarenas: Monteverde, 1500 m (JPPC 1). Panamá. Chiriquí: Volcán, 2440 m (BMNH 1); Reserva La Fortuna, 1100 m (JPPC 1). Total 12 specimens.

22. *Peridinetus collaris* Champion
(Fig. 56, 57)

Peridinetus collaris Champion, 1907: 176. Seidlitz (1909: 326), Hustache (1938: 8), Blackwelder (1947: 886), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus collaris* has a characteristic dark, raised fascia across the elyton (Fig. 54, 55) that does not occur in any other known species. The studied specimens were 7.0–8.0 mm long (standard length 6.7–7.6 mm).

Distribution. This species has been found in southern Mexico, Guatemala and Honduras.

Plant association. Unknown.

Type material. 2 syntypes, Mexico, Toxpam (BMNH 1) and Cerro de Plumas (BMNH 1).

Material examined. Mexico. Toxpam [=Tuxpan, Veracruz?] (BMNH 1); Cerro de Plumas (BMNH 1). Guatemala. Baja Verapaz: Purulha (CWOB 1); Honduras. Cortes: Cusuco N.P. (CMNC 1). Total 4 specimens.

23. *Peridinetus ecuadoricus* Casey, resurrected
(Fig. 1, 4–8, 58, 59)

Peridinetus ecuadoricus Casey, 1922: 8 (in key).
Peridinetus irroratus ecuadoricus. Hustache (1938: 9), Blackwelder (1947: 887), Voss (1954: 306).
Peridinetus maculiventris auctt. (not Chevrolat). Kuschel (1983: 41) [synonymy based on misidentification].
Peridinetus sp. 4. Marquis (1991: 181).
Peridinetus suturalis auctt. (not Chevrolat). Davis (2009: 5, 10).

Diagnosis. *Peridinetus ecuadoricus* has been lumped in collections with *P. irroratus* and, occasionally, with *Pardisomus albescens* Prena and *Peridinetus jelskii* Chevrolat. The latter species is restricted to South America and has a distinct sulcus above the antennal scrobe in the female (present but indistinct in the male); *Pardisomus* species generally lack a prosternal channel. *Peridinetus ecuadoricus* differs from the otherwise very similar *P. irroratus* by indistinctly ridged interstriae 7 and 9 (shared with *P. jelskii*) and whitish vestiture on frons and pronotal apex. The studied specimens were 5.7–7.9 mm long (standard length 5.5–7.7 mm).

