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NEW SYNONYMY AND NEW SPECIES OF AMERICAN BARK BEETLES (COLEOPTERA: SCOLYTIDAE)¹

Stephen L. Wood²

ABSTRACT.— New synonymy is proposed as follows: *Pityokteines* Fuchs (= *Orthotomides* Wood), *Araptus foveifrons* (Schedl) (= *interjectus* Wood), n. comb., *Cryptocarenum seriatus* Eggers (= *bolivianus* Eggers), *Hylastes gracilis* LeConte (= *asper* Swaine), *Procroryphalus utahensis* Hopkins (= *aceris* Hopkins), *Scolytodes maurus* (Blandford) (= *Hexacolus ellipticus* Eggers), *Scolytus hermosus* Wood (= *sylvaticus* Bright), *Xyleborus adelographus* Eichhoff (= *vitiosus* Schedl), *Xyleborus catulus* Blandford (= *intricatus* Schedl), *Xyleborus nepos* Eggers (= *signatus* Schedl), *Xyleborus titubanter* Schedl (= *dissidens* Wood). The following species and subspecies are named as new to science: *Cnesinus electus* (Costa Rica), *C. pilatus* (Mexico), *Hylastes asperatus* (New Mexico), *Scolytus torulus* (Costa Rica), *S. lactus* (Mexico), *Scolytodes amabilis* and *S. lepidus* (Mexico), *S. obesus* (Panama), *Pseudothysanoes centralis* and *P. tumidulus* (Mexico), *Thysanoes tuberculatus* (Mexico), *Pityokteines mystacinus* (Washington), *Ips pilifrons* subsp. *thatcheri* (Nevada), *Araptus attenuatus* (Mexico), *A. fossifrons* (Mexico, Guatemala), *Amphicranus parilis* (Mexico), *Corthylus cecropii* (Costa Rica).

On the following pages several newly discovered cases of synonymy and 17 species and 1 subspecies new to science are presented for American Scolytidae. The specific synonymy is presented in alphabetical order for convenient reference. The species new to science represent the genera *Cnesinus* (2), *Hylastes* (1), *Scolytus* (2), *Scolytodes* (3), *Pseudothysanoes* (3), *Thysanoes* (1), *Pityokteines* (1), *Araptus* (2), *Amphicranus* (1), and *Corthylus* (1). The new subspecies is of *Ips pilifrons*. The new species are from the following countries: United States (2), Mexico (10), Costa Rica (3), Panama (1), Mexico and Guatemala (1). The new subspecies is from the United States (Nevada).

NEW SYNONYMY *Pityokteines* Fuchs

Pityokteines Fuchs, 1911, Morphologische Studien über Borkenkäfer: I. Die Gattungen *Ips* DeGeer und *Pityogenes* Bedel, p. 33 (Type-species: *Ips curvidens* Germar, subsequent designation by Hopkins, 1914, Proc. U.S. Nat. Mus. 48:127)

Orthotomides Wood, 1951, J. Ent. Soc. Kansas 24:32 (Type-species: *Orthotomicus lasiocarpi* Swaine, original designation). *New synonymy*

The discovery of *mystacinus* Wood, described below, closes the gap in characters between *Pityokteines* and *Orthotomides* to such an extent that the latter name must be placed in synonymy even though *lasiocarpi* (Swaine) entirely lacks the long female frontal hair characteristic of *Pityokteines*. Female *mystacinus* have

part of the frontal vestiture elongate and also have two sutures visible on the posterior face of the antennal club.

This generic synonymy necessitates the transfer of *lasiocarpi* from *Orthotomides* to *Pityokteines*.

Araptus foveifrons (Schedl), n. comb.

Thamnophthorus foveifrons Schedl, 1963, Ent. Arb. Mus. Frey 14:161 (Holotype, male; Guadalajara, Jalisco, Mexico; Schedl Coll.)

Araptus interjectus Wood, 1974, Brigham Young Univ. Sci. Bull., Biol. Ser. 19(1):44 (Holotype, male; Volcan de Agua, Guatemala; Wood Coll.). *New synonymy*

When the North and Central American *Araptus* were reviewed for the monograph, two closely related species were found, both of which fit the description of *Thamnophthorus foveifrons* Schedl. It was assumed that the common, widely distributed species of these two was *foveifrons*; the rare one was named *interjectus* Wood. Recently, I had the opportunity to examine the male holotype of *foveifrons* and to compare it to the male holotype of *interjectus*. They represent the same species. The common species with which it had been confused is named below as *Araptus fossifrons*.

Cryptocarenum seriatus Eggers

Cryptocarenum seriatus Eggers, 1933, Orig. Mem. Trav. Lab. Ent. Paris 1(1):10 (Holotype, female; Nouveau Chantier, French Guayana; Paris Mus.)

Cryptocarenum bolivianus Eggers, 1943, Mitt. Münchner Ent. Ges. 33:356 (Holotype, fe-

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male; Cochabamba, Bolivia; U.S. Nat. Mus.).
New synonymy

The holotypes of *Cryptocarenum seriatus* Eggers and *bolivianus* Eggers were compared directly to my material from Brazil, Venezuela, and other areas. All represent the same biological species.

Hylastes gracilis LeConte

Hylastes gracilis LeConte, 1868, Trans. Amer. Ent. Soc. 2:174 (Lectotype, female; Tahoe Valley, California; Mus. Comp. Zool., designated by Wood, 1971, Great Basin Nat. 31:145)

Hylastes asper Swaine, 1917, Dom. Canada Dept. Agric. Ent. Br. Bull. 14(1):19 (Holotype, female; Larimer Co., Colorado; Canadian Nat. Coll.). *New synonymy*

The holotype of *Hylastes asper* Swaine is rather different from what the description might lead one to believe. It is virtually identical to the type of *longus* LeConte and well within the range of variability of *gracilis* LeConte. All three types were compared to my material and, in my opinion, represent the same species. The species I have previously treated as *asper* is described below.

