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(Coleoptera: Cucujidae) for America
north of Mexico, with notes on other
species

Michael C. Thomas

Florida State Collection of Arthropods, Florida Department of
Agriculture and Consumer Services, Gainesville, FL,

A revision of *Pediacus* Shuckard (Coleoptera: Cucujidae) for America north of Mexico, with notes on other species

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Florida State Collection of Arthropods
Florida Department of Agriculture and Consumer Services
P.O. Box 147100
Gainesville, FL 32614-7100

Abstract. The genus *Pediacus* Shuckard is revised for America north of Mexico. Seven species are recorded: *P. andrewsi* Thomas, **n. sp.**; *P. fuscus* Erichson; *P. gracilis* Thomas, **n. sp.**; *P. hesperoglaber* Thomas, **n. sp.**; *P. ommatodon* Thomas, **n. sp.**; *P. stephani* Thomas, **n. sp.**; and *P. subglaber* LeConte, **new status**. The species are described and illustrated, and a key is presented for their identification. The described European and Neotropical species are reviewed and illustrated.

Introduction

The last paper to treat the North American Cucujidae (*sens. str.*) as a whole was Casey (1884). In that work, two species (*P. fuscus* Erichson and *P. depressus* Herbst, both described from Europe) were treated as valid and three (*P. planus* (LeConte), *P. subglaber* LeConte and *P. subcarinatus* Mannerheim) were treated as synonyms of the European species. The recent receipt of a small collection of California *Pediacus* prompted a reassessment of specimens on hand, the results of which led to this study.

Members of the different species are quite similar and external differences are generally small and subtle. The male genitalia are quite useful in separating the species. In only one species pair are the genitalic differences subtle but even there they are easily seen. Illustrations are provided of all structures useful in separating the species, as well as illustrations and discussions of the known European and Mexican-Guatemalan species. Only the seven species found in America north of Mexico, however, are included in the key. Considering the number of previously undescribed species in western North America, it is likely that more are awaiting discovery in both the Old and New Worlds.

Measurements are as follows: Head width across eyes; pronotal width at widest point; elytral width at widest point, usually at about apical third; head length at midline from basal transverse impression to anterior margin of clypeus; pronotal length at midline from base to apex; elytral length at suture from anterior edge of scutellum to tip of elytra. The ocular index was derived by dividing the head width into the closest distance between the eyes. Five specimens of each species were measured.

Label data for types are reproduced verbatim, except that old determination labels are omitted. All types of the new species described here bear a type label applied by me; these data are not reproduced for each specimen. Label data for paratypes are in the Appendix; label data for specimens examined of described species are not listed in detail here but are available from the author. Habitus photographs were produced with an Auto-Montage Pro© system; SEM photographs were taken on a JEOL JSM-5510LV Scanning Electron Microscope. Genitalia photographs were taken with a Nikon CoolPix 995 digital camera attached to a Zeiss Photo-Microscope III.

Collection codens used are from Arnett, et al. 1993:

- BMNH The Natural History Museum, London
- CDAE California Department of Food and Agriculture, Sacramento
- CMNC Canadian Museum of Nature, Ottawa
- CNCI Canadian National Collection of Insects, Ottawa
- EMEC Essig Museum of Entomology, Berkeley
- FMNH Field Museum of Natural History, Chicago
- FSCA Florida State Collection of Arthropods, Gainesville
- LACM Los Angeles County Museum, Los Angeles
- MCZC Museum of Comparative Zoology, Cambridge
- MTEC Montana State University Entomology Collection, Bozeman
- MZHF Finnish Museum of Natural History, Helsinki
- PPCD West Virginia Department of Agriculture, Charleston
- SBMN Santa Barbara Museum of Natural History, Santa Barbara
- USNM National Museum of Natural History, Washington

Pediacus Shuckard

Pediacus Shuckard 1839: 150, 185

Type species. *Cucujus dermestoides* Fabricius 1792: 96, by monotypy.

Diagnosis. Members of this genus are easily distinguished from those of *Cucujus*, the only other cucujid genus occurring in America north of Mexico, by their small size, somber coloration, and small to absent temples. They somewhat resemble various tenebrionid beetles, but can be distinguished easily by their 5-5-4 tarsal formula in males only, and exposed pro- and mesotrochantins (Figs. 23-24).

Description: With characters of Cucujidae (Thomas 2002) plus: Form elongate, parallel-sided; dorsal pubescence inconspicuous to conspicuous; body small, length 2.7-7.0mm (2.7-4.5mm in North American species).

Head triangular, abruptly constricted behind eyes, with a deep, transverse post-ocular groove; epistome carinate laterally, carinae anteriorly produced so that epistome appears to be laterally toothed (Fig. 26), frons with short longitudinal grooves (Fig. 26); eyes moderate to large, hemispherical to somewhat flattened, with or without well-developed temples, with interfacetal setae (Fig. 25); antennae relatively short, nearly moniliform; antennomere VII typically larger and differently shaped than VI or VIII, sometimes markedly so; IX-XI forming a conspicuous club. Pronotum quadrate to transverse, with or without paired discal impressions; moderately to strongly explanate laterally, usually with four well-marked marginal denticles including posterior angle; anterior angle obtuse, produced. Scutellum transverse. Elytra parallel-sided, weakly to moderately costate sublaterally, abruptly declivous to explanate margin; sutural groove present; punctation confused. Intercoxal process of prosternum narrower than a coxal cavity, rounded apically. Structure of male genitalia characteristic (Figs. 14-22, 44-47): The aedeagus is composed of a short, variously sclerotized median lobe, from the posterior edge of which two long, angled struts arise medially, extend posteriorly for about 3x the length of the median lobe and join medially to form an inverted u-shaped median strut. The internal sac contains a relatively short flagellum and often a complex armature. The tegmen consists of a long, sclerotized basal piece, articulated parameres, and paired struts that arise at the posterolateral angles of the basal piece and form an inverted v-

shaped dorsal piece. Diagnostic characters are found in the shape of the parameres, shape and sclerotizations of the median lobe, and structure of the armature of the internal sac.

The male genitalia of *Pediacus* and *Cucujus* are similar, but differ in the longer, more heavily sclerotized flagellum in the latter and a relatively longer, solid median strut. The genitalia in both are dorso-ventrally oriented in the abdomen, while the genitalia in the Neotropical *Palaestes* and the Australian *Platysus* lie on their side in the abdomen.

Biology. Label data suggest that these are predominantly found under the bark of dead conifers.

Discussion. Shuckard (1839) described *Pediacus* first in a key to genera on p. 150, then provided a detailed description starting on p. 185.

Including the species described here, there are 22 extant described species of *Pediacus*, 11 of which are found in the New World. One species, *P. fuscus*, is found in both the New World and the Old World. America north of Mexico has seven species, all of which occur in the United States; six are recorded here from Canada. The species seem to be restricted either to high altitudes or high latitudes.

Scudder (1900) described the fossil *Pediacus periclitans* from Florissant, Colorado. From the illustration provided it is impossible to determine the accuracy of its generic assignment with any kind of confidence.

Pediacus fuscus Erichson

Figs. 1, 7, 16, 31

Pediacus fuscus Erichson 1845: 313

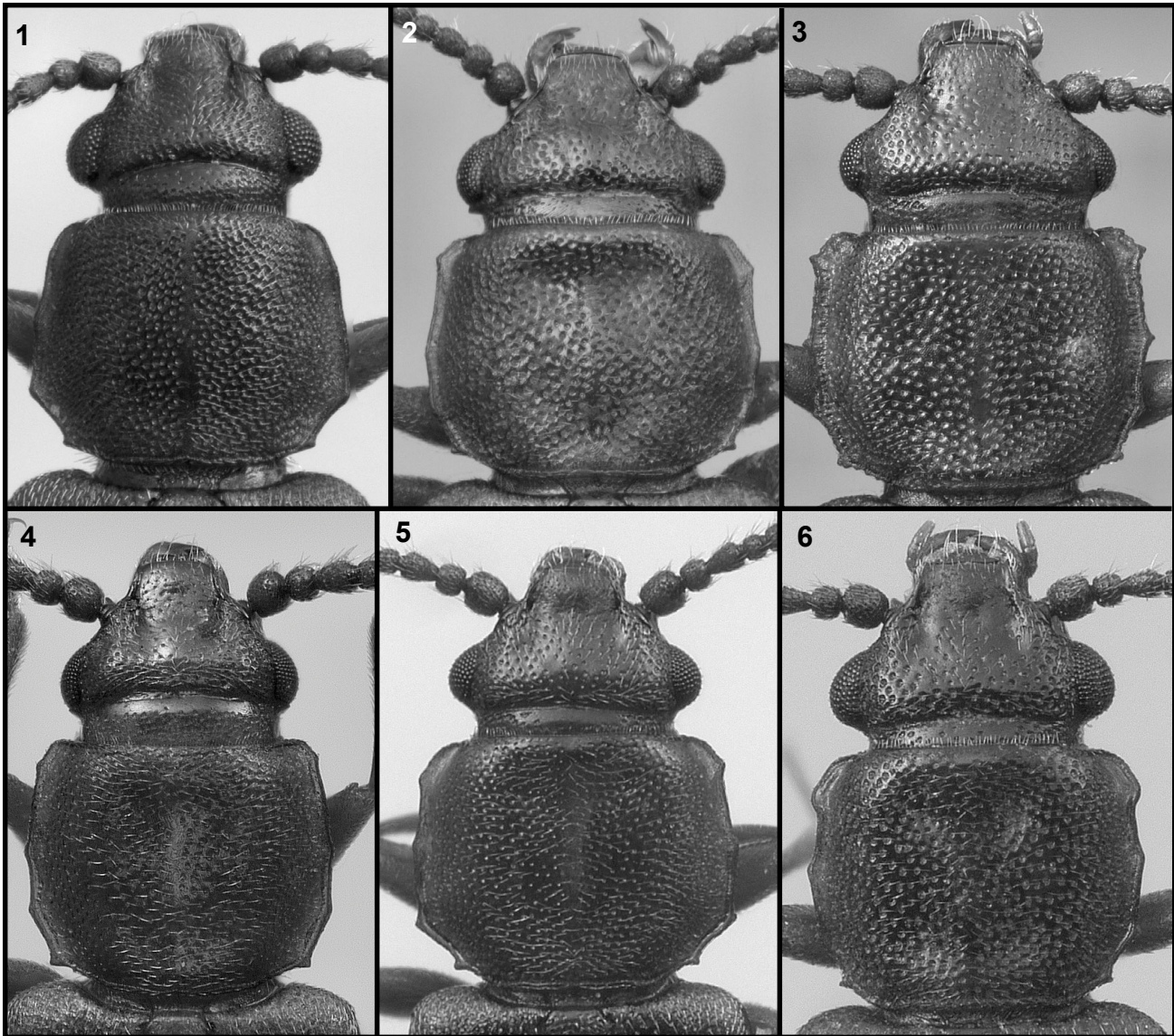
Pediacus subcarinatus Mannerheim 1852: 363

Silvanus planus LeConte 1850: 223

Pediacus planus, Leconte 1854: 73

Type Material: *Pediacus fuscus*: Type not examined.

