



KEY TO THE GENERA OF NORTH AMERICAN SCOLYTINAE



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Introduction

KEY 

This key treats all 83 genera of bark and ambrosia beetles (Curculionidae: Scolytinae) known from North America as of 2018. The key is designed for use by individuals with a wide range of taxonomic expertise but will be most effective with the support of a cooperating taxonomist.

With few exceptions, bark and ambrosia beetles are very small. The characters used in their identification are often portions of body parts and are thus even smaller. Effective identification of these insects cannot be conducted without access to a good quality, high powered (preferably with up to 90X) dissecting microscope. Good illumination is also essential. Ring lights are particularly good for assessing punctation, surface texture and

Introduction (continued)

features, and vestiture. Many features are best viewed at an oblique angle or with oblique lighting.

It is also important to maintain a reference collection of identified specimens (hopefully confirmed by a cooperating taxonomist) to ensure correct understanding of the necessary characters. Although the images within this key are of very high quality, there is no substitute for actual specimens.

Using the Key

This key functions much like traditional dichotomous keys, with couplets. However, buttons linking non-sequential couplets and enabling return to the originating couplet have been utilized. Images of all character states are provided. In general, the most obvious or reliable characters come first in a couplet half, followed by those that are less so.

Where possible and efficient, taxonomic jargon has been kept to a minimum. Unfamiliar terms and character states should be explained via the images and associated labels. The first several slides following the introduction illustrate the basic body parts of Scolytinae and the terms applied to them. A single slide explaining a few technical terms follows those.

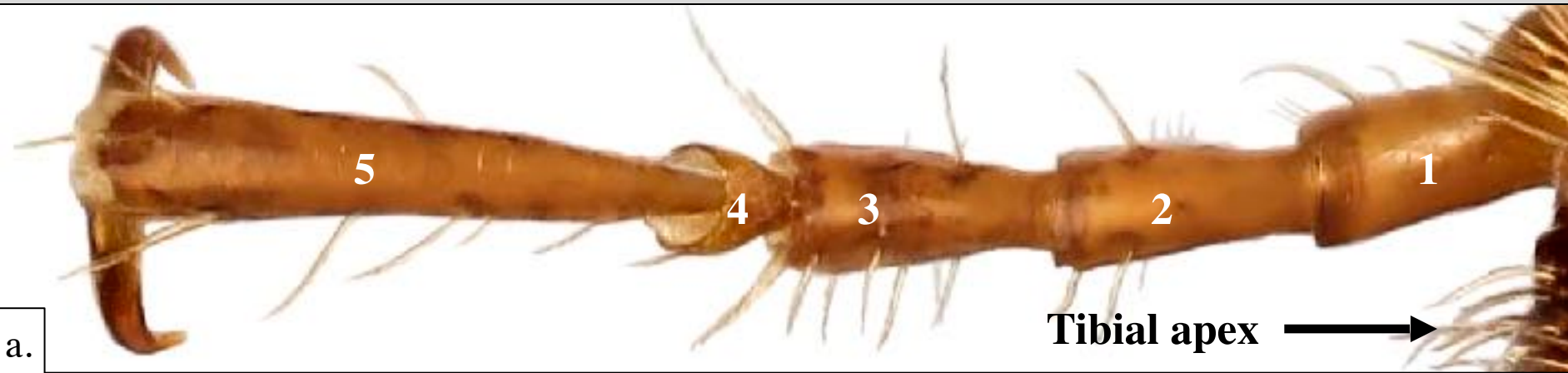
Names of genera partially or entirely exotic to North America are followed by the 😞 symbol.

Features Typical of Scolytines: I

Most scolytines in North America have a very consistent appearance. From both a lateral and dorsal perspective, most are either very stout to “stoutly” slender, although a goodly number are genuinely slender. They are dull in color (unless covered in colored scales), either brown or black, sometimes shading to orangish- or reddish-brown. The legs tend to be short and relatively stout. Many of the diagnostic characters are antennal, on the frons, or on the elytral declivity, so there is often the sense that one is looking at either end of a scolytine to the exclusion of the middle!

Features Typical of Scolytinae: II

All 3 sets of tarsi often appear to be comprised of 4 segments each. Each tarsus really has 5 segments, but the 4th is very small (**a-b**) and is frequently hidden between the lobes of the 3rd segment (**b**), making it very difficult to see.

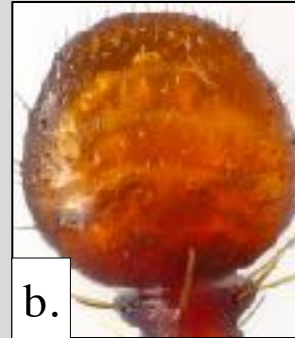


a.

b.

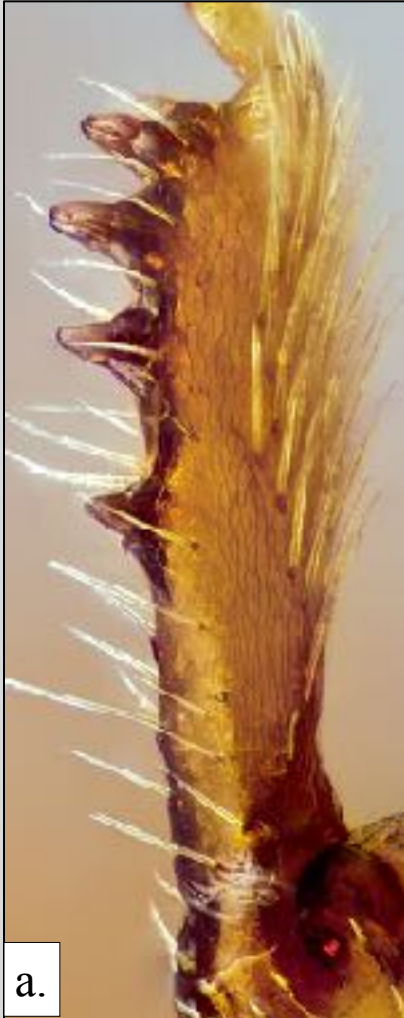
Features Typical of Scolytines: III

Scolytines have geniculate antennae, that is, the antennae are “elbowed”, with all of the segments beyond the large basal segment normally at a more-or-less ninety degree angle to that segment (**a**). Most scolytines have compact antennal clubs with all club segments tightly associated with each other (**a-c**). Naturally, there are exceptions, as with species of *Phloeotribus*, which have club segments variously flattened and elongated and which may be separated from each other (**d**).