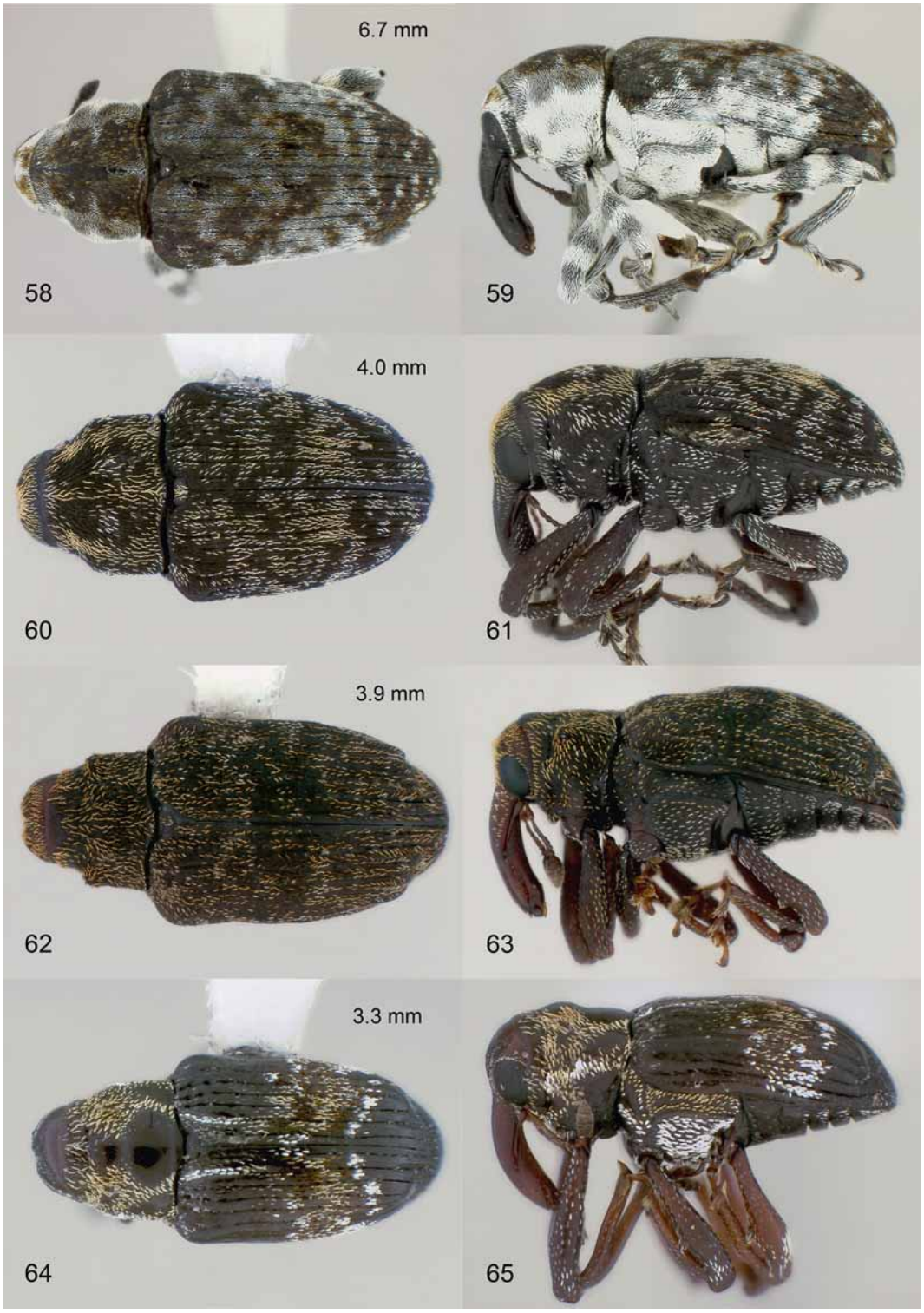
Distribution. This species has been found from Honduras south to the Pacific side of Colombia and Ecuador. It is here newly recorded for Middle America.

Plant association. *Piper auritum* (Marquis 14×; Nevermann 1×; Prena, many), larva in petiole and mid-rib of leaf (Prena, unpublished).

Type material. Holotype, Ecuador, Balzapamba (USNM).

Material examined. Honduras. Cortés: Muchilena (USNM 2). Nicaragua. Matagalpa: Matagalpa, Fuente Pura, 1400 m (JPPC 5, SEAN 1). Costa Rica. Alajuela: Dos Ríos (INBC 161); San Carlos (USNM 3). Cartago: Chitaría (USNM 1); La Gloria (USNM 1); Tuís (USNM 1); Turrialba (INBC 1, JPPC 1, USNM 18, MNHUB 5). Guanacaste: P.N. Guanacaste, Est. Maritza (INBC 1), Est. Cacao (INBC 153), Est. Pitilla (INBC 91, JPPC 3), Río Tempisquito (INBC 4). Heredia: Puerto Viejo, Est. La Selva, 100 m (CHAH 2, USNM 16). Limón: Amubri (INBC 7); Hamburg Farm (USNM 6); Hitoy Cerere (INBC 13); Las Mercedes, Santa Clara (USNM 4); Mancanillo (INBC 9); Philadelphia (USNM 13); Puerto Limón (USNM 2); Río Bananito (USNM 1); Río Sarapiquí, Ceiba (JPPC 1); Río Sardinas (INBC 20); Río Zapote (INBC 65, JPPC 1); Tortuguero (INBC 7). Puntarenas: Boruca (INBC 1); Carara (INBC 1); Coto Brus (INBC 1); Fila Cedro (INBC 4); Jiménez (INBC 1); Laguna Corcovado (INBC 6); Monteverde (INBC 9); Rincón (INBC 5). San José: Cerro Chucuyo, 12 km NE San Isidro del General (JPPC 2); Fila Negra (INBC 1); La Palma, Río Hondura (USNM