Procrpyhalus utahensis Hopkins

Procrpyhalus utahensis Hopkins, 1915, U.S. Dept. Agric. Rept. 99:33 (Holotype, female; Alta, Utah; U.S. Nat. Mus.)

Procrpyhalus aceris Hopkins, 1915, U.S. Dept. Agric. Rept. 99:33 (Holotype, female; Albany, Oregon; U.S. Nat. Mus.). *New synonymy*

Procrpyhalus aceris Hopkins was named from a series of about six specimens taken from a limb that had been cut in the vicinity of Albany, Oregon. The limb was given to Hopkins who identified it as *Acer macrophyllum* (personal communication from W. J. Chamberlin). Because the stria punctures were slightly larger than usual, I did not associate these specimens with *utahensis* Hopkins until an identical series was taken from *Salix scouleriana* at Dixie Pass, Oregon. This series was compared directly to the type series of *utahensis* and *aceris* and to other series from British Columbia, Quebec, California, Colorado, South Dakota, and Utah. Only one species is represented by this material; all specimens are from *Salix*. Chamberlin, myself, and many others have searched both standing and cut *Acer macrophyllum* on numerous occasions

without finding indications of bark beetle activity. The host identification by Hopkins must have been erroneous.

Scolytodes maurus (Blandford)

Prionosceles maurus Blandford, 1897, Biol. Centr. Amer., Coleopt. 4(6):178 (Syntypes; Cerro Zunil and Pantaleon, Guatemala; British Mus. Nat. Hist.)

Hexacolus ellipticus Eggers, 1934, Ent. Blätt. 30:80 (Holotype, male; Turrialba, Costa Rica; Institut für Pflanzenschutzforschung Kleinmachnow). *New synonymy*

The syntypic series of *maurus* (Blandford) and the male holotype of *ellipticus* Eggers were compared to my material taken from southern Mexico to Panama. Only one common species is represented by this material. In all, 158 specimens were examined.

Scolytus hermosus Wood

Scolytus hermosus Wood, 1968, Great Basin Nat. 28:12 (Holotype, male; 2 km N Tlaxcala state line 18 km N Tlaxco, Puebla, Mexico; Wood Coll.)

Scolytus sylvaticus Bright, 1972, Canadian Ent. 104:1489 (Holotype, male; Cerro Potosi, Nuevo Leon, Mexico; Canadian Nat. Coll.). *New synonymy*

The holotype and allotype of *sylvaticus* Bright and three other specimens from the type locality of that species were compared directly to the type series of *hermosus* Wood. While the holotype has abdominal sternum 2 less strongly concave than normal, the other Cerro Potosi specimens and Bright's illustration of a male from the type series (Fig. 1, p. 1490) are normal specimens of *hermosus*. For this reason, *sylvaticus* must be placed in synonymy.

Xyleborus adelographus Eichhoff

Xyleborus adelographus Eichhoff, 1868, Berliner Ent. Zeitschr. 11:400 (Syntypes, female; Brazil; Brussels Mus.)

Xyleborus vitiosus Schedl, 1940, An. Esc. Nac. Cienc. Biol., Mexico 1:367 (Holotype, female; Mexico?; Schedl Coll.). *New synonymy*

The syntype of *adelographus* Eichhoff in the Brussels Museum is 2.8 mm in length; the holotype of *vitiosus* Schedl is 3.5 mm (not 3.7 mm as given by Schedl). Seven specimens in my collection from Colombia are 3.3-3.4 mm, and one from southern Brazil is 3.5 mm. The specimens from Colombia are very slightly stouter,

the declivity along the suture is flat, and the punctures on the declivital striae are slightly more deeply impressed. The holotype of *vitiosus* and my Brazilian specimen of *adelographus* are identical in every respect except for size. These specimens are almost identical to the syntype of *adelographus* and are regarded as conspecific. Because extensive collecting has not produced any specimens of this species from Mexico or Central America, because the Mexican origin of the holotype of *vitiosus* is questioned on its locality label, and because the holotype of *vitiosus* resembles specimens from southern Brazil much more closely than it does representatives of this species from Colombia, this species should be dropped from the faunal list of Mexico until more definite evidence of its occurrence in Mexico is found.

Xyleborus catulus Blandford

Xyleborus catulus Blandford, 1898, Biol. Centr. Amer., Coleopt 4(6):216 (Holotype, female; Volcan de Chiriqui, Panama; British Mus. Nat. Hist.)

Xyleborus intricatus Schedl, 1949, Rev. Brasil. Biol. 9:274 (Holotype, female; St. Catarina, Brazil; Schedl Coll.). *New synonymy*

Several specimens in the California Academy of Sciences were identified by Schedl as *Xyleborus intricatus* Schedl. Since these specimens are of *catulus* Blandford, a loan of the holotype of *intricatus* was requested. The specimen received was labeled as a "paratype" of *intricatus* from Nova Teutonia, Santa Catarina, Brazil; however, this species was based on a unique female, and paratypes were not designated in the original description. Because this specimen is also of *catulus*, *intricatus* is tentatively placed in synonymy until the holotype is located.