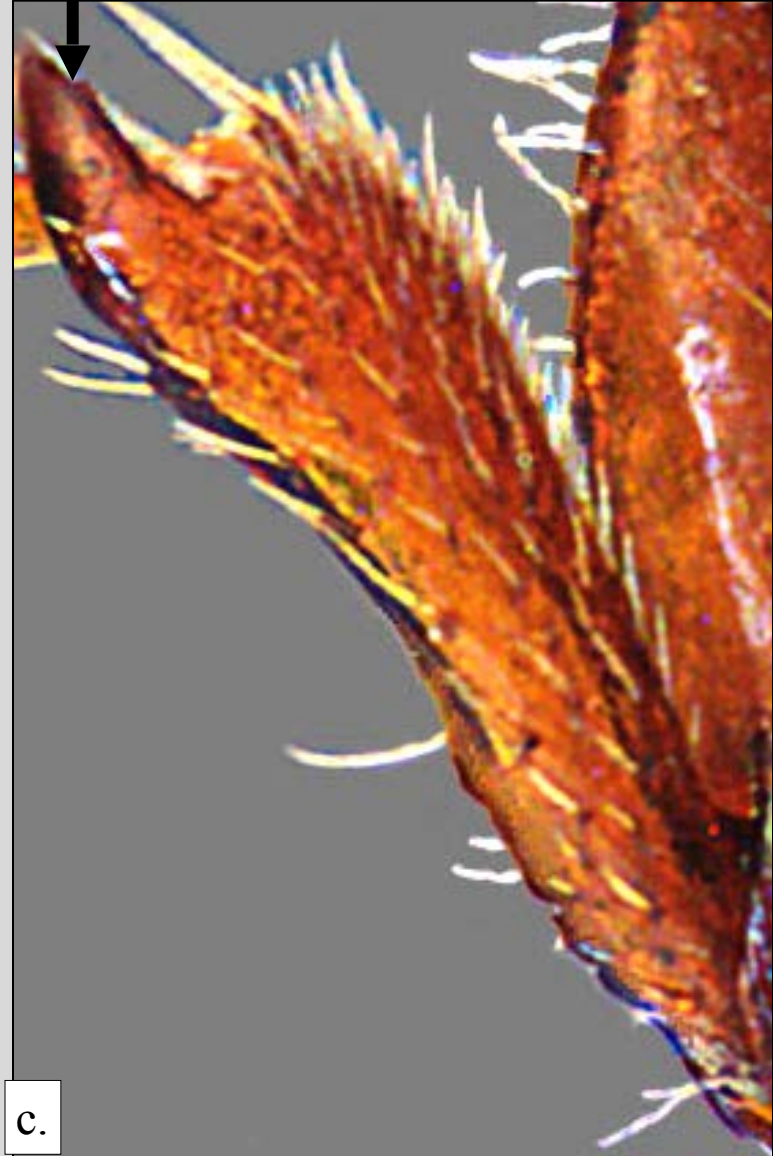
Features Typical of Scolytines: IVa

The tibiae of most scolytines are relatively broad with a few (**a**) to many spines or teeth along the outer lateral margin (**b-c**). Some genera of scolytines have protibiae without any teeth along this margin (**d-f**). Those with such tibiae have a single, large apical tooth or spine at the tibial apex.



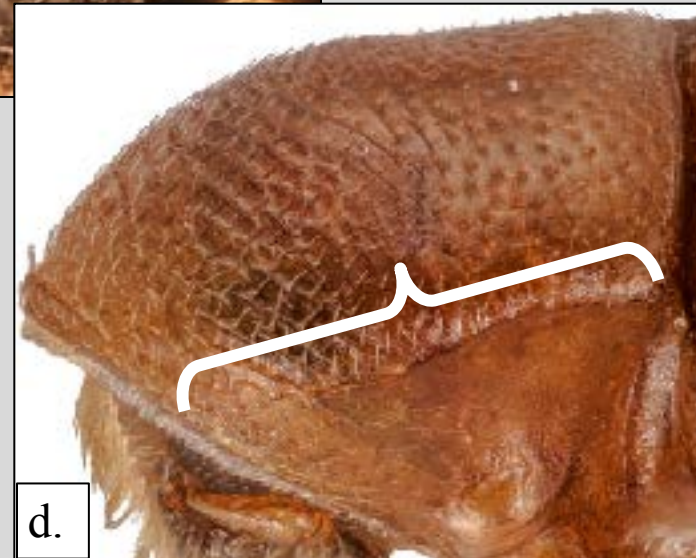
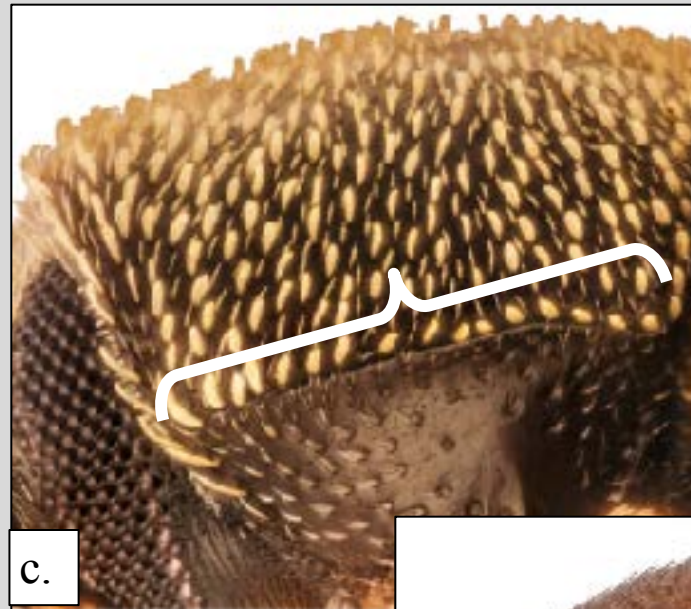
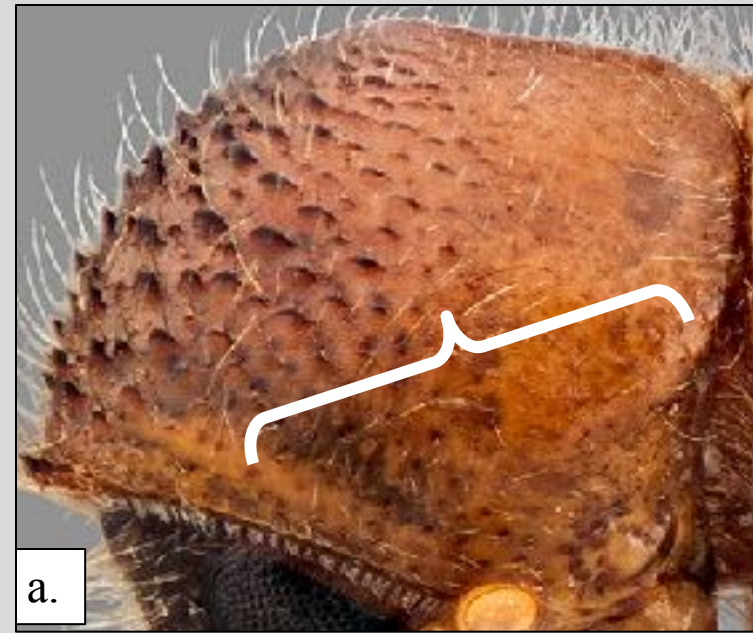
Features Typical of Scolytines: IVb

Protibial apical tooth



Features Typical of Scolytines: V

Most scolytines have pronota that lack lateral margins (a), or that have no more than partial lateral margins toward the posterior (b). There are exceptions to that “rule” and a few genera have pronota with complete lateral margins (c-d).



Scolytine ‘Look-A-Likes

- **Bostrichidae – False and True Powderpost Beetles**
- **Ciidae – Minute Tree Fungus Beetles**
- **Ptinidae (now including the former Anobiidae) - Deathwatch Beetles, Furniture Beetles, False Powderpost Beetles**
- ***some Cossoninae (e.g., *Rhyncolus*) – true Weevils**

Bostrichidae I



**Loose antennal club,
non-geniculate antennae**



**Most often with “rasps”
on the pronotum**



Bostrichidae II

Bamboo borers: *Dinoderus* spp.



Dinoderus minutus



Dinoderus minutus

Bostrichidae III

Stephanopachys spp.



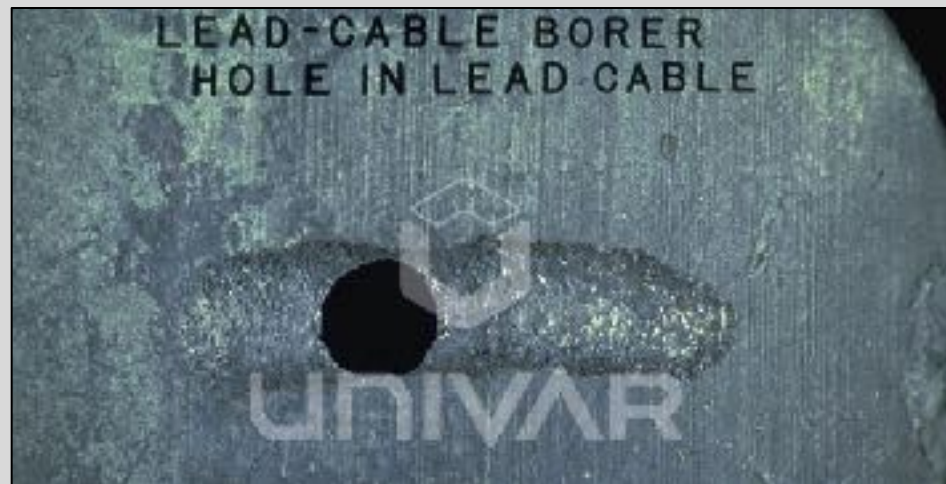
Stephanopachys substriatus



Stephanopachys substriatus

Bostrichidae IV

Lead Cable Borer: *Scobicia declivis*



Bostrichidae V

Bamboo Borers: *Sinoxylon* spp.