Pediacus planus: LeConte (1850) did not state the number of specimens that were before him when he described this species; he reported only one length measurement, suggesting he saw only one specimen, which is in the FMNH, with the following data: "[grey disk]"/ "Type 6783"/ "*Pediacus planus* LeC.". There are three other specimens of this species in the FMNH with LeConte's grey disks, with one bearing the label "*P. fuscus*. Cas.". Whether these specimens are part



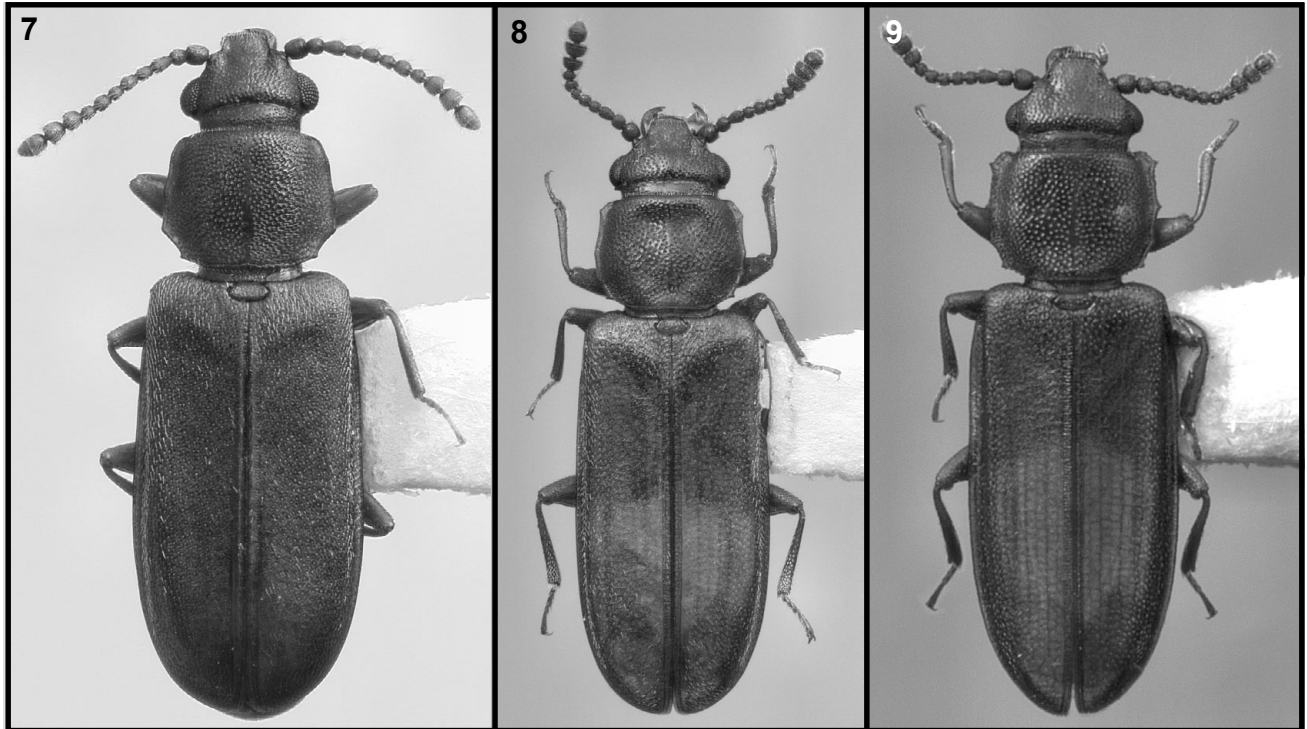
Figures 1-6. North American *Pediacus* spp., head and pronotum. 1) *P. fuscus*; 2) *P. ommatodon*, n.sp.; 3) *P. stephani*, n.sp.; 4) *P. andrewsi*, n.sp.; 5) *P. hesperoglaber*, n.sp.; 6) *P. subglaber*.

of the type series is unknown. The specimen bearing the type label is here designated as the lectotype.

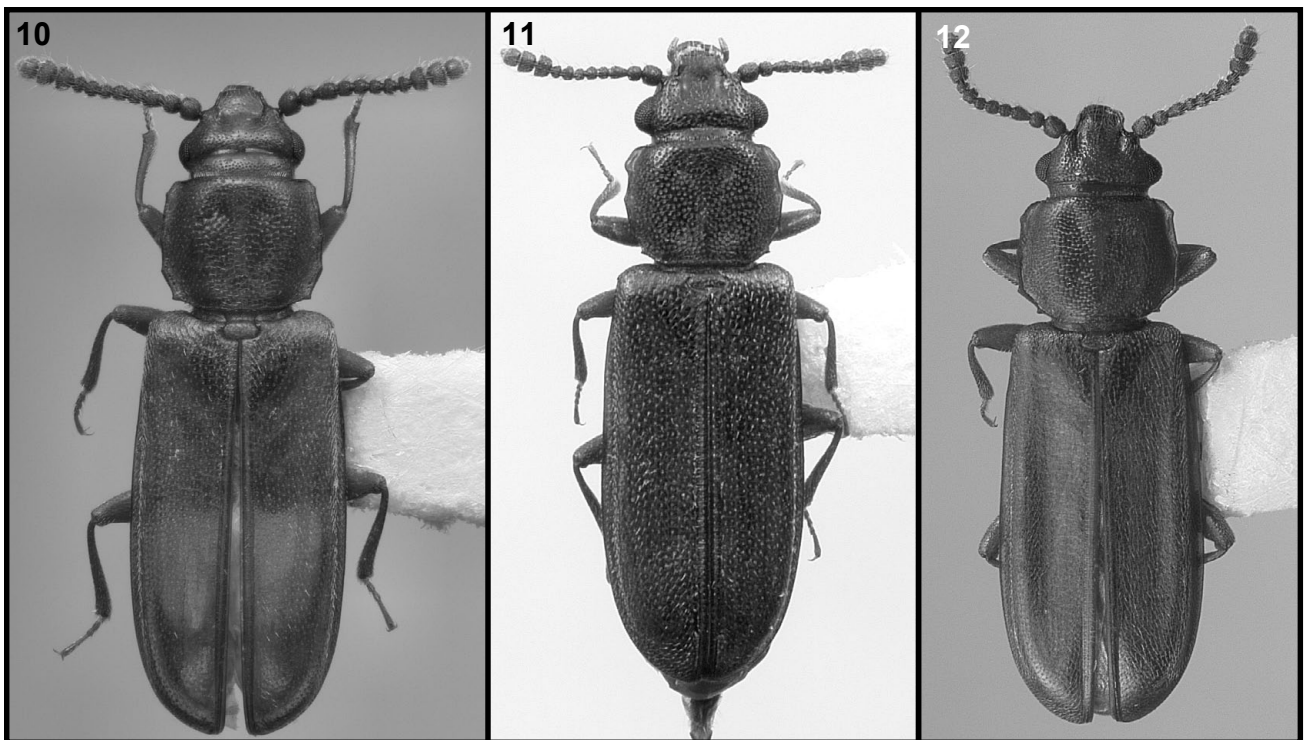
Pediacus subcarinatus: Mannerheim (1852) also did not state the number of specimens before him and recorded only one length measurement. In the MZHF is a specimen labelled: “[green paper rectangle]”/“Amer. Bor.”/“Kaknu”/“Frankenh.”/“*Pediacus subcarinatus* Mannerh.”/“Coll. Mannerh.”/“Mus. Zool. H:fors Spec. typ. No. 2414 *Pediacus subcarinatus* Mannerh.” There are three additional specimens, labelled: “Kenai”/“Holmberg”, and bearing type labels as above but with numbers 2415-2417. One also bears the label: “Pedia-

cus subcarinatus Mannerh. Kenai [plus two illegible letters]”. Since in the original description, Mannerheim (1852) stated that the collector was Frankenhäuser and listed the locality as “Kaknu” (an early name for Kenai), it seems unlikely that these three specimens can be part of the type series. Nevertheless, because Mannerheim (1852) did not explicitly state that he saw only one specimen, I am designating the first listed specimen (2414) as lectotype.

Diagnosis: In many ways, this species is the most distinctive among the New World species. The com-



Figures 7-9. North American *Pediacus* spp., habitus. 7) *P. fuscus*; 8) *P. ommatodon*, n.sp.; 9) *P. stephani*, n.sp.



Figures 10-12. North American *Pediacus* spp. habitus. 10) *P. andrewsi*, n.sp.; 11) *P. subglaber*; 12) *P. hesperoglaber*, n.sp.

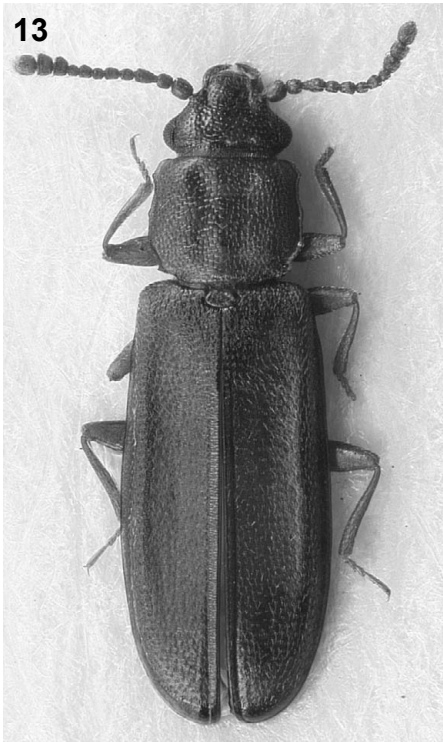


Figure 13. North American *Pediacus* sp. habitus. *P. gracilis*, n.sp.

bination of dull, heavily punctate dorsal surface, fuscous coloration, large eyes (Fig. 1, 7) (ocular index 0.68-0.71); lack of a tooth behind the anterior pronotum angle, simple antennal flagellum (Fig. 31), and lack of pronotal impressions characterize members of this species. The structure of the male genitalia is also diagnostic (Fig. 16). Length, 3.2-4.1 mm.

Distribution: Erichson (1845) described *P. fuscus* from Austria, and listed it also from Sweden and Finland. Hetschko (1930) listed it from North and Middle Europe, plus a number of North American localities. The type locality for *P. planus* is Lake Superior, Michigan; that for *P. subcarinatus* is Kenai, Alaska. North American specimens examined, 328, from: **Canada:** Alberta, British Columbia, Manitoba, New Brunswick, North West Territory, Ontario, Quebec, Yukon Territory; **United States:** Alaska, Colorado, Maine, Michigan, New Hampshire, Wisconsin. Although *P. fuscus* occurs in western Canada and Alaska, I have seen no specimens from the Pacific states of the United States. I have also examined more than 50 specimens from northern Europe.

Discussion: Most North American *Pediacus* examined bore this name if they were identified at all. It is

quite distinctive, though, and reference to Figs. 1 and 7 should permit its ready recognition in the future.

Pediacus subglaber LeConte, **new status**

Figs. 6, 11, 18, 23-24, 26

Pediacus subglaber LeConte 1854: 73

Pediacus depressus var. *subglaber* LeConte, Casey 1884: 79

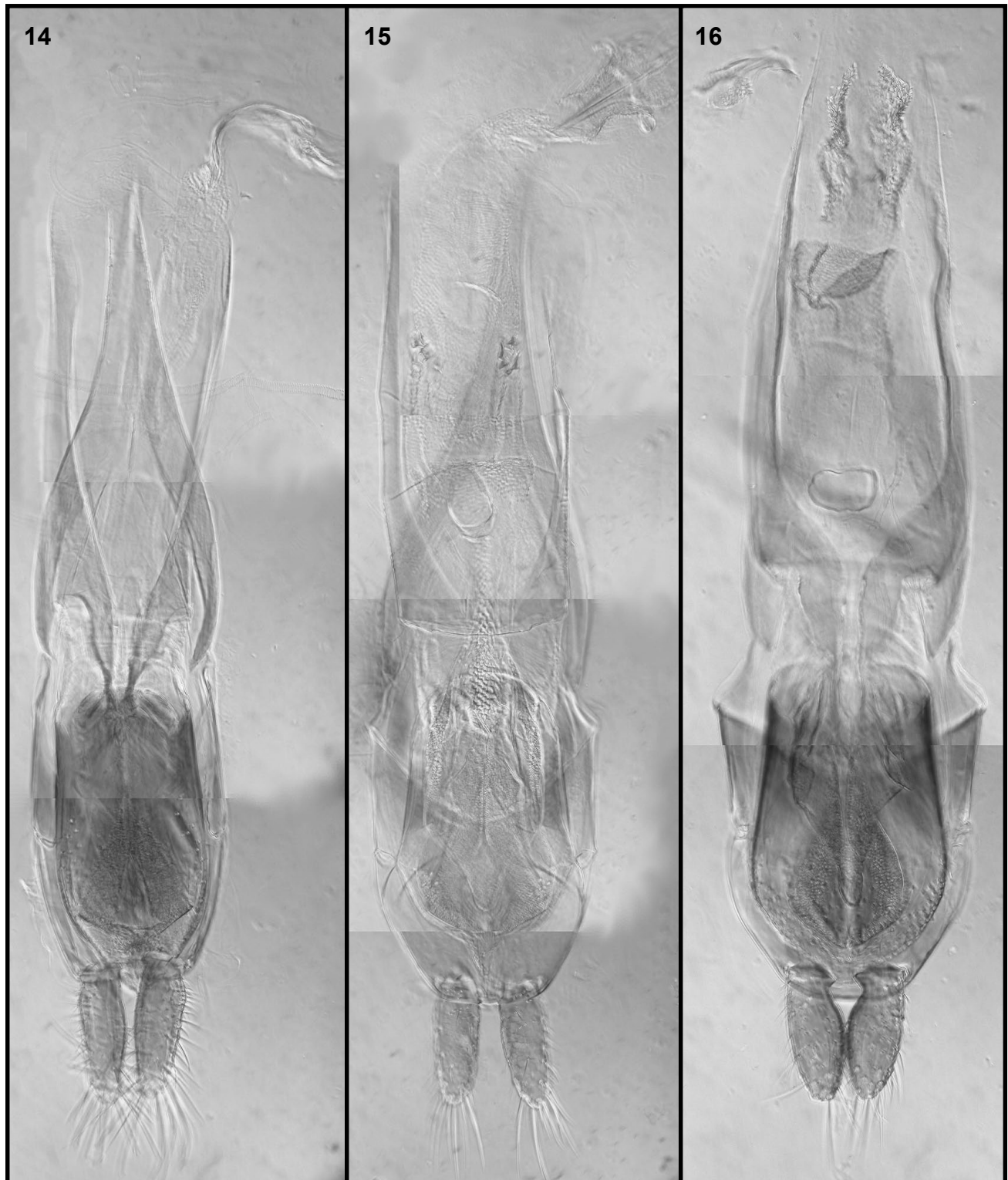
Pediacus depressus, Hetschko 1930: 14, in part (not Herbst 1794: 286)

Type Material: Holotype male, in MCZC, with following data: “[discolored disk]”/“7338.”/“Type 6784”/“*P. subglaber* N.C. LeC.”