2); Río General (USNM 2); San José (USNM 1, MNHUB 1); Zeledón (USNM 4). Panamá. Bocas del Toro: Bocas del Toro (USNM 4); 15 km SSW Changinola (JPPC 1). Canal Zone: Margarita (USNM 1). Colombia. Nariño: Tumaco (USNM 4). Ecuador. Bolivar: Balzapamba (USNM 1, MNHUB 8); Manabí: El Carmen (JPPC 1). Pichincha: 45 km NNW Quito, Maquipucuna Station (CMNC 2); Tinalandia (CMNC 2). Total 690 specimens.



FIGURES 58–65. Dorsal and lateral habitus of *Peridinetus* species. **58–59,** *P. ecuadoricus*, Maquipucuna Reserve (Ecuador); **60–61,** *P. frontalis*, Paraiso, C.Z. (Panamá); **62–63,** *P. opacus*, Cerro Zurquí (Costa Rica); **64–65,** *P. nodicollis*, Portobelo (Panamá).

Note. In South America, on the Pacific side of the Andes, occurs a population that has less distinctly ridged elytral interstriae than typical *P. irroratus* from the Atlantic side. These two morphological forms are sympatric in Middle America although apparently not on the same plant species. Unfortunately, I was not fully aware of this deviant population during my fieldwork so did not systematically explore this phenomenon. Based on the morphology of the available specimens, I neither recognize random variation in the development of the interstrial ridges nor noticeable intergradation between the two populations in Middle America, although the difference can be quite subtle. These observations seem to support their distinction as separate taxa, as proposed or discussed in earlier studies (Casey 1922, Voss 1954, Kuschel 1983, Whitehead in Marquis 1991). Unfortunately, these studies do not reveal how this distinction was made or, if so, they describe what I consider individual variation. Whitehead's criteria for distinguishing three informal species at La Selva, Costa Rica are documented in his personal notes (USNM, Systematic Entomology Lab). Species #4 differed from #5 and #6 by (1) white setae on frons and anterior portion of pronotum, (2) interstria 4 not ridged apically and (3) association with *Piper auritum*. The distinction between species #5 and #6 was apparently provisional and based on the association of #5 with *Piper phytolaccaefolium* and #6 with *P. arieianum*. These criteria do not always hold for specimens from other places, but the development of median ridges on the seventh and ninth interstriae seems to support at least the distinction of #4 from the other two. It should be mentioned that all populations have a conspicuous subapical constriction on the male middle tibia. Because the two forms do not seem to interbreed where they overlap, I consider them as good species. *Peridinetus ecuadoricus* Casey is an available name for Whitehead's species #4 and is resurrected here from synonymy with *P. maculiventris*. The latter name is a junior synonym itself, *i.e.*, of *P. jelskii* Chevrolat, because the priority of these two simultaneously published names was fixed by Jekel (1883), the first revising author. The validity of *P. ecuadoricus* needs verification with ecological and molecular data.

24. *Peridinetus frontalis* Chevrolat

(Fig. 60, 61)

Peridinetus frontalis Chevrolat, 1883: 81. Bertkau (1883: 247), Jekel (1883: 85), Ganglbauer (1884: 282), Wibmer & O'Brien (1986: 279).
Drepanamabates frontalis. Hustache (1938: 6), Blackwelder (1947: 886).
Peridinetus humilis Hustache, 1949: 17. Kuschel (1983: 41) [synonym of *P. frontalis*].