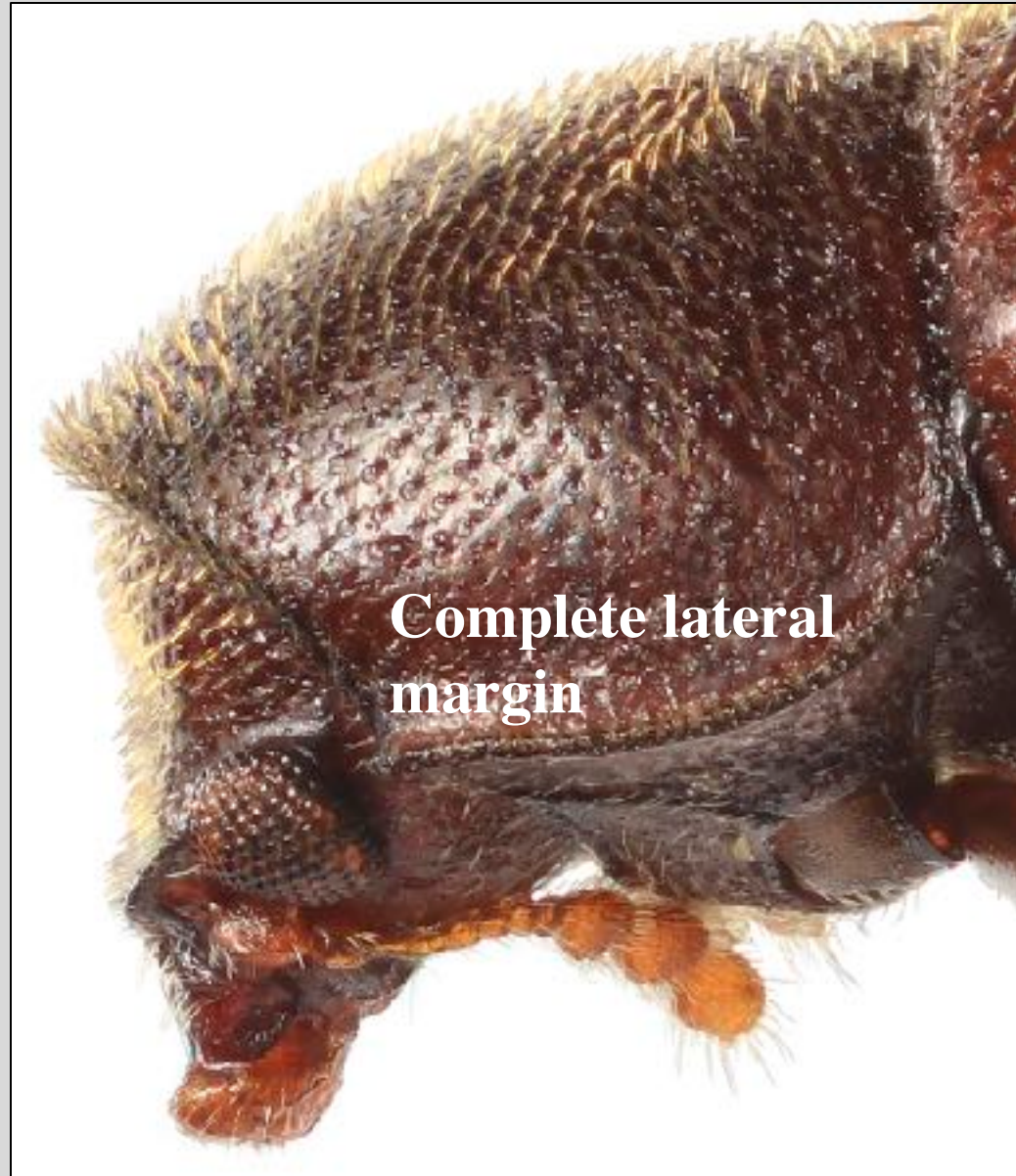
Sinoxylon anale



Sinoxylon anale

Ciidae I

Loose antennal club, non-geniculate antennae



Ciidae II



Plesiocis cribrum



Ciidae undetermined

Ptinidae I

Antennae with outer segments larger, forming loose club; non-geniculate



Ptinidae II

Drugstore beetle:
Stegobium paniceum



some Cossoninae I

These are the beetles most likely to be confused with Scolytinae. They display considerable convergence in both appearance and behavior, especially with regard to genera such as *Hylastes* and *Hylurgops*. The antennal club and general body dimensions are very similar and the rostrum is broad and short.



Rhyncolus cylindricollis



Rhyncolus cylindricollis

However, there are some easy characters to distinguish the similar scolytine genera, e.g., *Hylastes* and *Hylurgops*, (see the following slide, **some Cossoninae II, fig. a**) from the these true weevils (**some Cossoninae II, fig. b**).

some Cossoninae II



a. *Hylastes* sp.

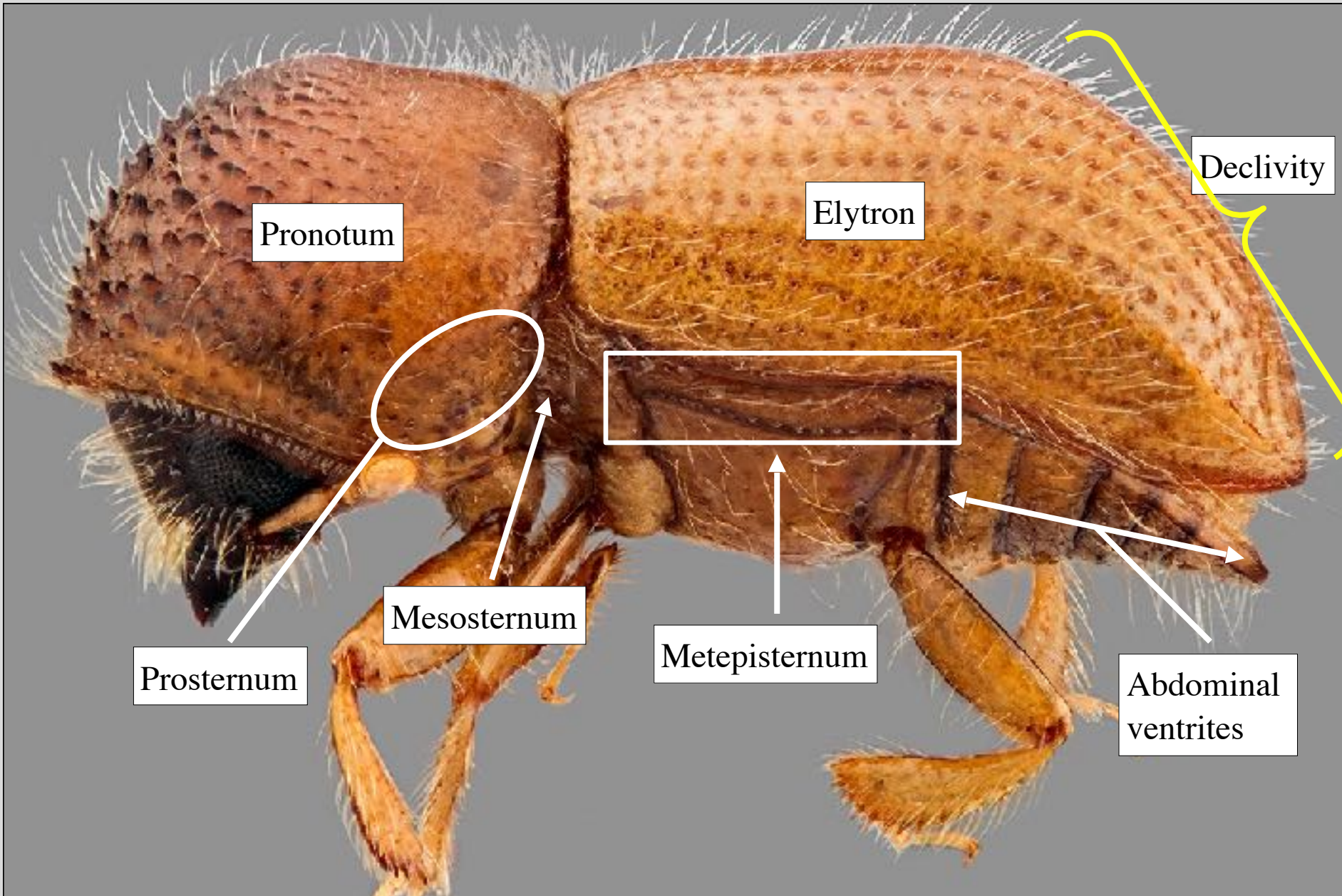
1. Lateral margins of tibiae toothed.
2. All tibiael apices without single, large, hooked tooth.
3. Eyes elongate oval.