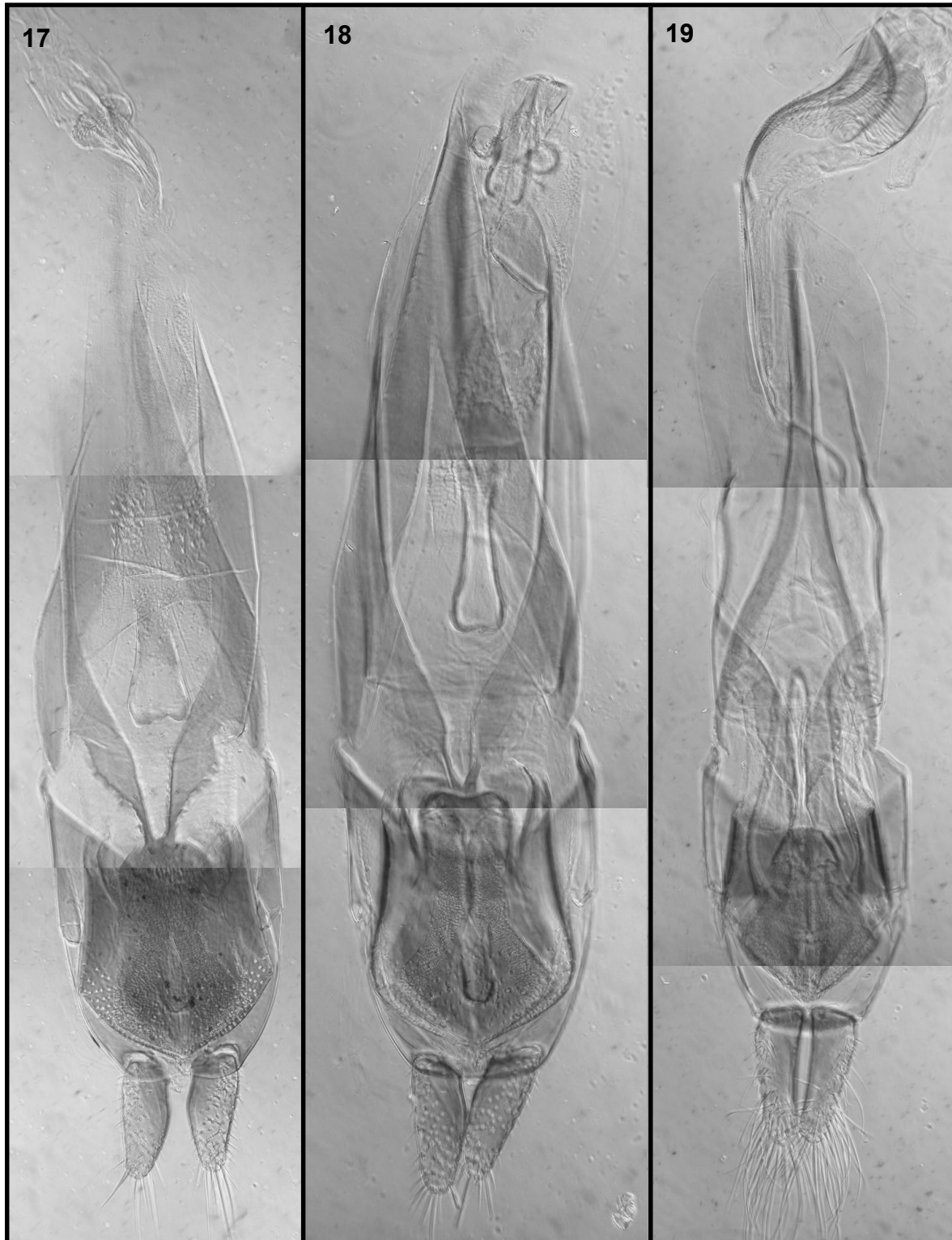
Diagnosis: Length, 3.3-4.0 mm. Individuals of this species are very similar to those of *P. hesperoglaber*, n.sp., and of the European *P. depressus*. They differ from those of the former by larger eyes and by those of the latter by smaller eyes (Fig. 6) and from both by the structure of the male genitalia (Fig. 18). The discal impressions of the pronotum are usually more strongly developed in *P. subglaber* than in *P. hesperoglaber*, n.sp. *Pediacus subglaber* also has larger, denser punctures on the head and pronotum, with the surface between smooth and glossy. Individuals also tend to be slightly darker in color than those of *P. hesperoglaber*. Although the male genitalia are very similar in the two North American species, there are differences in the shape of the parameres and the detailed structure of the median lobe (compare Figs. 17 and 18). *Pediacus subglaber* is the only member of the genus known to occur in eastern North America south of New England.

Distribution: The type locality is North Carolina. Specimens examined, 71, from: **Canada** Ontario, Quebec; **United States:** Alabama, District of Columbia, Georgia, Illinois, Indiana, Kentucky, Maryland, Michigan, North Carolina, Pennsylvania, Tennessee, Vermont, Virginia, West Virginia.

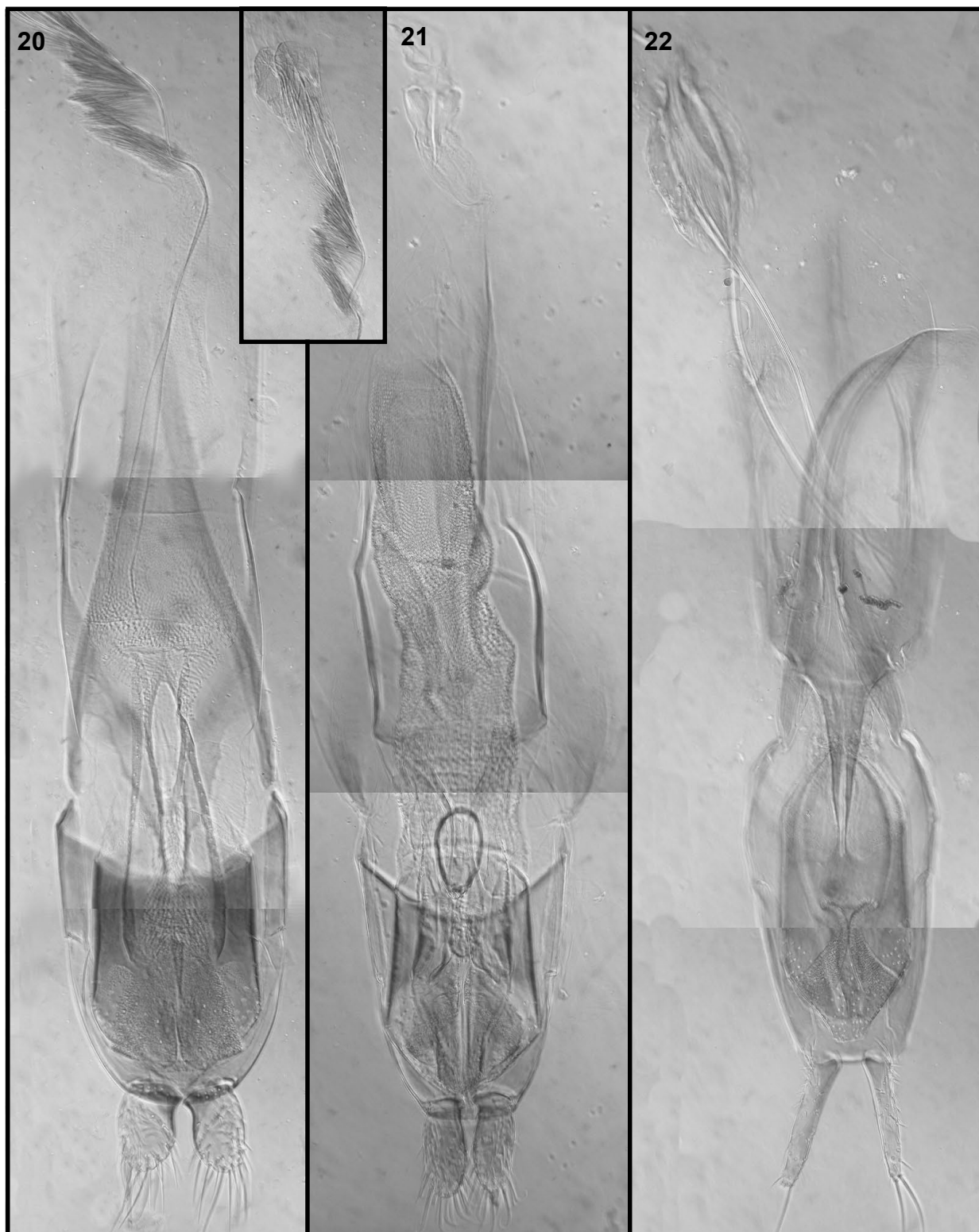
Discussion: Casey (1884) treated this species as a variety of *P. depressus*, while Hetschko (1930) listed it as a synonym. Although it is similar to *P. depressus* the male genitalia are quite distinct (Fig. 18) and the eyes are larger in *P. depressus*. The known distribution of *P. subglaber* is primarily Appalachian and it seems to be uncommonly collected.



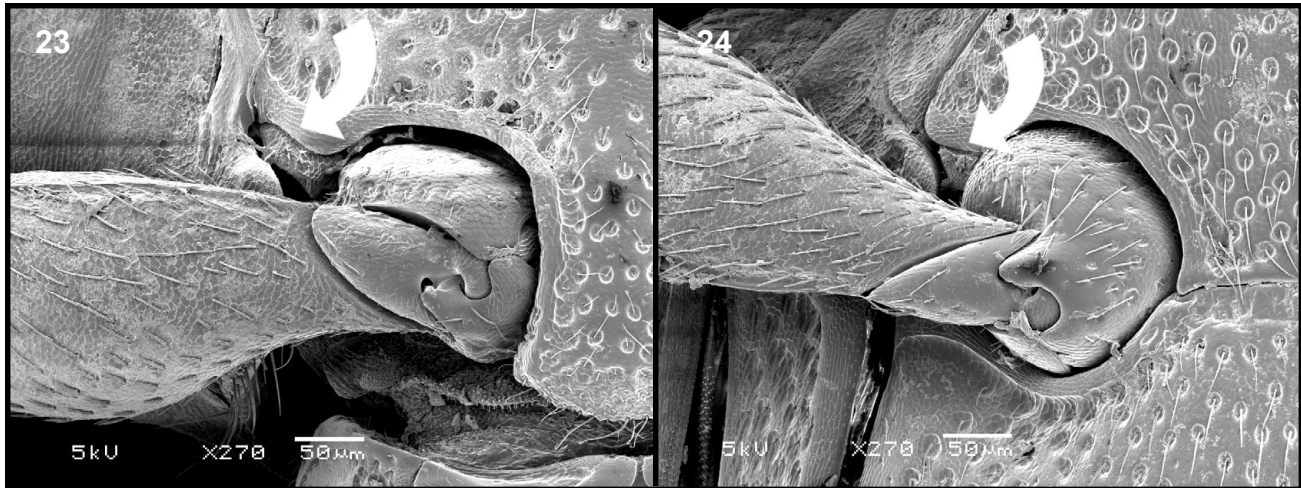
Figures 14-16. *Pediacus* spp., male genitalia. 14) *P. depressus*; 15) *P. dermestoides*; 16) *P. fuscus*.