Diagnosis. *Peridinetus frontalis* is a small species with usually inconspicuous, mottled vestiture (Fig. 60). The only similar species in Middle America is *P. opacus*, which is more slender and has the pronotum angularly constricted. The studied specimens were 2.6–4.2 mm long (standard length 2.4–3.9 mm).

Distribution. This species has been found from the Caribbean lowlands of Costa Rica south to Bolivia and Brazil. It is here newly recorded for Middle America.

Plant association. *Piper hispidum* complex (Prena 13×).

Type material. *P. frontalis*: holotype, Colombia, Río Magdalena (NHRS). *P. humilis*: holotype, Colombia, Ibaque [Ibagué] (MNHP); paratype, Colombia, Muzo (MNHP 1); paratype, Colombia, Bogotá (MNHP 1); paratype, Brazil, Espírito Santo (MNHP 1).

Material examined. Costa Rica. Limón: Valle de la Estrella, Pandora (CMNC 4); Valle del Silencio, R.B. Hitoy Cerere, 100–140 m (INBC 3). Puntarenas: Osa, P.N. Corcovado, Est. La Leona, 50 m (JPPC 1); 2.5 mi SW Rincón, 200 m (HPSC 1). Panamá. Bocas del Toro: 4 km W Chiriquí Grande, 100 m (JPPC 10); 15 km SSW Changuinola, 300 m (JPPC 2); Corriente Grande, 100 m (HPSC 3); La Fortuna Reserve, 8 km N Continental Divide (CMNC 1). Canal Zone: numerous sites (AMNH 1, CWOB 1, HPSC 19, USNM 6). Colón: Portobelo, XX Plantation (USNM 2). Darién: Cana, 450 m (HPSC 1). Panamá: Cerro Campana, 850 m (CWOB 1, HPSC 3, USNM 4); El Llano – Cartí road, km 8–9, 300 m (HPSC 3); Arraiján, Loma del Río (HPSC 2). Veraguas: Alto de Piedra above Santa Fe, 850 m (HPSC 1). Colombia. Cundinamarca: Bogotá (MNHP 1); Muzo (MNHP 1). Magdalena: San Pedro, Sierra Nevada de Santa Marta, 1200 m (CMNC 1). Tolima: Ibagué (MNHP 1). Valle: Río Tatabra, 35 km E Buenaventura, 100 m (CMNC 1). Without location:

(USNM 1). Ecuador. Napo: Puerto Misahuallí (CWOB 1). Venezuela. Aragua: Rancho Grande (CMNC 2, JPPC 1); El Limón (CMNC 1, JPPC 1). Peru. Huanuco: Tingo Maria (CWOB 4); Las Palmas (CWOB 1). Pastaza: Llandia, 17 km N Puyo, 1000 m (CMNC 1). Brazil. Espirito Santo: (MNHP 1). Rondônia: 62 km SW Ariquemes (CWOB 15). Bolivia. La Paz: Chuani (USNM 1). Santa Cruz: Vicoquin area, above Achira, 1730–2000 m (JPPC 1, MNKM 1). Total 105 specimens.

Note. Champion (1907) apparently was unaware of *P. frontalis* when he described *P. opacus*. The latter is closely related and occurs in the northern distributional range of *P. frontalis*. Due to a lack of material from a greater variety of sites, I maintain them as distinct species, chiefly based on the shape of the pronotum. The issue needs to be readdressed in connection with other deviant subpopulations from South America. *Peridinetus frontalis* and *P. sanguinolentus* represent species complexes with similar distribution patterns and morphological developments.

25. *Peridinetus opacus* Champion
(Fig. 62, 63)

Peridinetus opacus Champion, 1907: 178. Seidlitz (1909: 326), Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus opacus* is a small, inconspicuous weevil with few setae (Fig. 62), which is very similar to *P. frontalis* (Fig. 60). Champion apparently was unaware of *P. frontalis* when he described *P. opacus* from Panama. The Middle American material now available suggests that *P. opacus* occurs at mid-elevations in the Cordilleras Central and Talamanca, while typical *P. frontalis* occur in the adjacent lowlands. The chief distinguishing character of *P. opacus* is the laterally angular pronotum. These two taxa belong to a predominantly South American species complex and their taxonomic ranks need to be readdressed in a future investigation of that fauna. The studied specimens were 3.1–4.5 mm long (standard length 2.9–4.3 mm).