b. Cossoninae

1. Lateral margins of tibiae without teeth.
2. Apices of all tibiae with single, large, hooked tooth.
3. Eyes round.

BASIC BODY PARTS OF SCOLYTINAE



BASIC BODY PARTS OF SCOLYTINAE

Abdominal sternite 5

Metacoxa

Mesocoxa

Mesosternum

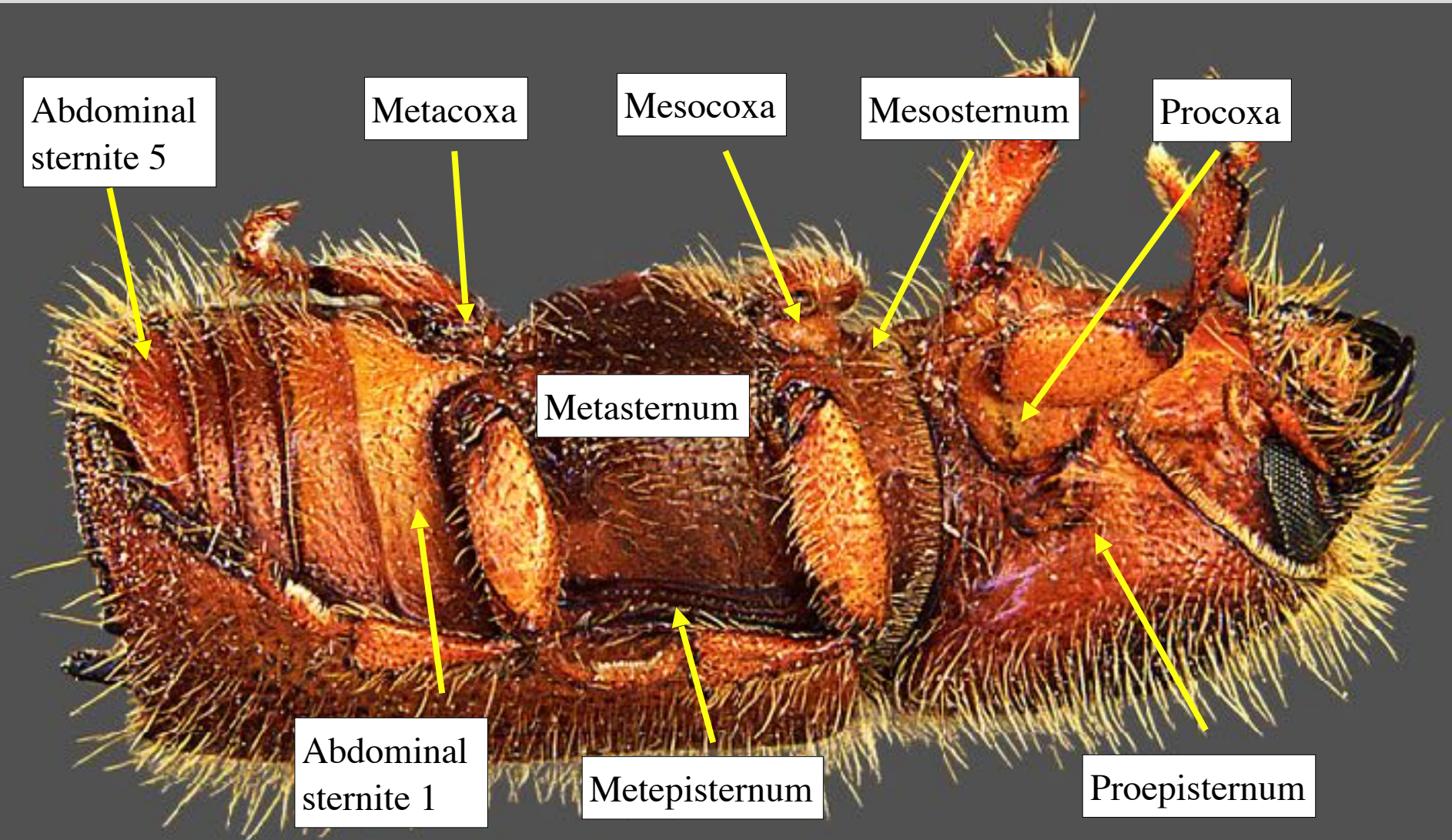
Procoxa

Metasternum

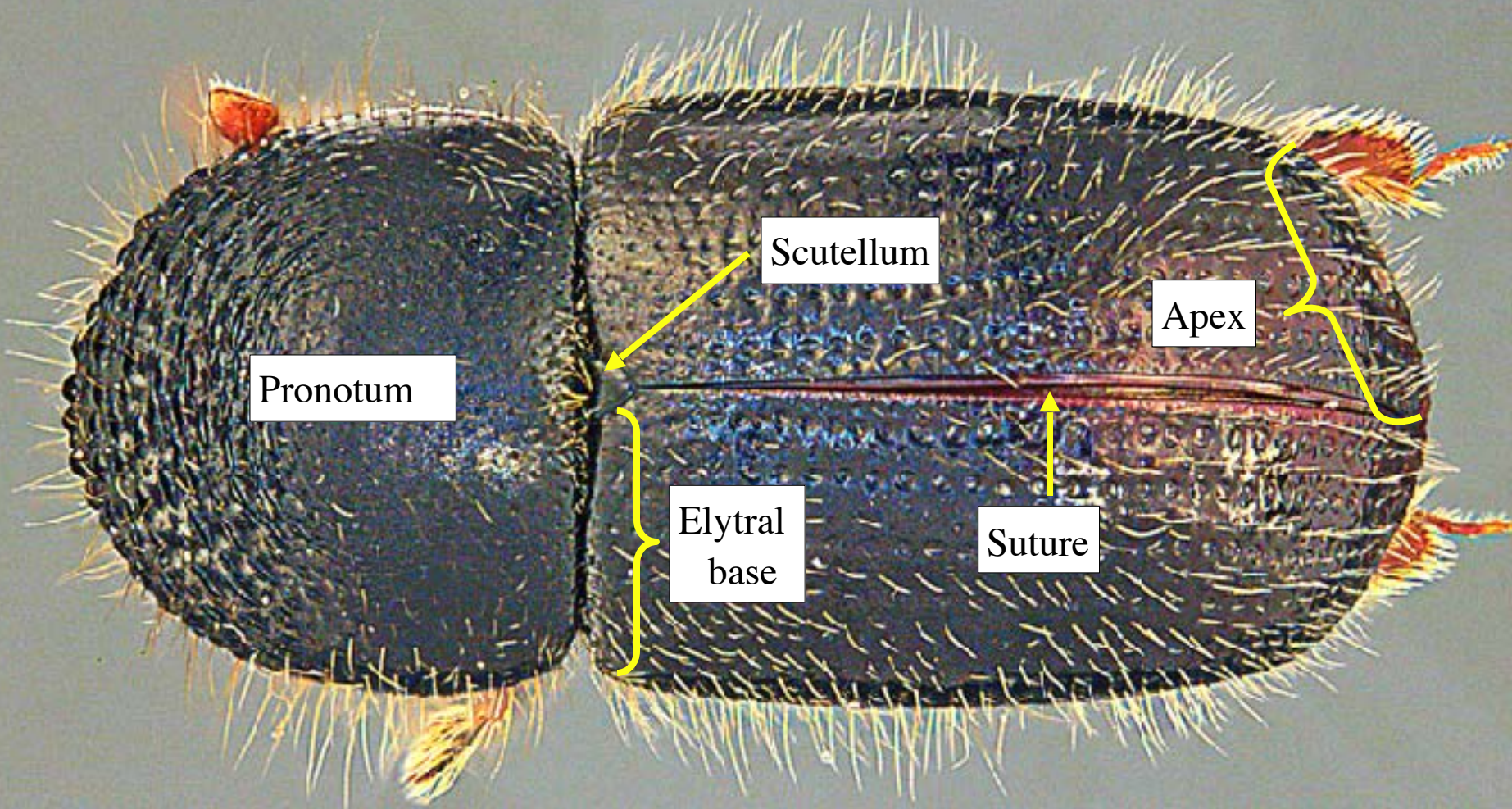
Abdominal sternite 1

Metepisternum

Proepisternum



BASIC BODY PARTS OF SCOLYTINAE



Pronotum