Figures 17-19. *Pediacus* spp., male genitalia. 17) *P. hesperoglaber*, n.sp.; 18) *P. subglaber*; 19) *P. ommatodon*, n.sp.



Figures 20-22. *Pediacus* spp., male genitalia. 20) *P. andrewsi*, n.sp., inset, armature of internal sac, reduced; 21) *P. gracilis*, n.sp.; 22) *P. stephani*, n.sp.



Figures 23-24. *Pediacus subglaber*. 23) Procoxal cavity; 24) mesocoxal cavity. Arrows point to mesotrochantins

Pediacus hesperoglaber Thomas, **new species**

Figs. 5, 12, 17

Diagnosis: Individuals of this species are very similar to those of *P. subglaber*, which occurs in the eastern U.S.; see the diagnosis under that species.

Description: Holotype (male). With characters of Cucujidae: *Pediacus*, plus: Color red-testaceous, margins of pronotum and elytra a little paler. Pubescence pale, appressed, inconspicuous. Length, 3.2 mm.

Head transverse, 2.06x wider than long, with margins of epistome weakly margined; eyes moderate, hemispherical (ocular index, 0.75), without denticle behind eye; punctures small medially, increasing in size and density laterally; surface between punctures increasingly microreticulate laterally; antennae with antennomere VII conspicuously larger than either VI or VIII.

Thorax with pronotum transverse (1.30x wider than long), laterally with 4 denticles; lateral margin narrowly explanate, slightly reflexed, more so posteriorly; disc vaguely impressed; surface sculpture as on head. Elytra coriaceous basally, with small, shallow punctures; punctures rapidly decreasing in size caudad of basal fifth, represented by small, glossy tubercles; surface dull, densely, finely granulate.

Male genitalia as in Fig. 17.

Variation: Length, 3.2-3.9 mm. The pronotal discal impression is more distinct in some specimens, and the lateral pronotal denticles are often rounded.

Distribution: Specimens examined, 52, from: **Canada:** British Columbia; **United States:** Arizona, California, Colorado, Montana, New Mexico, Oregon, Washington.

Type Material: **Holotype**, male [FSCA], with following label data: "ARIZONA: St. Catalina Mts. elev. 8500 ft May 31 1969". **Paratypes**, 51, with label data as in Appendix.

Etymology: The species epithet is derived from the Latin *hesperus*, west, and *glaber*, smooth, to emphasize its identity as the western relative of *P. subglaber*.

Discussion: This species is closest to *P. subglaber*. The small but consistent differences in eye size, surface sculpture, and genitalic structure seem more than adequate to justify its recognition as a separate species.

Pediacus ommatodon Thomas, **new species**

Figs. 2, 8, 19

Diagnosis: This is the only known New World species north of Mexico with angulate temples (Figs. 2, 8), making it one of the easiest species to recognize. The male genitalia, especially the shape of the armature of the internal sac, are very distinctive (Fig. 19).

Description: Holotype (male). With characters of Cucujidae: *Pediacus*, plus: Color testaceous, mouth-

parts, legs, and elytra a little paler. Pubescence pale, appressed, inconspicuous. Length, 4.8 mm.

Head transverse, 2.0x wider than long, with margins of epistome strongly margined; eyes large, but not strongly convex (ocular index, 0.75), with denticle behind eye; frons sparsely punctate, punctures increasing in size and density laterally; surface between punctures smooth and glossy; antennae with antennomere VII not distinctly larger than VI or VIII.

Thorax with pronotum transverse (1.25x wider than long), lateral margin narrowly explanate, slightly reflexed basally; disc strongly impressed; narrowly impunctate medially, punctures increasing in size and density laterally; surface between punctures microreticulate and glossy. Elytra distinctly but finely punctate to apex; surface microreticulate, shiny.

Male genitalia as in Fig. 19. The shape of the armature of the internal sac is unique among known New World *Pediacus*.

Variation: Length, 3.4-4.8 mm. The shape of the pronotum is quite variable in this species, but usually the subapical denticle is produced and conspicuous.

Distribution: Specimens examined, 192, from: **Canada:** British Columbia; **United States:** California, Nevada, Oregon, Washington.

Type Material: **Holotype**, male [CNCI], with following label data: "WASH., La Push V.14.1968 Campbell&Smetana"; **Paratypes**, 191, with label data as in Appendix.

Etymology: A combination of the Greek words for "eye" and "tooth," referring to the toothed temple behind the eye, used as a noun in apposition.

Discussion: A single specimen in SBMN with label data: "CA: Tulare Co. 36.950° N, 118.353° W Sequoia NF; Mosquito Mdw. vi.24.2003; M. Caterino under bark *Abies*", cannot be placed. It is similar to *P. ommatodon*, but the denticle behind the eye is about twice as long. Unfortunately, it is a female and resolving its status will have to await collection of male examples.

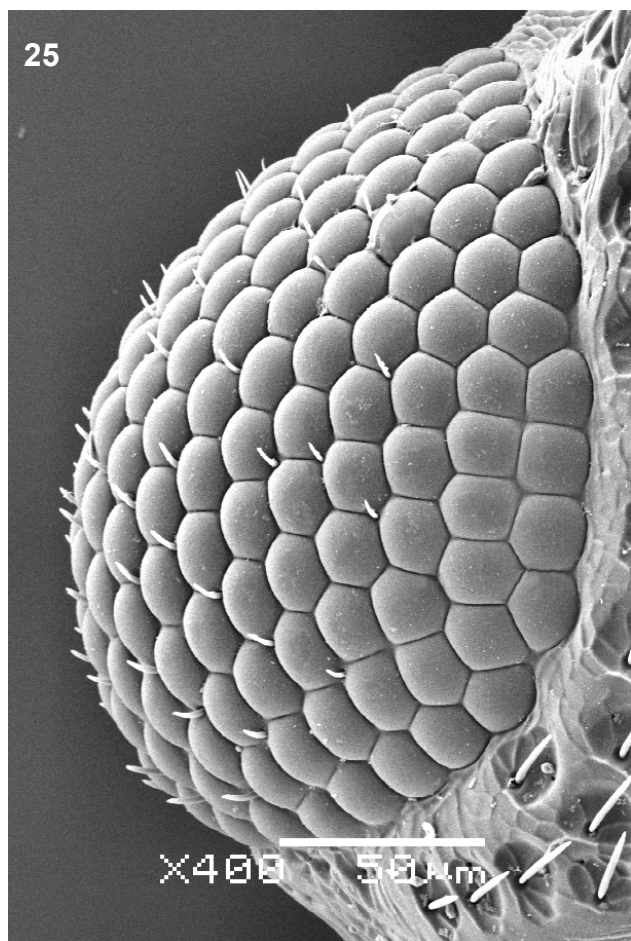


Figure 25. *Pediacus subglaber*, eye, showing interfacetal setae.

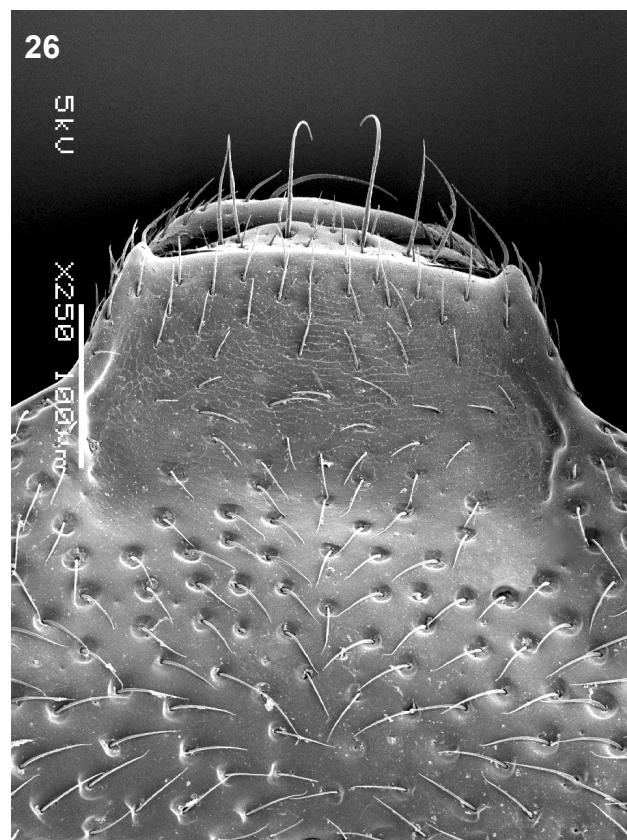
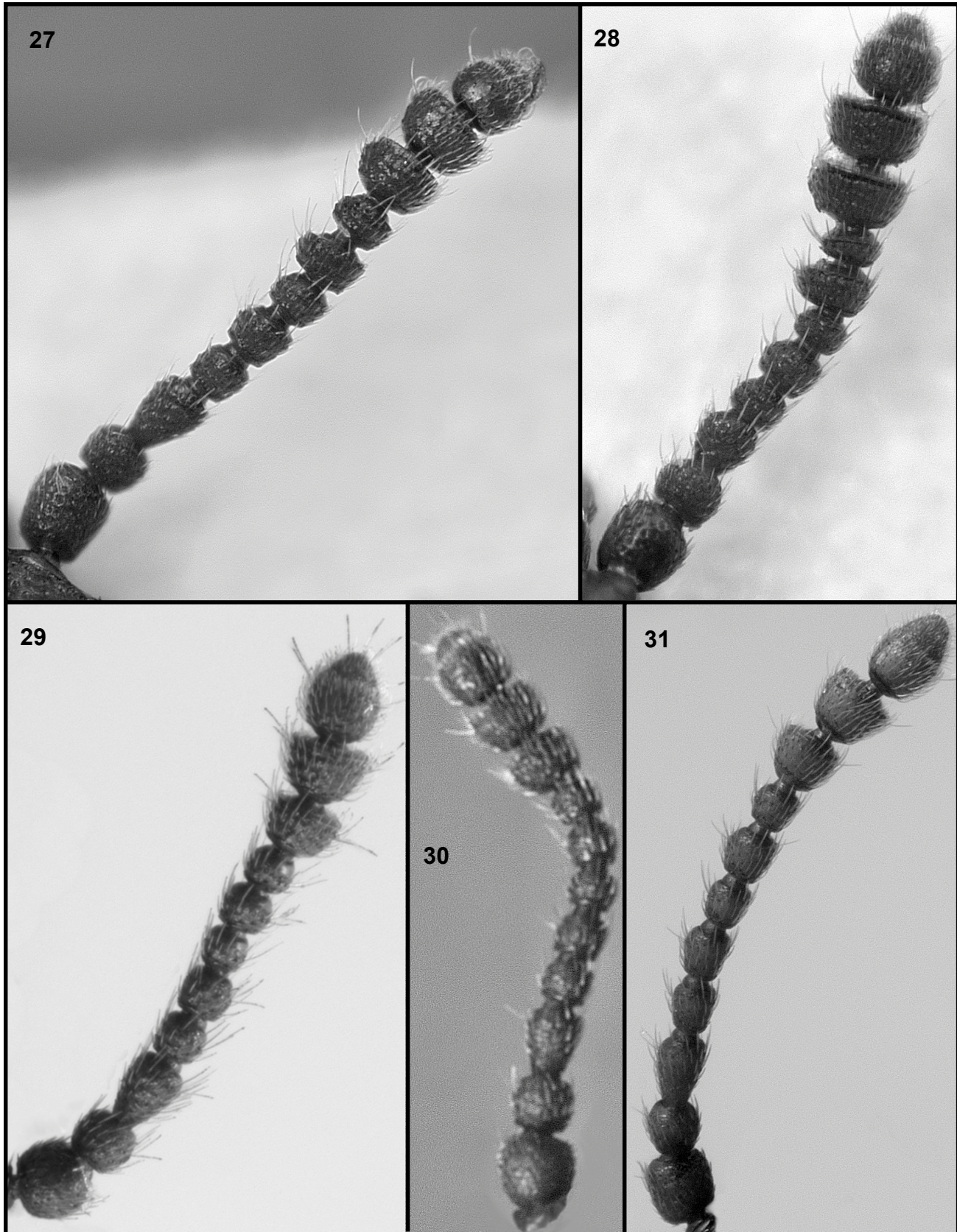


Figure 26. *Pediacus subglaber*, front of head.