Xyleborus nepos Eggers

Xyleborus nepos Eggers, 1923, Zool. Meded. 7:198 (Lectotype, female; Java; U.S. Nat. Mus., designated by Anderson and Anderson, 1971, Smithsonian Contrib. Zool. 94:21)

Xyleborus signatus Schedl, 1949, Rev. Brasil Biol. 9:278 (Holotype, female; Mexico; Schedl Coll.). *New synonymy*

The holotype of *signatus* Schedl was named from a unique female labeled "Mexico." This specimen is identical to a long series of *nepos* Eggers from Indonesia and the Philippine Islands, some of which were compared directly to the lectotype

of *nepos*. Because extensive collecting in Mexico has not produced another specimen of this species, the holotype of *signatus* is considered a mislabeled specimen and should be dropped from the Mexican faunal list until more definite evidence of its occurrence there is found.

Xyleborus titubanter Schedl

Xyleborus titubanter Schedl, 1948, Rev. de Ent. 19:578 (Holotype, female; Mexico; Schedl Coll.)

Xyleborus dissidens Wood, 1972, Brigham Young Univ. Sci. Bull., Biol. Ser. 19(1):41 (Holotype, female; 9 km NE Teziutlan, Puebla, Mexico; Wood Coll.). *New synonymy*

The holotypes of *titubanter* Schedl and *dissidens* Wood were compared directly to one another and were found to represent the same species.

TAXA NEW TO SCIENCE

Cnesinus electus, n. sp.

This species is distinguished from the female holotype of *bisulcatus* Schedl by the more narrowly spaced eyes (above), by the smaller, more abruptly elevated epistomal process (difference very slight), by the very slightly larger, deeper pronotal punctures, by the larger, more widely spaced stria punctures, and by the coarser declivital setae with a complete row of setae on interstriae 1.

FEMALE.—Length 2.5 mm, (paratypes 2.3–2.6 mm), 2.8 times as long as wide; color dark brown, elytra dark reddish brown.

Frons strongly, transversely impressed at level of antennal bases, convex above, somewhat flattened below this point, with epistomal process poorly developed and devoid of granules or tubercles; eyes approximate above, separated by a distance equal to 0.5 times greatest width of an eye (about twice this wide in *bisulcatus*); surface rugulose and rather coarsely punctured above eyes, rugose-reticulate below upper level of eyes, with a few fine punctures along lateral margins and on epistoma; vestiture limited to lateral and epistomal areas. Eyes very large; very coarsely faceted.

Pronotum 1.1 times as long as wide; widest just in front of middle, almost straight from widest point to sharply defined basal angles, somewhat constricted

just behind narrowly rounded anterior margin; surface dull, subshining, more distinctly shining toward base, punctures almost round at base, becoming increasingly elongate anteriorly, occasionally confluent in anterior area; glabrous.

Elytra 1.7 times as long as wide; sides almost straight and parallel on basal two-thirds, rather narrowly rounded behind; striae 1 rather strongly, others moderately, not abruptly impressed, punctures small, except on 1 not confluent, distinctly, rather strongly impressed, separated by distances slightly less than their own diameters; interstriae feebly convex, shining, punctures varying from minute to two-thirds size of those of striae, in indefinite uniseriate rows. Declivity convex, except moderately impressed between interstriae 3; striae feebly impressed, punctures rather small but impressed; interstriae 1 abruptly elevated to apex, about half as high as wide, others almost flat, 2 about one and one-half times as wide as 1, twice as wide as 3; all interstriae armed by uniseriate rows of moderately large rounded setiferous granules, each granule about as high as wide, distinctly larger than in *elegans*. Vestiture confined to declivity, except on interstriae 1, consisting of rows of rather coarse, moderately long, interstitial bristles, and short, fine, striaal hair.

FEMALE.— Similar to male except epistomal callus more prominent.

TYPE LOCALITY.— Five miles or 8 km SE Cartago, Cartago, Costa Rica.

TYPE MATERIAL.— The female holotype, male allotype, and 7 paratypes were taken on 2-VIII-63, at 1500 m, No. 98, from twigs of *Miconia* (?), by S. L. Wood. Seven paratypes bear the same data except that they were from twigs of an unknown tree; five paratypes came from same locality on 29-VII-63, from a woody vine; and seven paratypes are from Peralta, Cartago, Costa Rica, 10-III-64, 500 m, tree seedling, S. L. Wood.

The holotype, allotype, and paratypes are in my collection.

Cnesinus pilatus, n. sp.

This species is distinguished from *strigicollis* LeConte by the larger size, by the stouter body form, by the different female frons, by the absence of tubercles on de-

clivital interstriae 2, and by other characters noted below.

FEMALE.— Length 3.1 mm, 2.1 times as long as wide; color dark brown, elytra dark reddish brown.

Frons as in *strigicollis* except area below carina slightly less strongly impressed, distance between eyes 0.8 times as wide as width at level of antennal insertion (as in *strigicollis*), carina 0.5 times as wide as distance between eyes, median impunctate area above carina larger, extending above upper level of eyes, vestiture in lateral areas not extending above upper level of eyes and not on median third at vertex (extending well above eyes and almost to median line in *strigicollis*).

Pronotum 0.9 times as long as wide; about as in *strigicollis* except more closely, slightly more coarsely strigose.

Elytra 1.3 times as long as wide, 1.7 times as long as pronotum; similar to *strigicollis* except interstriae three times as wide as striae, declivity more broadly impressed, declivital interstriae 2 devoid of granules, vestiture about half as long, stouter. Interstriae 2 on declivity with a row of punctures, each puncture about two-thirds as large as those of adjacent striae.

TYPE LOCALITY.— Thirteen km or eight miles W El Palmito, Sinaloa, Mexico.

TYPE MATERIAL.— The female holotype was taken at the type locality on 7-VIII-64, by H. F. Howden.

The holotype is in the Canadian National Collection.

Hylastes asperatus, n. sp.