Scutellum

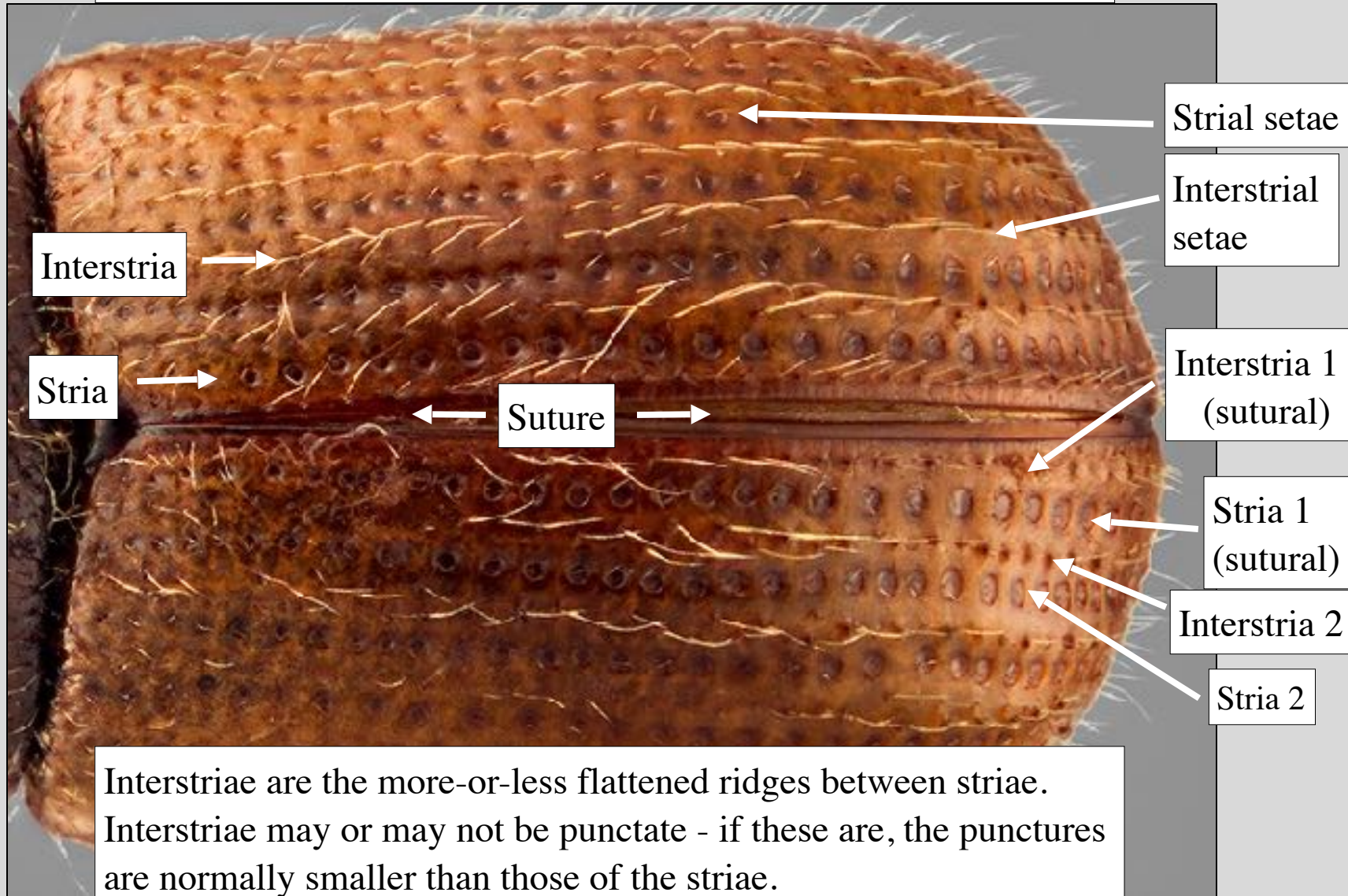
Elytral
base

Suture

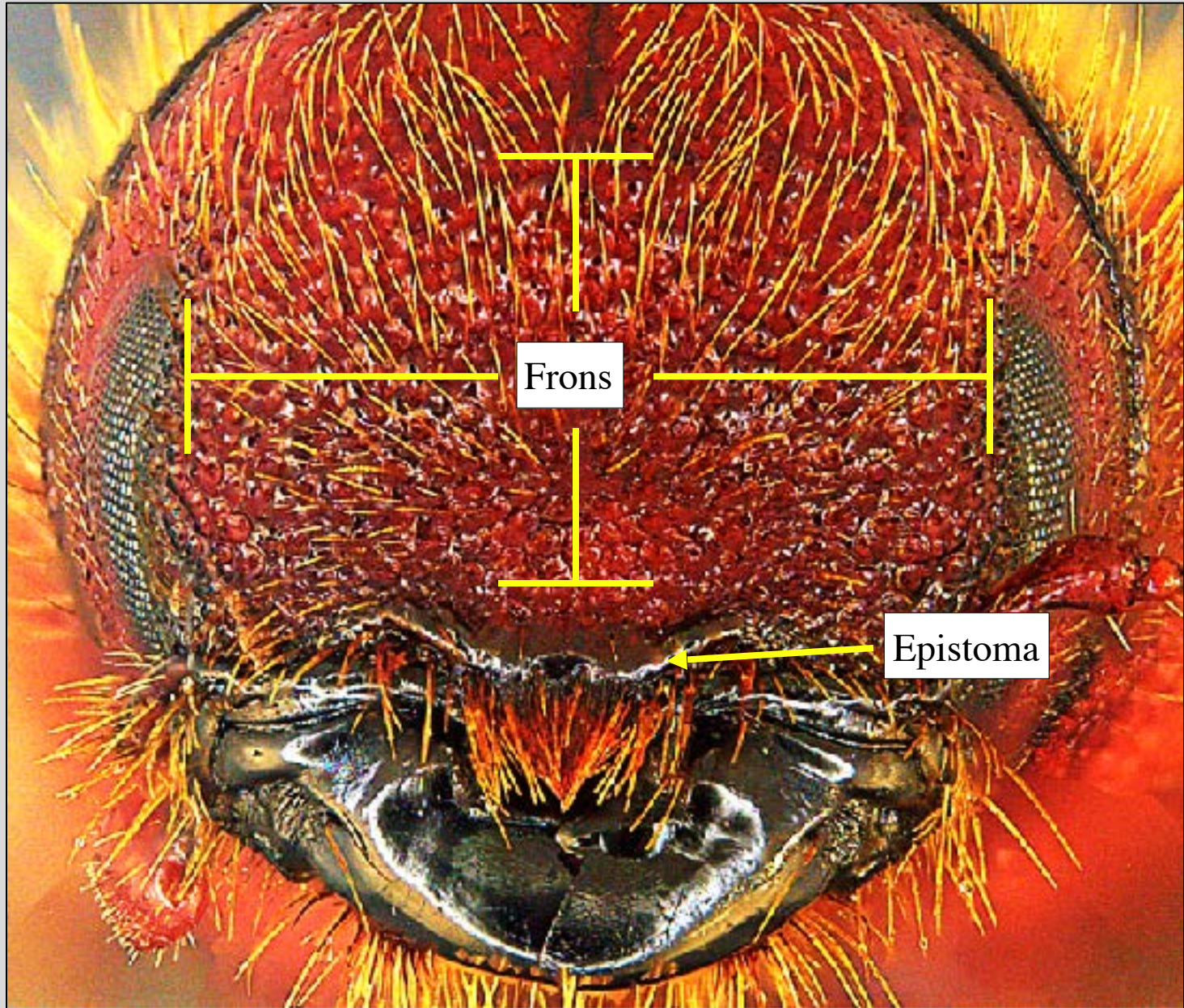
Apex

BASIC BODY PARTS OF SCOLYTINAE

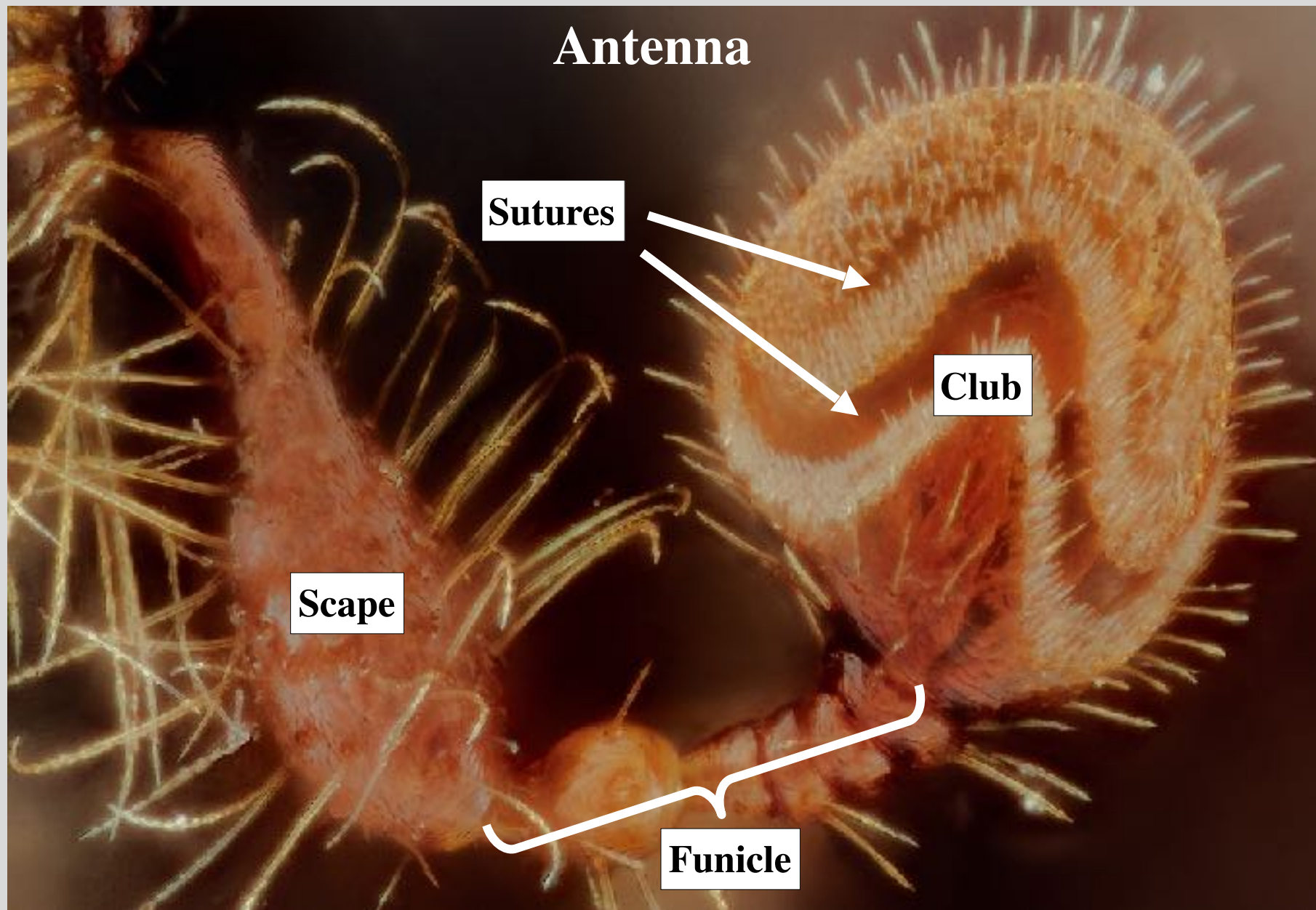
Striae are the series of large, linearly arranged, punctures. These (and the interstriae) are counted from the suture (sutural stria = 1).



BASIC BODY PARTS OF SCOLYTINAE

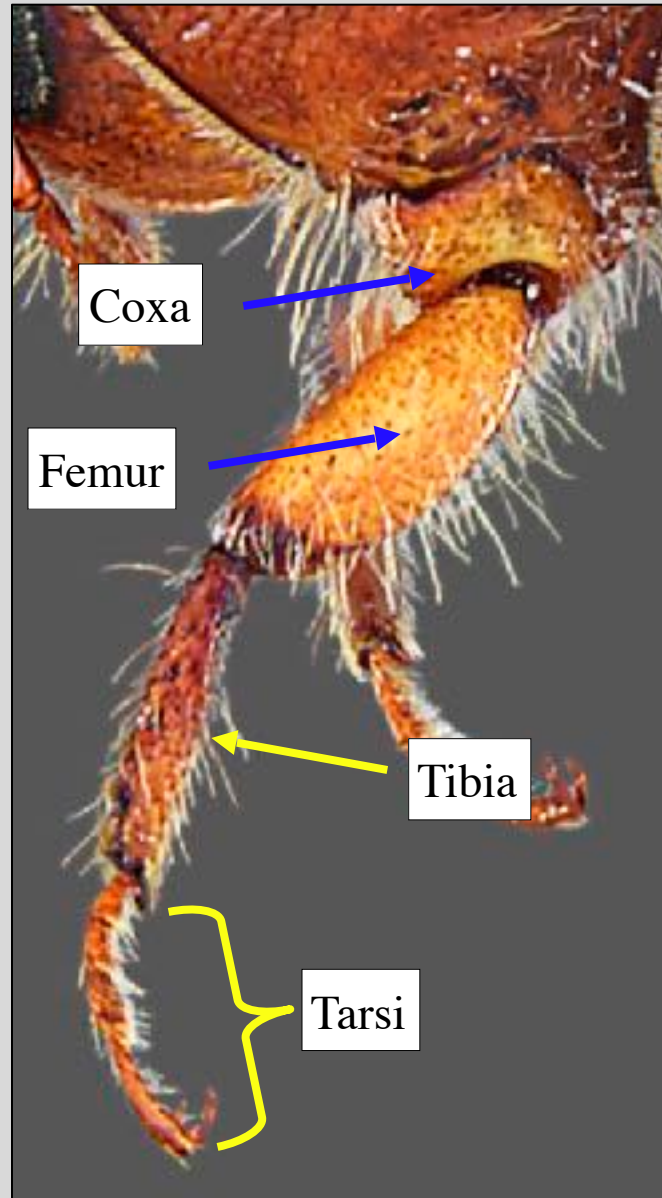


BASIC BODY PARTS OF SCOLYTINAE



BASIC BODY PARTS OF SCOLYTINAE

Leg



A Few Technical Terms

Acuminate: strongly and abruptly tapered to a narrow apex

Asperities: small, sharp elevations or teeth

Contiguous: touching or in contact

Corneous: of a hard, smooth texture

Crenulations: blunt, rounded teeth or scallops

Procurved: curving anteriorly

Recurved: curving posteriorly

Setose: covered with setae

Spine: a thorn-shaped, generally pointed process emerging from a surface, normally longer than wide