Figures 27-31. *Pediacus* spp., antennae. 27) *P. depressus*; 28) *P. dermestoides*; 29) *P. confertus*; 30) *P. stephani*, n.sp.; 31) *P. fuscus*.

Pediacus stephani Thomas, **new species**

Figs. 3, 9, 22, 30

Diagnosis: The small eyes (Fig. 3), straighter sides of the pronotum (Fig. 3), more depressed body form (Figs. 3, 9), and the structure of the male genitalia (Fig. 22) separate members of this species.

Description: Holotype (male). With characters of Cucujidae: *Pediacus*, plus: Color testaceous, mouthparts, legs, and elytra a little paler. Pubescence pale, appressed, inconspicuous. Length, 3.3 mm.

Head transverse, 1.87x wider than long, with margins of epistome weakly margined; eyes small, flat (ocular index, 0.80), without denticle behind eye; punctures medially smaller and more widely spaced medially, increasing in size and density laterally; surface between punctures lightly microreticulate; antennae rather short, with antennomere VII not distinctly larger than VI or VIII.

Thorax with pronotum transverse (1.32x wider than long), lateral margin broadly explanate, not inflexed, with 4 large denticles, finely denticulate between larger denticles; disc hardly impressed; narrowly impunctate medially, punctation and microreticulation otherwise as on head. Elytra coriaceous basally, with large, coarse punctures; punctures rapidly decreasing in size caudad of basal fifth; surface dull, densely, finely granulate.

Male genitalia as in Fig. 22. The long, narrow parameres are unique among known New World species of *Pediacus*.

Variation: Length, 2.7-3.6 mm.

Distribution: Specimens examined, 52, from: **Canada:** British Columbia; **United States:** California, Nevada, Washington.

Type Material: **Holotype**, male [MCZC], with following label data: "Olympia II-1 Wash/Liebeck Collection"; **Paratypes**, 51, with label data as in Appendix.

Etymology. I take pleasure in naming this species after Karl Stephan, perhaps the best small beetle collector ever.

Discussion: The small eyes and pronounced triangular shape of the head are reminiscent of members of the Australian genus *Platysus* Erichson.

Pediacus andrewsi Thomas, **new species**

Figs. 4, 10, 20

Diagnosis: Length, 3.5-4.5 mm. The shape of the eyes, which are large but not bulging (Fig. 4), the reflexed lateral margins of the pronotum, and the rather thick antenna (Fig. 10) should permit recognition of this species. The male genitalia are distinctive both in the short and obliquely truncate parameres and the large fibrous armature of the internal sac (Fig. 20).

Description: Holotype (male). With characters of Cucujidae: *Pediacus*, plus: Color testaceous, mouthparts, legs, and elytra a little paler. Pubescence pale, appressed, inconspicuous. Length, 4.0 mm.

Head transverse, 2.0x wider than long, with margins of epistome strongly margined, frontal lines deeply foveate anteriorly; eyes large, but not strongly convex (ocular index, 0.76), without denticle behind eye; frons minutely, sparsely punctate, punctures increasing in size and density laterally and basally; surface between punctures smooth and glossy; antennae rather thick, with antennomere VII larger than VI but not VIII.

Thorax with pronotum transverse (1.21x wider than long), lateral margin moderately explanate, strongly inflexed especially basally; disc strongly impressed; narrowly impunctate medially, punctures increasing in size and density laterally; surface between punctures microreticulate and shiny. Elytra coriaceous basally, with coarse punctures, distinctly punctate to apex; surface shiny.

Male genitalia as in Fig. 20.

Variation: Length, 3.4-4.5 mm.

Distribution: Specimens examined, 78, from: **Canada:** British Columbia; **United States:** California, Idaho, Oregon, Washington.

Type Material: **Holotype**, male [CDAE], with following label data: "CALIF: El Dorado Co. 0.5 mi. N Stumpy Meadows Lake 4200' IV-22-1993 F. Andrews & T. Eichlin". **Paratypes**, 77, with label data as in Appendix.

Etymology. This species is named after CDAE coleopterist Fred Andrews, now retired, who collected the type specimen.

Discussion: The short, obliquely truncate parameres, and the fibrous armature of the internal sac are unique among known New World *Pediacus*.

Pediacus gracilis Thomas, **new species**

Figs. 13, 21

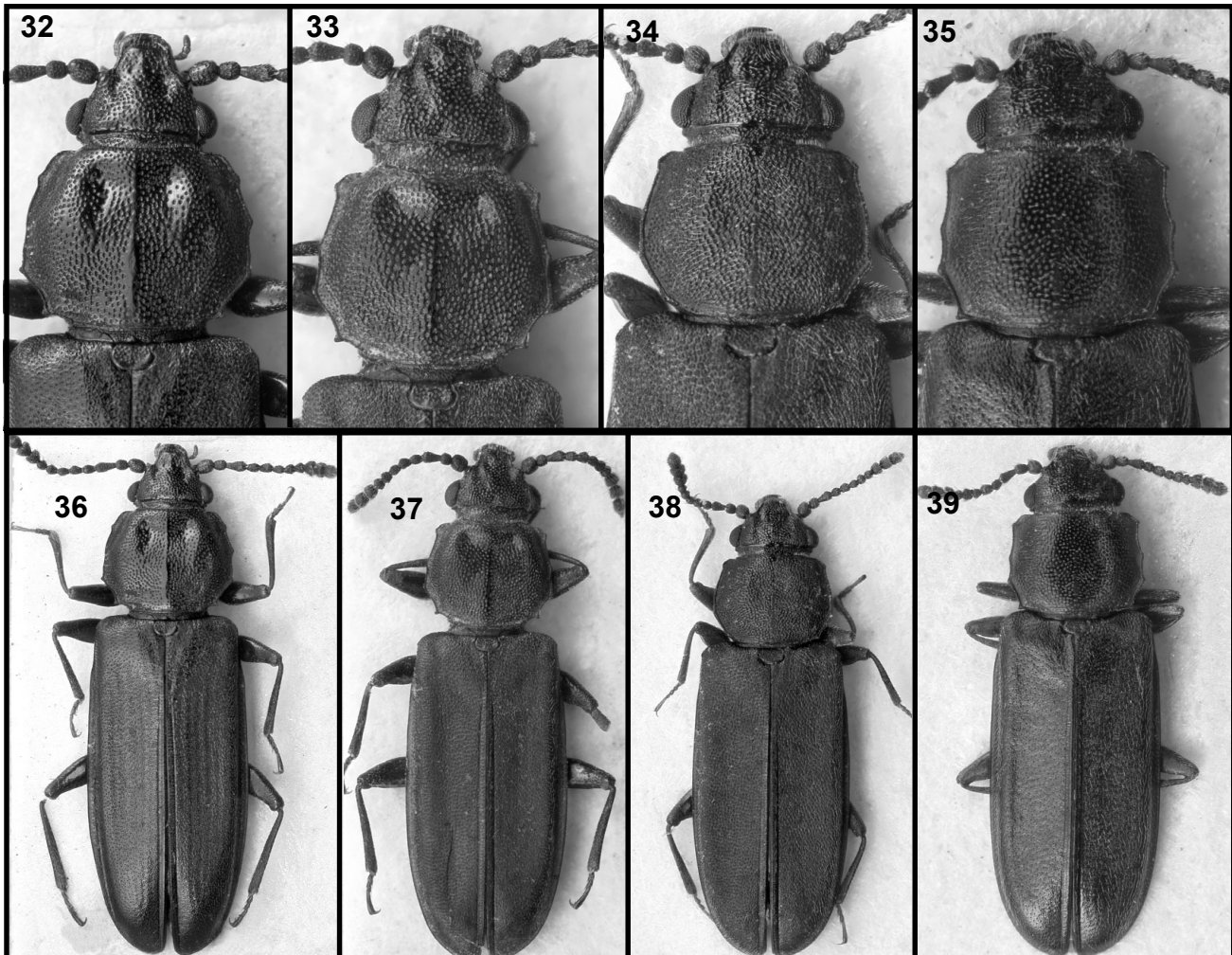
Diagnosis: Individuals of this species are rather small and narrow (Fig. 13) and most specimens are bicolored, with the elytra darker than the head and pronotum. The male genitalia are distinctive (Fig. 21).

Description: Holotype (male). With characters of Cucujidae: *Pediacus*, plus: Color red-testaceous, mouthparts, antennae, and legs a little paler; elytral disc infuscate. Pubescence pale, appressed, inconspicuous. Length, 3.2 mm.

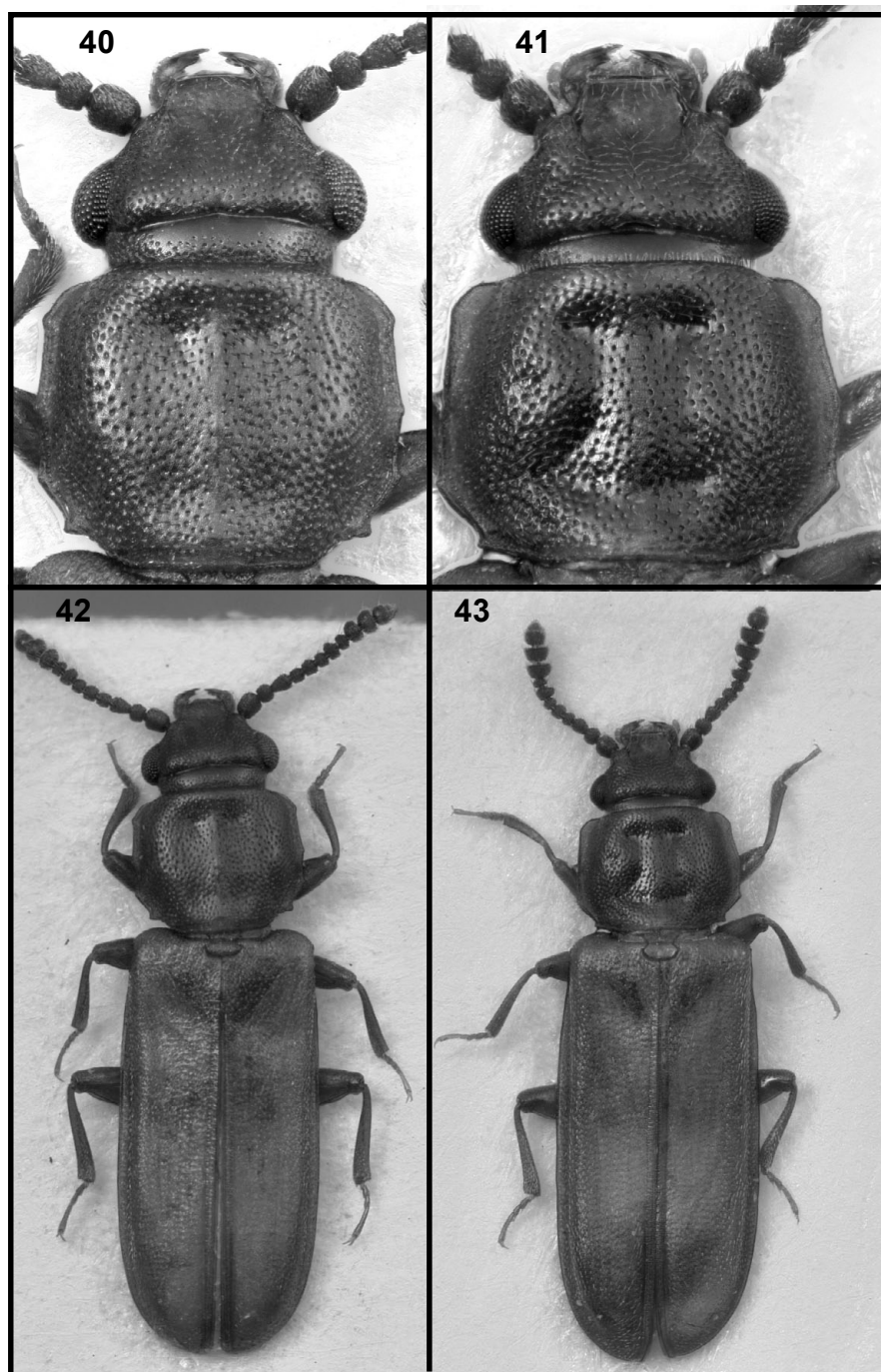
Head transverse, 1.83x wider than long, with margins of epistome weakly margined; eyes moderate, hemispherical (ocular index, 0.75), without denticle behind eye; almost impunctate medially, punctures increasing in size and density laterally; surface between punctures smooth and glossy; antennae with antennomere VII larger than either VI or VIII.