This is a difficult species to recognize. The very large pronotal punctures are irregular in size, as in *porculus* Erichson, but much closer; the discal interstriae are slightly wider than in allied species, more nearly convex, and very finely, closely crenulate (usually not clearly apparent unless the light source is posterior to the specimen). This species has been treated as *asper* Swaine, but the type of *asper* is quite different.

FEMALE.— Length 4.2 mm (paratypes 4.0-4.6 mm), 2.7 times as long as wide; color dark brown.

Frons as in *gracilis* LeConte with interocular impression moderately strong, fine, low carina evidently always extend-

ing from this impression to base of epistomal lobe where it forks as in related species.

Pronotum 1.2 times as long as wide; sides on slightly more than basal half straight and parallel, rather broadly rounded in front; surface subshining, indications of reticulation obscure but usually visible at high magnification toward anterior or basal areas, punctures coarse, very close, deep, irregular in size in some specimens, interspaces usually equal to less than one-fourth diameter of a puncture; median line partly impunctate, not raised; glabrous.

Elytra 1.8 times as long as wide, 1.8 times as long as pronotum; outline as in *gracilis*; striae moderately impressed, punctures rather coarse, deep; interstriae as wide as striae, punctures moderately coarse, close, confused, their anterior margins elevated into fine, crenulate, transverse ridges of variable height (this character approached in allied species, but not to this degree). Declivity convex, steep; striae narrowly, deeply impressed, punctures somewhat obscure; interstriae about twice as wide as striae, armed by fine, confused tubercles. Vestiture confined to declivity, scalelike.

MALE.— Similar to female except slightly stouter, and last visible abdominal sternum medially impressed and pubescent.

TYPE LOCALITY.— New Mexico.

TYPE MATERIAL.— The female holotype, male allotype, and 18 paratypes were mounted on cards all on one pin bearing the label "New Mexico, F. H. Snow." One paratype in the Canadian National Collection labeled "Las Vegas Hot Springs, New Mexico, 7000 ft., Aug. '82, F. H. Snow" may be from the same series. One paratype from each of the following Arizona localities is labeled: Hanagan Camp Ground, Greenlee Co., 12-VII-68, D. E. Bright; Santa Catalina Mts., 5-VIII-68, D. E. Bright.

The holotype, allotype, and 18 paratypes are in my collection; the three remaining paratypes are in the Canadian National Collection.

Scolytus torulus, n. sp.

This species is distinguished from *dimidiatus* Chapuis by the smaller average size, by the subvertical, somewhat convex ab-

dominal sternum 2, by the absence of a tuft of hair on sternum 2 immediately posterior to the spine, by the very different male frons, and by other characters described below.

MALE.— Length 2.4 mm (paratypes 2.0-2.4 mm), 2.1 times as long as wide; color very dark brown to black, elytra slightly lighter.

Frons rather weakly convex above, a distinct, moderately deep, transverse impression just above epistoma, deepest in median area, a distinct but weak, rounded, median elevation immediately above impressed area; surface strongly reticulate above, more shining and obscurely aciculate in impressed area, punctures fine, rather deep, sparse in median area, more numerous laterally; vestiture of fine hair on margins and impressed area, a few of them rather long.

Pronotum as in *dimidiatus* except punctures in lateral areas considerably larger.

Elytra 1.1 times as long as wide, 1.2 times as long as pronotum; surface similar to *dimidiatus* but much more finely punctured, few to many longitudinal lines or striations sometimes present. Sparse setae shorter and much stouter than in *dimidiatus*.

Sternum 2 subvertical, moderately convex, spine similar to *dimidiatus* but smaller; surface dull, very coarsely, deeply, closely punctured; sterna 3-5 similar but more finely punctured; vestiture of very fine, short hair, without a specialized tuft posterior to spine on 2.

FEMALE.— Similar to male except frons without impression or elevation, not strigose, vestiture similar to but finer and about one-third as abundant as in *dimidiatus* female; spine on sternum 2 about half as large as in male.

TYPE LOCALITY.— Rincón de Osa, Puntarenas, Costa Rica.

TYPE MATERIAL.— The male holotype, female allotype, and 10 paratypes were taken at the type locality on 11-VIII-66, 30 m, No. 72, from a leguminous tree, by me.

The holotype, allotype, and paratypes are in my collection.

Scolytus laetus, n. sp.

This species is distinguished from *torulus* Wood by the flattened sternum 2

which is much more finely, sparsely punctured, with longer, more abundant hair, and by characters of the frons described below.

MALE.—Length 2.4 mm (paratypes 2.4-2.5 mm), 2.4 times as long as wide; color very dark brown.

Frons as in *torulus* except elevation wider, area above elevation more distinctly, more broadly impressed, vestiture on lateral margins more abundant, much longer.

Pronotum and elytra as in *torulus*.

Sternum 2 vertical, almost flat, surface dull, punctures small, not clearly evident, spine as in *torulus*, vestiture much longer, some setae as long as spine.

FEMALE.—Similar to male except frons as in female *torulus* but with vestiture slightly more abundant and longer, particularly in lower areas; sternum unarmed, spine absent, vestiture finer, more abundant.

TYPE LOCALITY.—Forty-eight km or 30 miles N Rosamorada, Nayarit, Mexico.

TYPE MATERIAL.—The male holotype, female allotype, and three male paratypes were taken at the type locality on 15-VII-65, 1000 m, No. 257, from *Inga paterno*, by me.

The holotype, allotype, and paratypes are in my collection.

Scolytodes amabilis, n. sp.

In general body features, this species is very similar to *clusiavorus* Wood, but the female frons is much more similar to *volcanus* Wood. It is distinguished from those species as indicated below.

FEMALE.—Length 1.6 mm (paratypes 1.4-1.6 mm), 2.5 times as long as wide; color very dark brown, almost black.