Distribution. This species has been found at mid-elevations in Costa Rica and Panama.

Plant association. *Piper hispidum* complex (Prena 11×)

Type material. 2 syntypes, Panamá, Volcán (BMNH 2).

Material examined. Costa Rica. Cartago: P.N. Tapantí, 20 km SE Cartago, 1200 m (JPPC 6); Grano de Oro, 1120 m (INBC 1). Heredia: P.N. Braulio Carrillo, 5 km N San Isidro, Cerro Zurquí, 1800 m (JPPC 2). Puntarenas: 4 km S San Vito, 1100 m (JPPC 2). San José: 12 km NE San Isidro del General, Cerro Chucuyo, 1350 m (JPPC 1). Panamá. Chiriquí: Volcán, 800–1300 m (BMNH 2). Total 13 specimens.

26. *Peridinetus nodicollis* Champion
(Fig. 64, 65)

Peridinetus nodicollis Champion, 1907: 178. Seidlitz (1909: 326), Hustache (1938: 9), Blackwelder (1947: 887), O'Brien & Wibmer (1982: 178).

Diagnosis. *Peridinetus nodicollis* is a small species with glabrous pronotal disk and rather inconspicuous color pattern (Fig. 64). The elytron has narrow white stripes on the base of interstria 3 and in the distal section of the ill-defined ochreous fascia. The studied specimens were 2.9–3.8 mm long (standard length 2.8–3.7 mm).

Distribution. This species has been found on both sides of the Cordillera de Talamanca in Costa Rica, in Panama and on the Pacific side of Ecuador (not recorded from Colombia). It is here newly recorded for South America.

Plant association. *Piper deductum* (Prena 1×).

Type material. 2 syntypes, Panamá, Bugaba (BMNH 1) and Volcán (BMNH 1).

Material examined. Costa Rica. Limón: Amubri, 70 m (INBC 3); Manzanilla, 50 m (INBC 2). Puntarenas: Buenos Aires, 550 m (INBC 1); Osa, P.N. Corcovado, Est. Agujas, 300 m (INBC 1, JPPC 1), Est. Esquinas, 200 m (INBC 3), Est. Sirena, 10 m (INBC 11), Est. Leona, 50 m (JPPC 1); Osa, Rancho Quemado, 200 m (INBC 4); Osa, Río Rincón (JPPC 2); Osa, 5 mi SW Rincón (CHAH 1); R.B. Carara, Est. Quebrada Bonita, 50 m (INBC 33); Quepos, P.N. Manuel Antonio, 80 m (INBC 13, JPPC 3). Panamá. Bocas del Toro: Corriente Grande, 100 m (HPSC 1); 15 km SSW Changuinola, 300 m (JPPC 2). Canal Area: Barro Colorado Island (CHAH 1); Coco Solo Hospital (HPSC 1); Madden Forest (CHAH 1); Pipeline Road (HPSC 1). Chiriquí: Bugaba (BMNH 1); Volcán (BMNH 1). Coclé: El Valle, 750 m (HPSC 2). Colón: Portobelo (USNM 6); XX Plantation (USNM 1). Darién: Cana, 450 m (HPSC 1). Panamá: Cerro Campana, 850 m (CHAH 1). Ecuador. Esmeraldas: Canton San Lorenzo, Chuchubi (CWOB 2); Los Ríos: Río Palenque Station (CNCI 1). Pichincha: Maquipucuna Res., Cerro Nanegal (CWOB 2); Santo Domingo de los Colorados, 550 m (AMNH 1). Total 105 specimens.

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