Thorax with pronotum transverse (1.25x wider than long), laterally with 4 denticles; lateral margin narrowly explanate, not inflexed; disc impressed, more deeply anteriorly; narrowly impunctate medially, puncturation and microreticulation increasingly dense laterally. Elytra coriaceous basally, with large, coarse punctures; punctures rapidly decreasing in size caudad of basal fifth, represented by small, glossy tubercles; surface dull, densely, finely granulate.

Male genitalia as in Fig. 21.



Figures 32-39. *Pediacus* spp., habitus. 32, 36) *P. major* (Cotype, BMNH); 33, 37) *P. similis* (Cotype, BMNH); 34, 38) *P. confertus* (Cotype, BMNH); 35, 39) *P. mexicanus* (Cotype, BMNH).



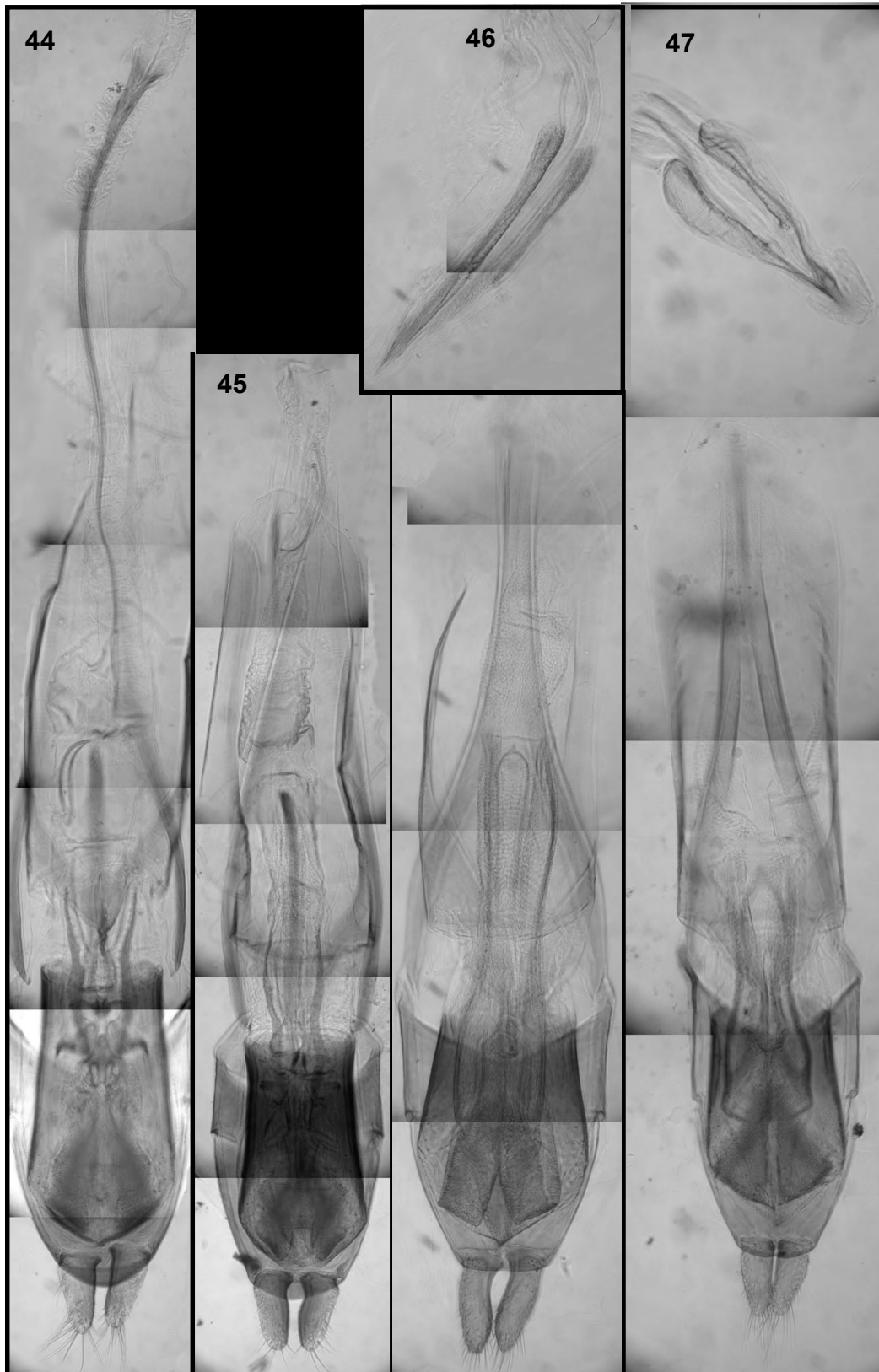
Figures 40-43. European *Pediacus* spp., habitus. 40, 42) *P. depressus*; 41, 43) *P. dermestoides*

Variation: Length, 2.9-3.6 mm. The coriaceous sculpture at the base of elytra is most pronounced in the holotype, less pronounced in several of the paratypes, and not visible in the rest.

Distribution: Specimens examined, 8, from: **United States:** California, Washington.

Type Material: **Holotype**, male [MCZC], with following label data: "Olympia II.1 Wash/Liebeck Collection"; **Paratypes**, 7, with with label data as in Appendix.

Etymology: The species epithet refers to the rather small, delicate form of this species compared to other members of the genus.



Figures 44-47. Mexican *Pediacus* spp., male genitalia. 44) *P. major*; 45) *P. similis*; 46) *P. confertus*, inset, armature of internal sac, reduced; 47) *P. mexicanus*.

Discussion: This is the least commonly collected member of the genus in North America and the one with the most restricted distribution, being known only from six localities in two states.

Key to adults of *Pediacus* in America north of Mexico

1. Head with small but distinct denticle behind eye (Fig. 2); male genitalia as in Fig. 19 *P. ommatodon*
- 1'. Head without distinct denticle behind eye; male genitalia different 2
2. Eyes small (Fig. 3), ocular index 0.8 or more; body exceptionally flat dorsally; lateral pronotal margins with many small secondary denticles (Fig. 3); male genitalia as in Fig. 22 *P. stephani*
- 2'. Eyes larger, ocular index < 0.8; body not as flat dorsally; lateral pronotal margins without many small secondary denticles 3
3. Eyes follow the outline of the head, not bulging (Fig. 4); lateral pronotal margins strongly reflexed (Fig. 4); antennae thick (Fig. 10); male genitalia as in Fig. 20 *P. andrewsi*
- 3'. Eyes break the outline of the head, moderately to strongly bulging; lateral pronotal margins flat to moderately reflexed; antennae not especially thick 4
4. Body distinctly bicolored, elytra darker than pronotum; male genitalia as in Fig. 21 *P. gracilis*
- 4'. Body not distinctly bicolored, or if so then pronotum darker than elytra 5
5. Pronotal subapical angle usually well marked; antennomere VII larger and differently shaped than VI or VIII; body more flattened dorsally; surface glossier; pubescence less dense 6
- 5'. Pronotal subapical angle usually obsolete (Fig. 1); antennomere VII only slightly larger than VI and VIII and similarly shaped (Fig. 31); body less flattened dorsally; surface dull, pubescence dense; male genitalia as in Fig. 16 *P. fuscus* Erichson
6. Eyes larger (Fig. 6), ocular index .68-.75; pronotal discal depressions usually well developed; male genitalia as in Fig. 18; eastern U.S. *P. subglaber* LeConte
- 6'. Eyes smaller (Fig. 5), ocular index .58-.63; pronotal discal impressions usually weakly developed or absent; male genitalia as in Fig. 17; western U.S. *P. hesperoglaber*

Notes on some extraterritorial species

Pediacus depressus (Herbst): This European species is superficially similar to *P. subglaber*, but has larger eyes (Fig. 40, 42), and different male genitalia (Fig. 14). It is also similar to *P. dermestoides*, but the antennae are not as developed (Fig. 27), and the male genitalia are different.

Pediacus dermestoides (Fabricius): This European species is similar to *P. depressus*, but generally has the disk of the pronotum infuscate and more deeply impressed (Fig. 41, 43), and the differences in shape between antennomere VII and VI and VIII are more extreme (Fig. 28). The male genitalia (Fig. 15) are diagnostic.

All of the four described Mexican and Guatemalan species have a denticle behind the eye. In the course of this study, I borrowed all of Sharp's *Biologia Centrali-Americana* specimens from the British Museum to determine whether any of the western North American species had been described previously. Approximate coordinates for the *Biologia* localities are from Selander and Vaurie (1962).

Pediacus major Sharp: This species was described from six specimens collected in Guatemala at Totonicapám (N14° 52", W91° 22") and the Quiché Mountains (N15° 00", W91° 10") at 7,000 - 10,500 ft. altitude under the bark of conifers. It contains the largest individuals in the genus, with specimens attaining more than 7 mm in length. Individuals of *P. major* (Fig. 32, 36) are very similar to those of *P. similis* but differ from individuals of that species by their larger size, glossier integument of the head and pronotum, more convex eyes, and relatively broader pronotum. The male genitalia of both species (Figs. 44-45) are very similar.

Pediacus similis Sharp: This species was described from two specimens collected at Cerro Zunil (N14° 33", W91° 29") in Guatemala. It is slightly smaller than *P. major*. The most noticeable differences between the two species are the less convex eyes in *P. similis* (Fig. 33, 37) and duller integument.

Pediacus confertus Sharp: This species was described from 13 specimens from Totonicapám, 8,500 - 10,500 ft. altitude, and the Quiché Mountains, 7,000 - 9,000 ft. altitude, under the bark of firs and at Capetillo (N14° 29", W90° 48") in Guatemala. Its surface sculpture is very dense, giving it a distinctive dull appear-

ance (Fig. 34, 38). The male genitalia (Fig. 46) are diagnostic.

Pediacus mexicanus Sharp: Described from only two specimens from "Jacale", Mexico. This probably refers to Jacala in Hidalgo (Selander and Vaurie 1962) (N21° 01", W99° 11"). It is a glossier insect than *P. confertus* (Fig. 35, 39). The male genitalia (Fig. 47) are diagnostic.

An apparently undescribed Mexican species is represented by specimens from Chiapas and Puebla in the CNCI. It is a heavily punctate species similar to *P. confertus*, but has large eyes, no denticle behind the eye, and differently shaped pronotum. Another apparently undescribed Mexican species is represented in the CNCI by two specimens from Nuevo Leon. It is similar to the apparently undescribed California species mentioned above in the long denticle behind the eye, but differs significantly in antennal structure.

Checklist of described *Pediacus* of the world

"*Pediacus concolor*", "*Pediacus jugularis*", and "*Pediacus centralis*" were credited to Sharp 1899 by Hetschko (1930). They all were incorrectly listed in *Pediacus* by Hetschko and are properly members of *Inopeplus* Smith (Salpingidae).

Pediacus andrewsi Thomas, n. sp.; western North America

Pediacus ater Grouvelle 1897: 396; Sumatra

Pediacus bhutanicus Sen Gupta 1978: 221; Bhutan

Pediacus confertus Sharp 1899: 508; Guatemala

Pediacus depressus (Herbst 1794: 286); Palaearctic

Pediacus dermestoides (Fabricius 1792: 96); Palaearctic

Pediacus elongatus Sen Gupta 1978: 219; Bhutan

Pediacus fuscus Erichson 1845: 313; Holarctic

Pediacus subcarinatus Mannerheim 1852: 363; Alaska

Pediacus planus (LeConte 1850: 223); Michigan

Pediacus gracilis Thomas, n. sp.; western North America

Pediacus hesperoglaber Thomas, n. sp.; western North America

Pediacus japonicus Reitter 1874: 516; Japan

Pediacus kurosawai Sasaji 1983: 18; Japan

Pediacus major Sharp 1899: 507; Guatemala

Pediacus mexicanus Sharp 1899: 508; Mexico

Pediacus montivagus Champion 1923: 78; India

Pediacus ommatodon Thomas, n. sp.; western North America

Pediacus rufipes Grouvelle 1908: 461; India

Pediacus similis Sharp 1899: 508; Guatemala

Pediacus smirnovi Nikitsky and Belov 1979: 58; Azerbaijan and Iran

Pediacus stephani Thomas, n. sp.; western North America

Pediacus subglaber LeConte 1854: 73; eastern North America

Pediacus tabellatus Wollaston 1864: 131; Canary Is.