Frons essentially convex, with a very shallow, subconcave area on median third just below upper level of eyes, this impression continued on median fifth as an abrupt, shallow sulcus to epistoma, median half of lateral areas bordering sulcus with numerous beadlike granules, remaining areas somewhat dull, with fine punctures; surface of sulcus shining, almost smooth; rather sparse vestiture limited to margins, of fine, long hair, those on dorsal margin attaining level of antennal insertion, shorter laterally and below.

Pronotum and elytral outlines as in

clusiacolens Wood; pronotum surface reticulate, punctures as in *clusiavorus*; striae and interstriae punctures similar to but slightly larger than in *clusiavorus*. Strial setae almost obsolete; interstriae setae almost obsolete on even-numbered interstriae, fine, rather short, and widely spaced on odd-numbered interstriae.

MALE.—Similar to female except frons convex, reticulate, vestiture very sparse, short, inconspicuous.

TYPE LOCALITY.—Mt. Tzontehuitz, Chiapas, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and 15 paratypes were taken at the type locality on 29-V-69, at 3000 m, by D. E. Bright. Twenty-one paratypes bear the same data except 23-VI-69; two of them were taken from *Quercus* sp.

The holotype, allotype, and most of the paratypes are in the Canadian National Collection; the remaining paratypes are in my collection.

Scolytodes obesus, n. sp.

This species is distinguished from the remotely related *immanus* Wood by the smaller size, by the stouter body form, by the pair of carinae on the female frons, and by other characters.

FEMALE.—Length 1.8 mm, 2.1 times as long as wide; color yellowish brown, anterior third of pronotum darker.

Frons shallowly, broadly concave from level of antennal insertion to upper level of eyes (upper area concealed by pronotum), surface smooth and shining except subreticulate near margins; epistomal area from margin to level of antennal insertion longitudinally divided into equal thirds by a pair of rather strongly elevated carinae; premandibular epistomal lobe large, conspicuous, pubescent; vestiture mostly confined to margins of upper half of frontal area, consisting of a row of long, subplumose setae, longest setae equal to about one-half to two-thirds distance between eyes.

Pronotum 0.97 times as long as wide; widest near base, sides weakly, arcuately converging on basal two-thirds, rather broadly rounded in front; anterior third moderately declivous, finely asperate; posterior areas reticulate, very finely, rather closely punctured. Glabrous ex-

cept for an occasional coarse seta on asperate area.

Elytra 1.15 times as long as wide, 1.25 times as long as pronotum; sides almost straight on basal half, slightly wider at base of declivity, rather broadly rounded behind; disc confined to basal half; striae not impressed, punctures small, rather shallowly impressed, spaced by distances equal to diameter of a puncture; interstriae four times as wide as striae, smooth, shining, punctures small to minute, weakly impressed; interstriae 10 weakly carinate to level of sternum 5. Declivity convex, moderately steep; sculpture as on disc. Vestiture of sparse, moderately long bristles on odd-numbered interstriae.

Protibia slender, lacking minute tooth on posterior face near tarsal insertion.

TYPE LOCALITY.—Barro Colorado Island, Panama Canal Zone.

TYPE MATERIAL.—The female holotype was taken at the type locality on 7-VIII-67, L. and C. W. O'Brien.

The holotype is in my collection.

Scolytodes lepidus, n. sp.

This species is distinguished from *amoenus* Wood by the slightly larger average size, by the slightly larger elytral punctures, by the presence of a few elytral setae, particularly along sides, and by the very different female frons.

FEMALE.—Length 2.0 mm (paratypes 1.8-2.3 mm), 2.2 times as long as wide; color dark brown, base of pronotum usually pale.

Frons broadly flattened from epistoma to vertex, almost smooth, upper half and sides below coarsely, closely punctured and pubescent, median third on lower half slightly elevated, smooth, shining, impunctate, glabrous; vestiture long, moderately abundant, more widely distributed than in *amoenus*.

Pronotum 1.0 times as long as wide; as in *amoenus* except discal area reticulate (smooth to subreticulate in *amoenus*) and moderately pubescent at lateral margins (almost glabrous in *amoenus*).

Elytra 1.2 times as long as wide, 1.3 times as long as pronotum; as in *amoenus* except striae and interstriae punctures larger, more completely confused and lateral areas with sparse setae (entirely glabrous in *amoenus*).

MALE.—Similar to female, with frons similar to male *amoenus* except more coarsely punctured, more protuberant in median area, with no granules.

TYPE LOCALITY.—Thirty-three km or 21 miles N Juchitlan, Jalisco, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and 25 paratypes were taken at the type locality on 3-VII-65, at 1300 m, No. 177, from *Ficus*, by me, from the same branches that contained the type series of *amoenus*.

The holotype, allotype, and paratypes are in my collection.

Scolytodes genialis, n. sp.

This species is distinguished from *lepidus* Wood by the absence of punctures in the asperate area of the pronotum and by the much finer punctures on the pronotal disc and on the elytra.

FEMALE.—Length 1.8 mm (paratypes 1.8-2.1 mm), 2.3 times as long as wide; color light brown, anterior half of pronotum darker.

Frons as in *lepidus* except vestiture finer, very slightly shorter. Pronotum as in *lepidus* except punctures very fine, shallow. Elytra as in *lepidus* except striae punctures fine, shallow, in definite rows, interstriae punctures very small, confused, striae 1 not impressed on declivity, vestiture on sides of elytra minute.

TYPE LOCALITY.—Laguna Santa María, Nayarit, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and six paratypes were taken at the type locality on 7-VII-65, at 900 m, No. 197, from *Ficus* with yellow bark, by me. Four paratypes are from 24 km or 15 miles S Mazamitla, Jalisco, Mexico, 22-VI-65, 2500 m, No. 97, *Ficus* with yellow bark, by me.