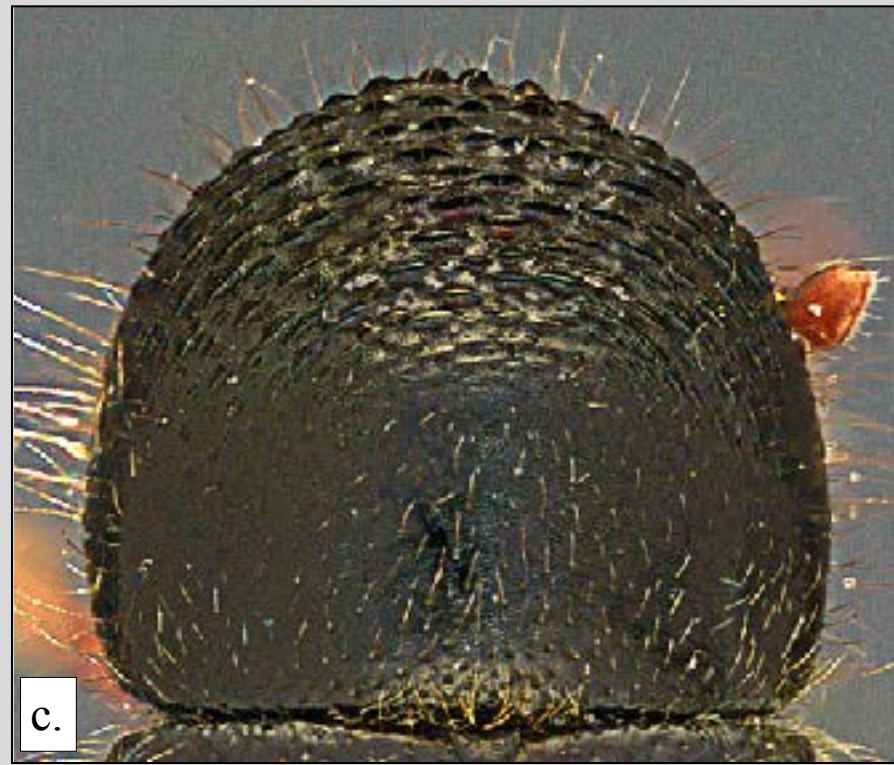
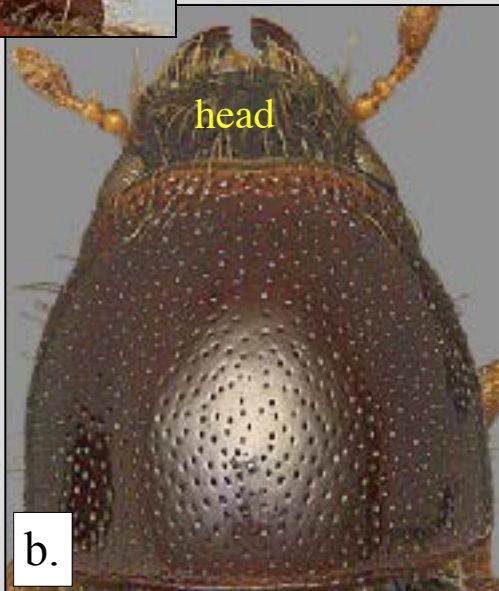
Sulcate: channeled or grooved

Tubercle: a bump, a generally rounded process emerging from a surface, generally no longer than wide

Vestiture: a clothing of hairs or scales

Head visible from above (**a-b**).....2

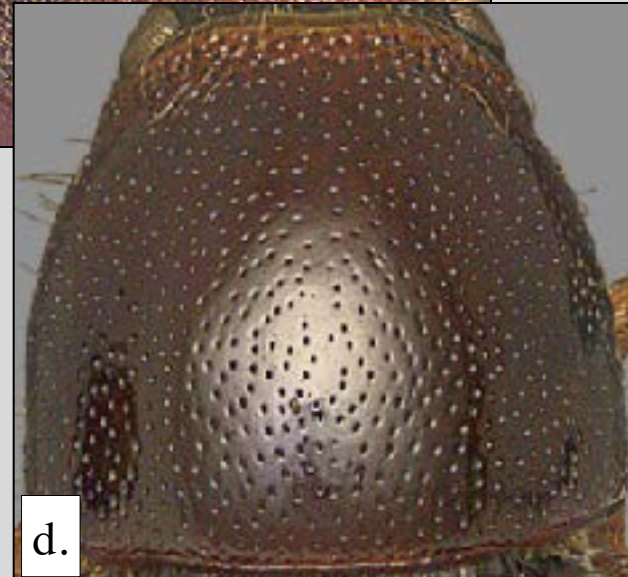
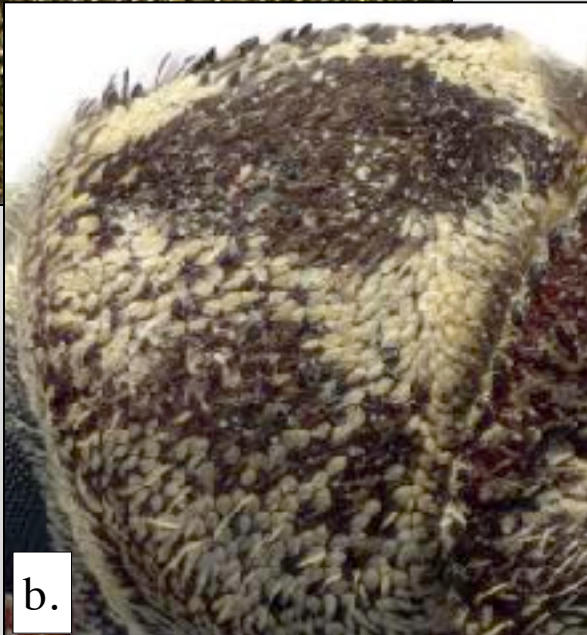
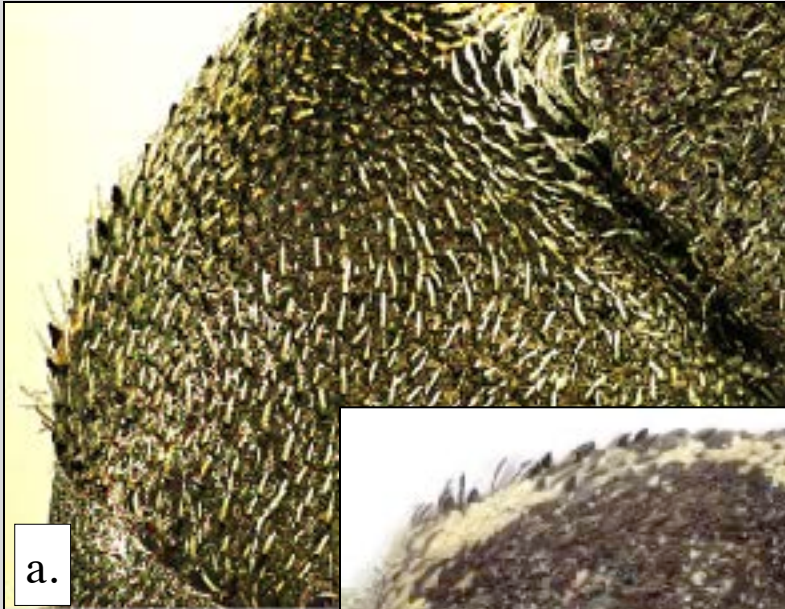
Head usually concealed from above (**c**).....29



2 (1)

Pronotum with at least a few asperities on the dorsal surface (small asperities are often most easily seen with oblique lighting) (a-b).....3

Pronotum without asperities on the dorsal surface (c-d).....11

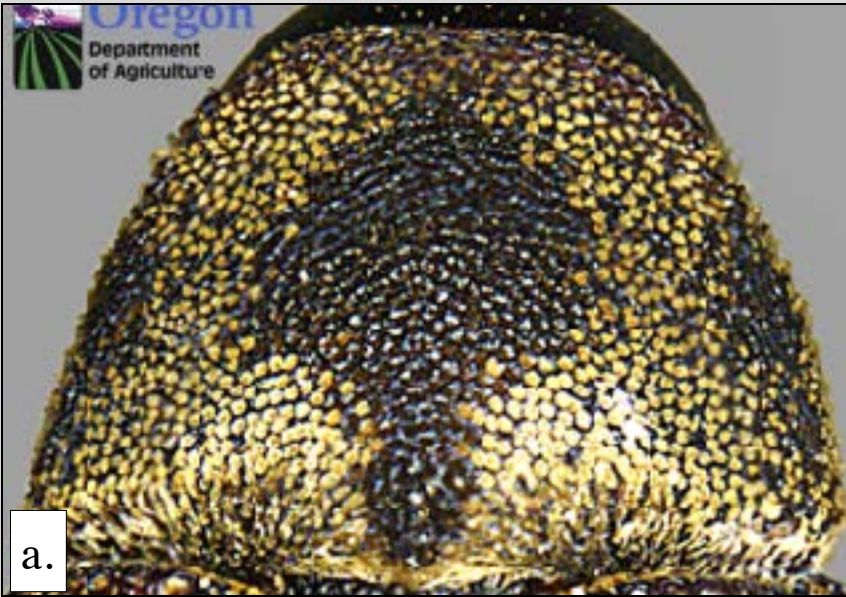


3 (2): Part I

Center of pronotum with large area of black or dark brown scales sharply contrasting with surrounding scale colors (a); dorsal surface of body covered with rounded scales (d).....