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Appendix: Label data of paratype specimens

Pediacus hesperoglaber Thomas, new species

- 1, "B.C., Alta Lake V.28.1968 Campbell&Smetana" [CNCI]; 1, "B.C., 4mi. W. Midway, VI.6.1968, Campbell&Smetana" [CNCI]; 1, "Creston, B.C. 22-IV-1930 G. Stace Smith/Pseudotsuga mucronata" [CNCI]; 1, "Creston, B.C. May 13-1958 H.&A. Howden/under cordwood Abies" [CNCI]; 1, "Creston, B.C. May 8-1958 H.&A. Howden" [CNCI]; 1, "Creston, B.C. V-12-1956 G. Stace Smith" [CNCI]; 3, "Creston, B.C. V-29-1956 G. Stace Smith" [CNCI]; 1, "Salmon Arm BC 18.III.32 Hugh Leech" [CNCI]; 1, "Salmon Arm BC 5-i-34 Hugh Leech Lakeshore under log./Nevermann Collection 1940" [USNM]; 1, "Terrace BC Mrs. M.E. Hippiusley/C.A. Frost Collection 1962" [MCZC]; 1, "ARIZ., 8300' Sta Catalina Mts. VI.1968 K. Stephan" [CNCI]; 2, "ARIZ: Cochise Co. 0.9 mi. SW Onion Saddle VII-28-1989 F. Andrews & T. Eichlin sweeping" [CDAE]; 1, "ARIZ: Cochise Co. Rustler Park VII-25-1982 Fred G. Andrews/Collected on cow dung" [CDAE]; 1, "ARIZONA Graham Mts. Wet Cyn. 6000' 12Sep70 K. Stephan coll." [FSCA]; 2, "ARIZ: Rustler Park Chiricahua Mts. 8300 ft. 26.VIII.1952 B. Malkin & V.E. Thatcher" [FMNH]; 1, "ARIZONA: St. Catalina Mts. elev. 8000 ft Nov. 10 1968" [MCZC]; 1, "ARIZONA: St. Catalina Mts. elev. 8500 ft May 31 1969" [MCZC]; 1, "ARIZONA: Cochise Co. Chiricahua Mts. elev. 8500 ft. Oct. 5 1968" [FSCA]; 3, "Arizona:Graham Mts. 9200 ft. June 24 1972 K. Stephan leg." [FSCA]; 3, "ARIZONA:St. Catalina mts. elev. 8000 ft June 16 1968" [FSCA]; 1, "ARIZONA:St. Catalina mts. elev. 8000 ft Sept. 29 1968" [FSCA]; 5, "AZ: Cochise Co. Chiricahua Mts. ; Crest Trail; 11-VIII-1993 S. Okeefe, M. Caterino under bark" [EMEC]; 2, "AZ: Cochise Co. Chiricahua Mts.; Crest Trail 11-VIII-1993 S. O'Keefe, M. Caterino under bark" [SBMN]; 3, "Grand Canyon N.R. Arizona Dr. Lenczy 7 1966" [USNM]; 1, "Mt Lemon Catalina Mt Arizona/DrLenczy 6.8.1969" [USNM]; 1, "3449 K Hopk. U.S./Call Tex/W.F. Fiske Collector" [USNM]; 1, "Ourray, Colo. 7,500-8,00 ft. July 1-15 '97 HF

Wickham/Wickham Collection 1933" [USNM]; 1, "VetaPass 1-7 Col/328." [MCZC]; 1, "MONTANA: Flathead Co. Glacier National Park N. Fork Flathead area 1988 Red Bench Fire study M.A. Ivie colr./N. Lone Pine Prairie lodgepole light burn T35N,R21W, Sec 36 3600' 28 May-19 Jun 91/Lindgren funnel trap #1" [MTEC]; 1, "Cloudcroft New Mex. Wickham" [MCZC]; 1, "Cloudcroft New Mex. Wickham/Wickham Collection 1933" [USNM]; 1, "Astoria 25-5 Or/CollHubbard & Schwarz" [USNM]; 1, "Hood Riv 20-5 Or/CollHubbard & Schwarz" [USNM]; 1, "Oregon Koebele/From Dept. Agriculture" [USNM]; 1, "Wash Terr'y Ulke/CollHubbard & Schwarz" [USNM].

Pediacus ommatodon Thomas, **new species**

1, "Bowser, B.C. VI.19.-55 W.J. Brown" [CNCI]; 1, "G.W. Taylor, Victoria, B.C." [CNCI]; 1, "Massett Qu.Ch.Isl. B.C./Rev. Keene Collector" [USNM]; 5, "Pender Harbor B.C. V-10-1928 G.R. Hopping" [CNCI]; 1, "Pender Harbor B.C. V-10-1928 G. R. Hopping" [FSCA]; 1, "Pender Harbor B.C. V-26-1928 G. R. Hopping" [CNCI]; 1, "Pender Harbor B.C. V-29-28 G. R. Hopping" [CNCI]; 4, "QCI [?Queen Charlotte Islands]" [CNCI]; 1, "Steelhead, B.C. 20-VI-1933 H.B. Leech" [CNCI]; 3, "Steelhead, B.C. 24-VI-1933 H.B. Leech" [CNCI]; 1, "Steelhead, B.C.V-9-1934 K. Graham" [CNCI]; 1, "Van" [MCZC]; 1, "Vancouver, B.C. 28-II-1931 H.B. Leech/Neumann Collection 1940" [USNM]; 7, "Vancvr 5.6 BC/CollHubbard & Schwarz" [USNM]; 1, "19204B Hopk. U.S./Y. Pine Stump in Pitch/Bass Lake Cal 6/16/32/R.L. Furniss collector" [CDAE]; 1, "5 mi. E, Strawberry Tuolumne Co. Calif. VII-4-64/J. Doyen Collector" [EMEC]; 1, "Boards Cross, Cal Calaveras Co. 1-IV-1972 Col. L. Lacey" [FSCA]; 8, "CA: El Dorado Co. Blodgett Exptl. For. 26-V-1979 J. Doyen" [EMEC]; 7, "CA: Monterey Co. 36.0820°N, 212.5956°W UC Big Creek Reserve along Brunette Ck. ii.7.2003, M. Caterino under bark" [SBMN]; 1, "CA: PLUMAS Co. 1 mi.S. Meadow Valley 15/16 V 1982 3850' M.E. Buegler" [EMEC]; 4, "CA: Ventura Co. 34.638°N, 118.322°W LPNF: Pine Mt. v.23.2003 M. Caterino & P. Jump" [SBMN]; 1, "Cal/Horn Coll H 3316" [MCZC]; 1, "CAL: Marin Co. Inverness II-16-62/ J.T. Doyen collector" [EMEC]; 2, "Cala." [MCZC]; 2, "Cala./Horn Coll H 3315" [MCZC]; 1, "CALIF: Humbolt Co. Eureka IV-9-1984 wood pile Spadoni" [CDAE]; 2, "CALIF: Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd. V-7 thru 9-1976 Fred G. Andrews/Collected flying at dusk" [CDAE]; 1, "CALIF: El Dor. Co. Blodgett For., 13 mi. E Georgetown 4000-4500' V-27/ 28 78 D.D. Hart collr/Univ. Calif. Insect Survey Specimen #252869" [EMEC]; 1, "CALIF: El Dor. Co.

Blodgett For., 13 mi. E Georgetown 4000-4500' V-27/ 28 78 J. DeBenedictis/Univ. Calif. Insect Survey Specimen #248889" [EMEC]; 4, "CALIF: El Dorado Co. 7.7mi SE Virner Blodgett Forest III-29-1984/ Under bark Pseudotsuga taxifolia/Fred G. Andrews Collector" [CDAE]; 2, "CALIF: Eldorado Co. 1.2 mi W Stump Meadows Lake 4350' IV-20-1989 under bark Abies concolor F. Andrews & T. Eichlin" [CDAE]; 6, "CALIF: Humbolt Co. Eureka III-19-1990 Spadoni coll. Ex: - Inside House" [CDAE]; 1, "CALIF: Humbolt Co. Mad River bottom near Azalea State Park V-25-1989 F. Andrews & A. Hardy" [CDAE]; 2, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 28-XI-1999 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC]; 1, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 21-I-2000 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC]; 5, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 29-XI-1999 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC, FSCA]; 2, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 11-VI-1999 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC]; 11, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 11-VII-1999 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC]; 1, "CALIF: Humbolt Co, Prairie Creek Redwoods St Pk 41.4072N,124.0192W Atlas Grove,old growth redwoods 14-III-2000 Malaise/FIT trap redwood canopy M. A. Camann colr.", [MTEC]; 1, "CALIF: Sierra Co Yuba Pass V-12-1976 K.S. Corwin/Under bark dead Pinus ponderosa" [CDAE]; 1, "CALIF: Sierra Co. Yuba Pass VII-9-1986 F. Andrews, T. Eichlin & D. Mayhew under bark Abies magnifica" [CDAE]; 1, "CALIF:Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd V-7thru 9-1976 Fred G. Andrews/collected flying at dusk" [FSCA]; 1, "CALIF:Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd V-7thru 9-1976 Fred G. Andrews/flying at late afternoon" [FSCA]; 1, "CALIF:San Bernadino Co., 6miW Wrightwood IV-14-86 conifer Fred Andrews T.D. Eichlin, A. Hardy" [CDAE]; 1, "Camp Nelson Tulare Co, Cal IX-4-13" [USNM]; 1, "CASPAR CALIFORNIA 7-3-38/J.F. Lawrence Collection" [MCZ]; 1, "Dunsmuir Cal. {eligible possibly H.T.W}/3315/Frederick Blanchard Collection" [MCZ]; 1, "Dunsmuir, Cal Wickham/WICKHAM Collection 1933" [USNM]; 6, "Dunsmuir, Cal. Wickham./3315" [MCZ]; 1, "El Dorado Co. 0.5 mi. N