The holotype, allotype, and paratypes are in my collection.

Pseudothysanoes concentralis, n.sp.

This species is distinguished from *quercinus* Wood by the concentric, carinate pronotal asperities, by the more strongly impressed frons, by the greatly reduced elytral punctures, and by the wider elytral scales.

FEMALE.—Length 1.0 mm (paratypes

1.0-1.2 mm), 2.6 times as long as wide; color dark brown.

Frons rather strongly concave on median two-thirds of area below upper level of eyes, surface subrugose, with sparse granules except almost smooth on lower half of concavity; vestiture short, sparse. Antennal scape as wide as long, as long as pedicel, bearing a small tuft of long hair; club about as in *quercinus*.

Pronotum 0.73 times as long as wide; outline as in *quercinus*; summit at middle; anterior slope on median third armed by six concentric, uniform, transverse carinae, other asperities absent, carina 1 submarginal, 6 at summit; posterior areas shining, almost smooth, punctures almost obsolete. Vestiture consisting of a row of scales posterior to each of first five carinae, and rather sparse, coarse hair in remaining areas.

Elytra 1.8 times as long as wide, 2.4 times as long as pronotum; outline as in *quercinus*; striae not impressed, punctures small, shallow; interstriae almost smooth, about twice as wide as striae, punctures almost obsolete; surface usually covered by a thin incrustation. Declivity convex, steep, sculpture as on disc but punctures even more obscure. Vestiture mostly abraded, consisting of widely spaced, short, interstitial scales, each scale one and one-half to two times as long as wide.

MALE.—Length 0.8 mm; similar to female except smaller, slightly stouter; frontal concavity not as deep; pronotal asperities not fused or clearly concentric.

TYPE LOCALITY.—Ten km or 6 miles SE Totolapan, Oaxaca, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and 24 paratypes were taken at the type locality on 21-VI-67, 1000 m, No. 73, from a leguminous roadside shrub with a yellow flower that was presumed to be *Cassia* sp., by me.

The holotype, allotype, and paratypes are in my collection.

Pseudothysanoes tumidulus, n. sp.

This species is distinguished from the distantly allied *graniticus* Wood by the different female frons, by the smaller elytral scales, and by the very different male declivity as described below.

MALE.—Length 1.7 mm (paratypes

1.5-2.0 mm), 2.2 times as long as wide; color very dark brown.

Frons flattened on lower two-thirds, with small concavity on median fifth, ascending slightly to epistomal margin, convex above; subshining and almost smooth on flattened area, more coarsely punctate-granulate above; vestiture confined to epistomal area and to convex area.

Pronotum similar to *graniticus* except anterior margin narrowly rounded and armed by six teeth and posterior areas rather strongly reticulate.

Elytra 1.3 times as long as wide; sides straight and parallel on basal three-fourths, rather abruptly rounded, then broadly rounded behind; striae not impressed, punctures small, moderately deep, spaced by distances equal to diameter of a puncture; interstriae three times as wide as striae, almost smooth, punctures minute, granulate, uniseriate except confused near declivity. Declivity with basal margin abrupt, basically convex except upper half flattened to striae 4, a moderate bulla just below middle from interstriae 2-4; striae punctures smaller and not as deep as on disc, closer, in indistinct rows, of same size and shape as confused interstitial granules, interstitial punctures obsolete; bulla covered by same surface sculpture as elsewhere. Vestiture of interstitial rows of scales, each slightly longer than wide on disc except scales confused, more abundant, much longer, and more slender at base of declivity; declivity glabrous; rows of fine, recumbent striae hair on disc.

FEMALE.—Similar to male except frons broadly, shallowly concave from epistoma to well above eyes, vestiture on upper area slightly more abundant (less abundant and shorter than in *graniticus*); anterior margin of pronotum more broadly rounded, unarmed; declivity convex, sculpture as on disc except striae punctures obsolete; rows of interstitial scales continued to apex, each scale equal in length to three-fourths distance between rows, more closely spaced within a row, each about three to four times as long as wide.

TYPE LOCALITY.—Highway 120, 129 km NE San Juan del Río, Queretaro, Mexico.

TYPE MATERIAL.—The male holotype, female allotype, and 27 paratypes were taken at the type locality on 9-VI-71, at

2500 m, from mistletoe on oak, by D. E. Bright.

The holotype, allotype, and most of the paratypes are in the Canadian National Collection; the remaining paratypes are in my collection.

Thysanoes tuberculatus, n. sp.

This species is distinguished from *granulifer* Wood by the smaller size and by the very different elytral declivity as described below.

MALE.—Length 1.8 mm, 2.7 times as long as wide; color rather dark yellowish brown.

Frons and pronotum as in *granulifer* and *berchemiae* Blackman.

Elytra 1.6 times as long as wide; disc as in *granulifer* except granules slightly larger. Declivity steep, convex; striae 1 and 2 with punctures minute, visible almost to apex; suture slightly elevated, with a row of small granules on basal half; interstriae 2 with two or three tubercles on less than basal fourth, broadly impressed below and entirely devoid of punctures and granules; interstriae 3 moderately elevated on middle third and armed with a row of six to eight rather coarse tubercles, lower third without punctures or granules; lateral interstriae each with a row of tubercles on basal area but none of them attaining normal apex for these interstriae. Vestiture of rows of interstitial scales, scales on disc largely abraded, little if any longer than wide, longer at base of declivity; those on 3 up to three times as long as on disc and four times as long as wide, slightly shorter on other interstriae; declivital interstriae 2, 4, lower two-thirds of 1, and lower half of 3 glabrous.

TYPE LOCALITY.—Eighty-five km or 53 miles S Valle Nacional, Oaxaca, Mexico.

TYPE MATERIAL.—The male holotype was taken at the type locality on 24-V-71, at 3300 m, D. E. Bright.

The holotype is in the Canadian National Collection.

Pityokteines mystacinus, n. sp.

This species is distinguished from *minutus* (Swaine) by the smaller size, by the very different ornamentation of hair on the female frons, by the finer pronotal

and elytral punctures, and by other characters. It probably is much more closely related to *lasiocarpus* (Swaine).

FEMALE.—Length 2.1 mm (paratypes 1.7-2.1 mm), 3.0 times as long as wide; color brown.

Frons similar to *lasiocarpus* except more broadly convex, surface not as smooth, somewhat dull, punctures average smaller and, on lower third, becoming almost obsolete; vestiture on lower third abundant, rather long, epistomal brush very broad, rather dense; setae on upper half of frontal area sparse, short. Antennal club almost as in *lasiocarpus*.

Pronotum as in *lasiocarpus* except anterior margin more narrowly rounded; vestiture uniformly short as in *lasiocarpus*. Elytra as in *lasiocarpus* except punctures on disc slightly larger, very slightly more confused on basal half, and declivital striae 1 more strongly impressed, with punctures on striae 1 slightly larger, subapical transverse elevation at apex of sulcus more distinct (but still rather obscure); position, number, and size of tubercles as in *lasiocarpus*. Vestiture similar in abundance, but very slightly longer than a *lasiocarpus*.

MALE.—Similar to female except upper half of frons more strongly convex, vestiture on lower third greatly reduced in abundance and length; elytral declivity with sulcus slightly deeper (about as in male *lasiocarpus*) but narrower.

TYPE LOCALITY.—Mount Rainier National Park, Washington.

TYPE MATERIAL.—The female holotype, male allotype, and three female paratypes were taken at the type locality on 21-VIII-62, silver fir, D. E. Bright.

The holotype, allotype, and one paratype are in the Canadian National Collection and two paratypes are in my collection.

Ips pilifrons thatcheri, n. subsp.

This geographical race of *pilifrons* is distinguished from *p. pilifrons* Swaine, of northern Colorado, by the characters of the frons described below. Both subspecies are replaced throughout all of Utah by *p. utahensis* Wood in which frontal characters are entirely different. The following comparisons are based on females having the maximum frontal elevation and pilos-

ity for their race; occasional specimens of *p. pilifrons* almost overlap the maximum development of *p. thatcheri*.

FEMALE.—Length 4.6 mm (paratypes 3.9–4.9 mm), 2.5 times as long as wide; color very dark brown.

Frons similar to *p. pilifrons* except less strongly, less extensively elevated, elevation occupying lower 80 percent of median distance from epistoma to upper level of eyes (115 percent in *p. pilifrons*) and pubescent area occupying less than 50 percent of median area between eyes (80 percent in *p. pilifrons*); lateral areas much more sparsely, more finely granulate than in *p. pilifrons*. Pronotum, elytra, and other features essentially as in *p. pilifrons*.

MALE.—Similar to male *p. pilifrons* except frontal vestiture less abundant and shorter, particularly along epistoma.

TYPE LOCALITY.—Mt. Wheeler, Nevada.

TYPE MATERIAL.—The female holotype, male allotype, and 48 paratypes were taken at the type locality on 10-VIII-74, at 10,000 ft., from *Picea engelmanni*, by me.

The holotype, allotype, and paratypes are in my collection.

This subspecies is named for Dr. T. O. Thatcher who discovered it more than 30 years ago.

Araptus attenuatus, n. sp.

This species is distinguished from *placatus* Wood by the much coarser strial punctures, by the much longer female frontal vestiture, and by other characters cited below.

FEMALE.—Length 1.6 mm (paratypes 1.4–1.6 mm), 3.0 times as long as wide; color dark brown.

Frons feebly convex, flattened on median half in some specimens; subshining, rather finely, closely punctured in peripheral areas, central area minutely irregular, often with a few punctures; a weak median carina on lower half; vestiture of fine, long, white, subplumose setae in punctured area at sides and above, longest setae equal to two-thirds diameter of frons, shorter toward epistoma.

Pronotum 1.2 times as long as wide; as in *placatus* except anterior margin more narrowly rounded, posterior areas more distinctly reticulate, with punctures al-

most twice as large; minute setae present on disc.

Elytra 1.8 times as long as wide, 1.6 times as long as pronotum; similar to *placatus* except strial punctures almost twice as large, declivity more narrowly convex, interstriae 2 not impressed, 1 more feebly elevated. Minute strial setae visible on posterior half of disc and declivity except 1 and 2, interstitial setae confined to declivity, absent on 2, similar to *placatus* except usually finer.

MALE.—Similar to female except frons more distinctly convex, punctures subrugose, obscurely aciculate, a distinct, sub-tuberculate, median prominence at upper level of eyes and continuing toward vertex, its summit transversely etched.

TYPE LOCALITY.—Forty-eight km or 30 miles W Baja de los Angeles, Baja California Norte, Mexico.

TYPE MATERIAL.—The female holotype, male allotype, and four paratypes were taken at the type locality on 31-III-74, Hopk. 58650, by M. M. Furniss, from host plant No. 88. Twenty-two paratypes are from 32 km or 20 miles N Punta Prieta, Baja California Norte, Mexico, 29-III-73, *Pedialanthus macrocarpus*, J. Doyen.

The holotype, allotype, and several paratypes are in my collection; two paratypes are in the Canadian National Collection; the remaining paratypes are in the University of California (Berkeley) Collection.

Araptus foveifrons, n. sp.

This common species was thought to be *foveifrons* (Schedl) until the type of Schedl's species became available for study; however, this species has the elytral punctures much finer and the declivital sulcus much more weakly impressed.