- Stumpy Meadows Lake 4200' IV-22-1993 F. Andrews & T. Eichlin under Q. Kelloggii bark" [CDAE]; 1, "El Dorado Co. 0.5 mi. N Stumpy Meadows Lake 4200' IV-22-1993 F. Andrews & T. Eichlin/Collected under conifer bark" [CDAE]; 1, "Fieldbrook 19.5.03 Cal/HS Barber Collector" [USNM]; 1, "Hat Creek Shasta County Calif. V-8 1965/cedar shingles/R.R. Pinger Collector" [CDAE]; 1, "Huckleberry Meadow 6,500 feet/June 20-11/Fresno Co. Cal." [CNCI]; 1, "McCloud, Siskiyou Co. Cal. June" [FMNH]; 1, "Mendocino Co. Cal./H.C. FALL COLLECTION" [MCZC]; 1, "Morgan Summit Tehama Co., Calif. 12 June 62 325 Fred G. Andrews" [CDAE]; 2, "Nevada Co. CAL. IV-26-41/coll'd by F.W. Nunenmacher" [FMNH]; 1, "S.B. Mts. Cal. 8.91/H.C. FALL COLLECTION" [MCZC]; 1, "S.B. Mts. Cal. Aug. 91/H.C. FALL COLLECTION" [MCZC]; 2, "Shively Cal Essig" [CDAE]; 1, "So. Calif. Acad. Sci." [LACM]; 1, "Sonora Co. Santa Rosa X-27-1983 fir lumber Westoby Counter" [CDAE]; 1, "Sylvania 3/21/91/Stanford Univ. Coll Access'd L.A.C.M. 1964" [LACM]; 1, "Sylvania Cal. Ricks." [MCZ]; 1, "Reno, Nev/Liebeck Coll./H.C. FALL COLLECTION" [MCZC]; 1, "Reno, Nev/Liebeck Collection" [MCZ]; 6, "Diley Oreg" [MCZ]; 2, "Elkton IV-10 Ore/Liebeck Collection" [MCZ]; 1, "Hood Riv 20.5 Or/Coll Hubbard & Schwarz" [USNM]; 1, "McMinnville Ore 3/3/37" [FMNH]; 2, "OREGON" [FMNH]; 2, "ORE: Benton Co Mary's Peak June 25 1970 rotary net R. Turnbow" [USNM]; 5, "ORE: McMinnville 27-II-1931 K.M. Fender" [FMNH]; 1, "Oreg." [USNM]; 1, "Oreg. Benton Co. Mary's Peak 16 May 1970 R. Turnbow" [FSCA]; 1, "Oregon, Benton Co. McDonald Forest, nr. Corvallis 27-III-69 E.M. Fisher, collr." [LACM]; 1, "Tillamook Ore 9-XII-1940 KM & DM Fender/C.A. Frost Collection 1962" [MCZ]; 1, "2048b2 Hopk. U.S./Burke Colr. Hoquiam Wn." [USNM]; 1, "2067c Hopk. U.S./Burke Colr. Hoquiam Wn." [USNM]; 1, "2358 Hopk. U.S./Hopkins Colr. Hoquiam Wn." [USNM]; 1, "2370 c2 Hopk. U.S./Hopkins Colr. Hoquiam Wn." [USNM]; 1, "Cedar Falls, King Co. WASH 2 May 1972 M.A. Deyrup/on stump Douglas fir #6" [FSCA]; 1, "Centralia Wash./3316/Frederick Blanchard Collection" [MCZ]; 1, "Centralia Wash./Horn Coll H 3315" [MCZC]; 2, "Olympia Wash/Liebeck Collection" [MCZ]; 1, "Palouse Wash/Liebeck Collection" [MCZ]; 1, "Palouse Wash IV-16, 1950 N.M. Downie", [FMNH]; 2, "W.T." [MCZC]; 3, "W.T./2596" [MCZ]; 1, "W.T./WICKHAM Collection 1933" [USNM]; 2, "Wash. Terr'y Ulke" [USNM]; 3, "Wash. Terr'y Ulke/Coll Chtt'n" [USNM]; 1, "Wash. Terr'y Ulke/Coll MLLinell" [USNM]; 3, "Wash. Terr'y Ulke/Coll Hubbard & Schwarz" [USNM]; 1, "WASH., La Push V.14.1968 Campbell&Smetana" [CNCI]; 2, "WASH., Olympic Nat. Pk., Hoh Ranger Stn. 600', V.13.1968 Campbell&Smetana" [CNCI]; 2, "Wash Terry Morrison/Coll Hubbard & Schwarz" [USNM].
- Pediacus stephani* Thomas, **new species**
- 1, "Bowser, B.C. VI.11.-55 W.J. Brown" [CNCI]; 1, "Bowser, B.C. VI.21.-55 W.J. Brown" [CNCI]; 2, "Bowser, B.C. VI.8.-55 W.J. Brown" [CNCI]; 1, "Br. Columbia Essondale, March 1968 W. Lasorko leg." [FSCA]; 2, "BRITISH COLUMBIA: Princeton 1-6 AUG 1983 Lindgren funnel trap" [MTEC]; 1, "Nainamo Van VII-17 Taylor./Wickham Collection 1933" [USNM]; 1, "Pender Harbor B.C. V-10-1928 G. R. Hopping" [FSCA]; 1, "Vancouver B.C. 6-VI-30 H. Leech" [CNCI]; 1, "Vancouver BC VI-1932 Hugh B. Leech/Neermann Collection 1940" [USNM]; 1, "Vancouver Br. Columbia V-3-1945 E.J. Kiteley" [CNCI]; 1, "Vancouver, B.C. 14-IV-1931 H.B. Leech/Neermann Collection 1940" [USNM]; 1, "Vancouver, B.C. 18-I-31 Hugh B. Leech/26/Neermann Collection 1940" [USNM]; 1, "Vancouver, BBC. 1931 H.B. Leech/Neermann Collection 1940" [USNM]; 1, "CA: Humboldt Co. Trinidad X-10/15-1984 Mailaise Trap P. Adams" [CDAE]; 1, "CA: Monterey Co. 36.0820oN, 212.5956oW UC Big Creek Reserve along Brunette Ck. ii.7.2003, M. Caterino under bark" [SBMN]; 1, "CA: Plumas Co 1mi S Meadow Valley 4100' 9/16-IX-1983/Collected by J.T. Doyen" [EMEC]; 1, "CAL. Placer Co., Lake Tahoe, Tahoe Pines 6200' 10.VIII.69 A. Smetana" [CNCI]; 1, "Cala n." [MCZC]; 1, "CALIF. Mendocino Co. NCCRP 3mi. North of Branscomb 30-31 May, 1 Jun 80 K. Standow/Univ. Calif. Insect Survey Specimen # 193870" [EMEC]; 1, "CALIF: Butte Co. 5 mi. NE Butte Mdws Cherry Hill Cpgd. V-7 thru 9-1976 Fred G. Andrews/at fungus under/Pseudotsuga taxifolia" [CDAE]; 1, "CALIF: El Dor. Co. Blodgett For., 13 mi. E Georgetown 4000-4500' V-27/28 78 J. DeBenedictis//Univ. Calif. Insect Survey Specimen # 248921" [EMEC]; 2, "CALIF: El Dorado Co. 0.7 mi. E Pacific House VI-11-1989 F. Andrews & D. Carlson screening flume" [CDAE]; 4, "CALIF: El Dorado Co. 5 mi SE Iron Mountain along Camp Creek VII-18-1985 F. Andrews & A. Hardy" [FSCA]; 8, "CALIF: El Dorado Co. 5mi SE Iron Mountain along Camp Creek VII-18-1985 F. Andrews & A. Hardy" [CDAE]; 1, "CALIF: El Dorado Co. Blodgett Forest 13 mi. E Georgetown IV-28-76 J. Doyen" [EMEC]; 1, "CALIF: El Dorado Co. Blodgett Forest, 13 mi. E. Georgetown, el. 4000-4500'; 26 May 1972 R.W. Warner//Univ. Calif. Insect Survey Specimen # 134161/RW72148 p. 12918" [EMEC]; 1, "CALIF: Humboldt Co. Arcata, N. Fickle Hill 40°53'26"N, 124°2'57"W 03 Feb 2004 M.A. Ivie &

I.A. Foley, redwood for." [MTEC]; 1, "CALIF: Placer Co. Carpenter Flat VI-8-1983 F. Andrews/Collected under bark of *Pseudotsuga* log" [CDAE]; 1, "CALIF: Sierra Co. Yuba Pass V-12-1976 Fred G. Andrews K.S. Corwin, colls./*Lasius* ant colony in/*Pinus ponderosa* stump" [CDAE]; 1, "CALIF: Sierra Co. Yuba Pass VIII-28-1983 F. Andrews & A. Hardy under *Pinus* bark of a down log" [CDAE]; 1, "CALIF: Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd. V-7 thru 9-1976 Fred G. Andrews/under bark of *Pinus ponderosa*" [FSCA]; 1, "Cow Creek, 5 mi. N.E. Strawberry, Tuolumne Co., Calif. July 14, 1962/John T. Doyen, Collector" [EMEC]; 1, "Los Gatos Cal/Coll Hubbard & Schwarz" [USNM]; 2, "Nev./Horn Coll H 3315" [MCZC]; 2, "Cedar Falls King Co. WASH. 14 May 1974 M. Deyrup" [FSCA].

Pediacus andrewsi Thomas, **new species**

1, "Creston, B.C. IV-13-1956 G. Stace Smith" [FSCA]; 1, "Creston, B.C. IV-13-1956 G. Stace Smith" [CNCI]; 2, "Creston, B.C. IV-18-1956 G. Stace Smith" [FSCA]; 11, "Creston, B.C. IV-19-1956 G. Stace Smith" [CNCI]; 1, "Creston, B.C. May 13-1958 H.&A. Howden/under cordwood *Abies*" [CNCI]; 2, "Creston, B.C. V-19-1956 G. Stace Smith" [CNCI]; 2, "Creston, B.C. V-29-1956 G. Stace Smith" [CNCI]; 6, "Massett Qu. Ch. Isl B.C./Rev. Keene Collector" [USNM]; 1, "Salmon Arm BC 28-IV-32 Hugh Leech/Flying/Neumann Collection 1940" [USNM]; 1, "Salmon Arm BC 3-V-1929 Hugh B Leech/Neumann Collection 1940" [USNM]; 1, "Vancvr. 5.6/Coll Hubbard & Schwarz" [USNM]; 2, "3315 Cal" [MCZC]; 1, "3315 Cal/Frederick Blanchard Collection" [MCZC]; 2, "CAL: No. Calif. Coast Range Pres., 5 mi. N Branscomb, Mendoc. Co V-25-76 J. Powell/exPolyporus" [EMEC]; 1, "CALIF. Mendocino Co NCCRP 3mi. N Branscomb el. 1400' 8 May 1976 W.B. Lyon/Univ. Calif. Insect Survey Specimen # 239119" [EMEC]; 1, "CALIF: Calaveras Co. 2.7 mi N Cp. Connell VI-22-1975 Berlese *Pinus ponderosa* duff Fred G. Andrews, coll." [CDAE]; 1, "CALIF: Eldorado Co. 1.2 mi. W Stumpy Meadows Lake 4350' IV-20-1989 under bark *Abies concolor* F. Andrews & T. Eichlin" [CDAE]; 1, "CALIF: Shasta Co. Redding III-1-1981 T.R. Haig, Coll." [CDAE]; 1, "CAMBRIA, SAN

LUIS Ob. Co. CALIF. II-5-1967 Saul & Suzy Frommer" [CDAE]; 2, "Camp Nelson Tulare Co., Cal IX-4-13" [USNM]; 1, "Mendocino Co. Cal V.8.38/coll'd by F.W. Nunenmacher" [FMNH]; 1, "Morgan Summit Tehama Co., Calif. 12 June 62 325 Fred G. Andrews" [CDAE]; 1, "Round M'd'w Giant Forest, June 16 Cal. Hopping" [CNCI]; 1, "T.R. Haig Whiskeytown Shasta Co. Calif. IV-4-1974" [CDAE]; 1, "Yreka Calif., Siskiyou Co. 16-V-1961 T. Gallion Collector" [CDAE]; 1, "In Flight/Krassel Ida VI-9-1962/M.M. Furniss Hopk-41226" [USNM]; 1, "Moscow Ida 10-7-16/A.O. Burrill Collector" [USNM]; 1, "*Pseudotsuga menziesii*/Krassel R.S., Idaho V-9-1960/M.M. Furniss Hopk 48795-F" [USNM]; 1, "*Pseudotsuga menziesii*/Krassel R.S., Idaho V-9-1960/M.M. Furniss Hopk 48795-F/USNM 2032675" [USNM]; 4, "Alsen Benton Co Oregon/L. Russell III 1974" [USNM]; 10, "Dilley Oreg" [MCZC]; 1, "Dilley Oreg/10220/Ernest Shoemaker Collection 1956" [USNM]; 2, "Oreg. Benton Co. 3 mi. W Bellfountain 1 May 1970 R. Turnbow" [FSCA]; 3, "Oregon, Benton Co. McDonald Forest, nr. Corvallis 27-III-69 E.M. Fisher, collr." [LACM]; 2, "OREGON, Benton Co. McDonald Forest, nr. Corvallis 27-III-69 E.M. Fisher, collr." [FSCA]; 1, "Ore. Benton Co MacDonald For 21 May 1970 R. Turnbow" [FMNH]; 2, "Ore. Benton Co MacDonald For 12 Apr 1975 R. Turnbow" [FMNH]; 4, "OREGON Curry Co. 1mi S Carpenterville 17 April 1977 P.J. Johnson Coll." [FMNH]; 1, "Centralia Wash./Horn, Dupl. No. 57-1891/Wickham Collection 1933" [USNM]; 1, "Palouse Wash. IV-16, 1950 N.M. Downie" [FMNH]; 2, "Loveland, Wash./H.C. FALL COLLECTION" [MCZC]; 1, "no data" [MCZC].

Pediacus gracilis Thomas, **new species**

2, "CA: San Bernardino Co. Camp Angelus 5700' V-11-78 Ken Cooper" [CDAE]; 1, "CAL: Yuba Co. 1mi. W. Strawberry Vy. Rang. Sta. 3600' V-6-1980 J. Liebherr" [EMEC]; 1, "CALIF: Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd. V-7 thru 9-1976 Fred G. Andrews" [CDAE]; 1, "CALIF: Butte Co. 5 mi NE Butte Mdws Cherry Hill Cpgd. V-7 thru 9-1976 Fred G. Andrews/flying at late afternoon" [FSCA]; 1, "T.R. Haig Redding, Cal. Shasta Co. XII-1-1975." [CDAE]; 1, "Olympia Wash/Liebeck Collection" [MCZC].