MALE.—Length 2.2 mm (paratypes 1.8–2.4 mm), 2.5 times as long as wide; color rather dark reddish brown.

Frons as in *foveifrons* except lower area more finely punctured. Elytral disc with punctures much finer, interstitial punctures usually more widely spaced (variable). Elytral declivity with striae 1 rather strongly impressed, interstriae 2 not impressed, with a row of punctures. Vestiture as in *foveifrons*.

FEMALE.—Similar to male except frons weakly convex, a weak median carina

from vertex to epistoma, surface closely, rather coarsely punctured, with fine abundant, moderately long hair uniformly distributed from epistoma to above eyes; frons concealed in only available female of *foveifrons*.

TYPE LOCALITY.— Lago Amatitlan, Guatemala.

TYPE MATERIAL.— The male holotype, female allotype, and 48 paratypes were taken at the type locality on 10-VI-64, 700 m, No. 702, from the fruiting body of a climbing (Cucurbitaceae) vine, by me. Other paratypes were taken in Mexico as follows: 9 at 3 km (2 miles) SE Acatlan, Puebla, 15-VI-67, 1500 m, No. 37; 17 at 9 km (12 miles) SE Oaxaca, Oaxaca, 18-VI-67, No. 57; 4 from 24 km (15 miles) W Armeria, Colima, 30-VI-65, 30 m, No. 141; 9 from 1 km N Atenquique, Jalisco, 24-VI-65, 1000 m, No. 115; 2 from 8 km (5 miles) S Atenquique, Jalisco, 25-VI-65, 1000 m, No. 115A; 3 from 8 km (5 miles) W Juchitlan, Jalisco, 2-VII-65, 1000 m, No. 174; 14 from 24 km (15 miles) S Mazamitla, Jalisco, 22-VI-65, 2500 m, No. 96; 13 from Tuxpan, Jalisco, 23-VI-65, 1300 m, No. 99; 3 from 8 km (5 miles) N Ruiz, Nayarit, 14-VII-65, 100 m, No. 245; all from fruiting pods of climbing vines or a small tree, by me.

The holotype, allotype, and paratypes are in my collection.

Amphicranus parilis, n. sp.

This species is distinguished from *filiformis* Blandford by the much smaller size, by the absence of minute crenulations on the base of the pronotal disc, and by differences in the elytral declivity indicated below.

MALE.— Length 2.0 mm, 4.0 times as long as wide; color pale yellowish brown. Elytral declivity brown.

Frons and pronotum as in *filiformis* except as noted in diagnosis. Elytra as in *filiformis* except less strongly explanate, sutural emargination only slightly deeper than wide (twice as deep as wide in *filiformis*), declivital spine 2 smaller, less strongly pointed.

TYPE LOCALITY.— Six km or 4 miles W Tepic, Nayarit, Mexico.

TYPE MATERIAL.— The male holotype was taken at the type locality on 13-VII-

65, 1000 m. No. 240, from a tree branch, by me.

The holotype is in my collection.

Corthylus cecropii, n. sp.

This aberrant species is distinguished from all other species in the genus by the small antennal club, without sutures, by the absence of female pronotal asperities, and by the minute to obsolete punctures of the pronotum and elytra.

FEEMALE.— Length 2.4 mm (paratypes 2.0-2.5 mm), 2.3 times as long as wide; color black.

Frons uniformly, deeply concave from eye to eye, from epistoma to vertex; surface densely, uniformly, very finely punctured over entire surface; vestiture very fine, rather abundant, uniformly rather short over concave area, margin above eyes with a dense row of very long hair, a small tuft of longer hair at level of antennal insertion on lateral half. Antennal club 1.6 times as long as wide; asymmetrically obovate, aseptate, entire surface minutely pubescent; posterior face with a small tuft of hair extending about half of club length beyond apex.

Pronotum 1.1 times as long as wide; sides weakly arcuate on posterior half, broadly rounded in front, a distinct, submarginal, transverse constriction; anterior margin unarmed; summit indefinite, near middle; asperities absent; surface reticulate, anterior half with sparse, minute granules, posterior half with sparse minute punctures. Acute lateral margins more strongly developed than in other species. Glabrous.

Elytra 1.3 times as long as wide, 1.2 times as long as pronotum; sides almost straight and parallel on basal two-thirds, obtusely subangulate behind; disc reticulate, a few obscure, irregular lines indicated, punctures minute, mostly obsolete, apparently confused. Declivity occupying slightly more than posterior third, rather steep, convex; sculpture as on disc, except a few irregularly placed fine granules usually present. Vestiture confined to declivity, consisting of sparse, short, fine bristles apparently on odd-numbered interstriae.

MALE.— Similar to female except frons convex, a distinct, transverse impression above epistoma, surface smooth, shining,

impunctate; anterior margin of pronotum distinctly produced toward median line and armed by two slender teeth; anterior slope of pronotum much steeper, asperate.

TYPE LOCALITY.— Tapanti, Cartago, Costa Rica.

TYPE MATERIAL.— The female holotype, male allotype, and 15 paratypes were taken at the type locality on 24-X-63, 1300 m, No. 242, from fallen *Cecropia peltata* petioles, by me. Eight paratypes

are from Turrialba, Cartago, Costa Rica, 5-VII-63, 700 m, No. 19, *Cecropia petioles*, by me. Three paratypes are from 6 km S San Vito, Puntarenas, 13-III-68, H. Hespeneheide. Three specimens not included in the type series are from El Laurel (Experiment Station), 12 km SW Caracas, Venezuela, 1-V-70, 1300 m, No. 475, *Cecropia petioles*, by me.

The holotype, allotype, and paratypes are in my collection.