.....*Hylesinus*

Pronotum without dark central spot (b-c); dorsal surface of body without abundant scales (e) or if with abundant scales, these are elongate, not rounded (f).....4



3 (2): Part II



d. With rounded scales.



e. Without scales.



f. With elongate scales.

Hylesinus



Photo by Steve Valley

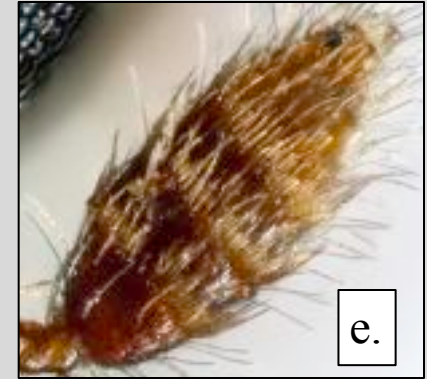


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4 (3)

Antennal club without sutures (a-b).....5

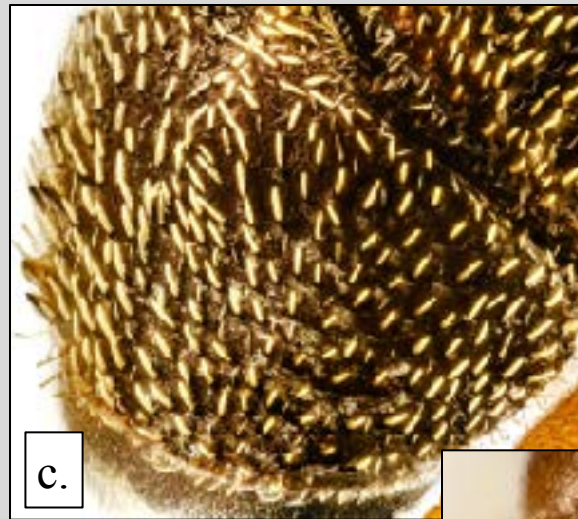
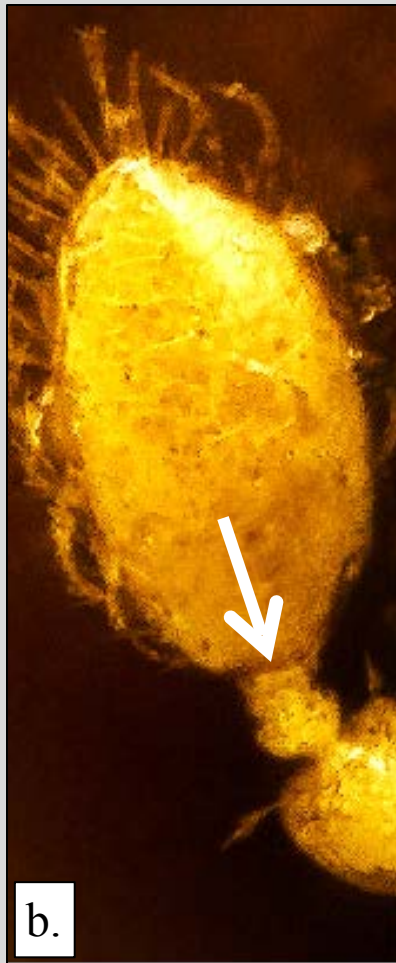
Antennal club with sutures (c-f).....6



5 (4)

Funicle attached at about the basal third of the side of the antennal club nearest the head (**a**); pronotum with at least some large asperities (**c**).....*Chramesus*

Funicle attached at the base of the antennal club (**b**); pronotum with only very small asperities (**d**) (SE & SW US, MX).....*Liparthrum*



Chramesus



Liparthrum

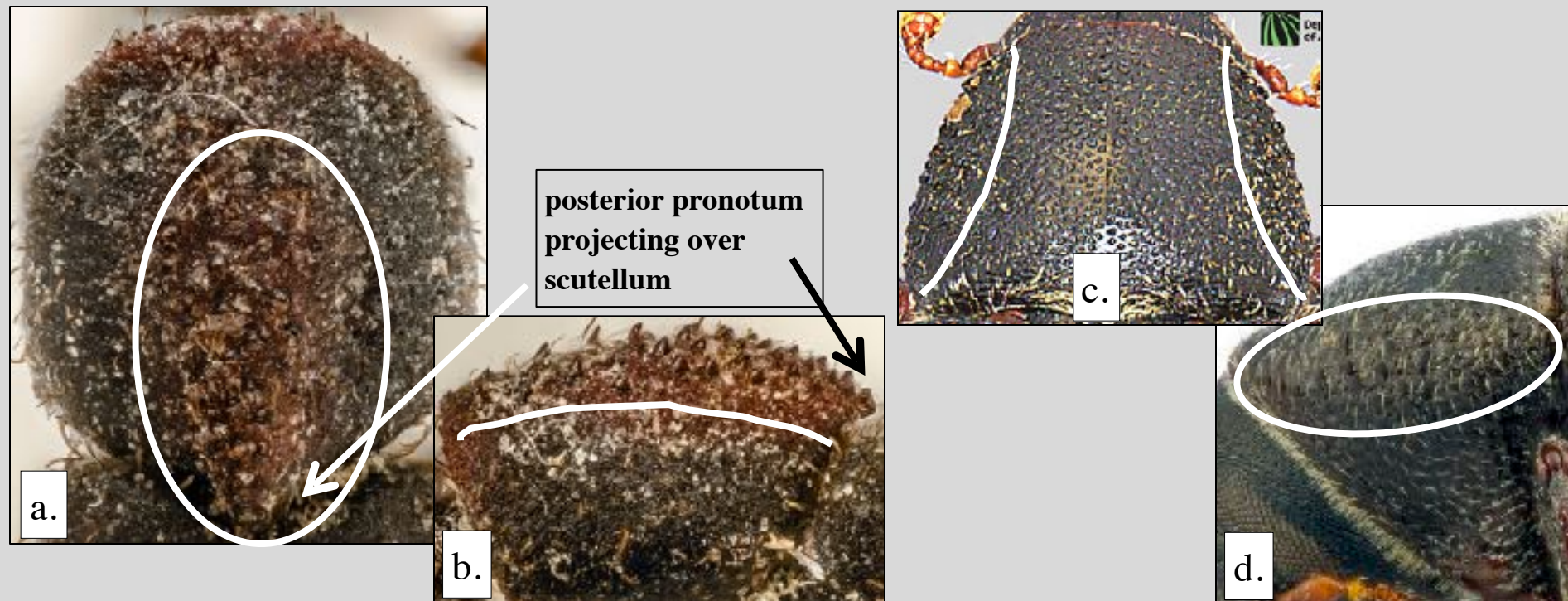


Note: the head capsule has swollen out of the pronotum, presenting an abnormal appearance.

6 (4): Part I ■

Pronotum asperities restricted to a median field sharply bounded from the punctate lateral areas and extending the length of the pronotum (a-b), posterior margin of pronotum often convex and extending behind the posterior margin and over the scutellum (a); male frons with large, long, partly doubled “horn” which may curve backward and up over the pronotum, sometimes reaching the posterior margin (e-f) (SW U.S., MX).....*Cactopinus*

Pronotal asperities not restricted to a sharply bounded median field, posterior margin of pronotum truncate (c-d); male frons without large and long “horn” (g) but sometimes with a pair of short horns (h).....7 ■



6 (4): Part II



Cactopinus



female *Cactopinus*



male *Cactopinus*

7 (6): Part I ■

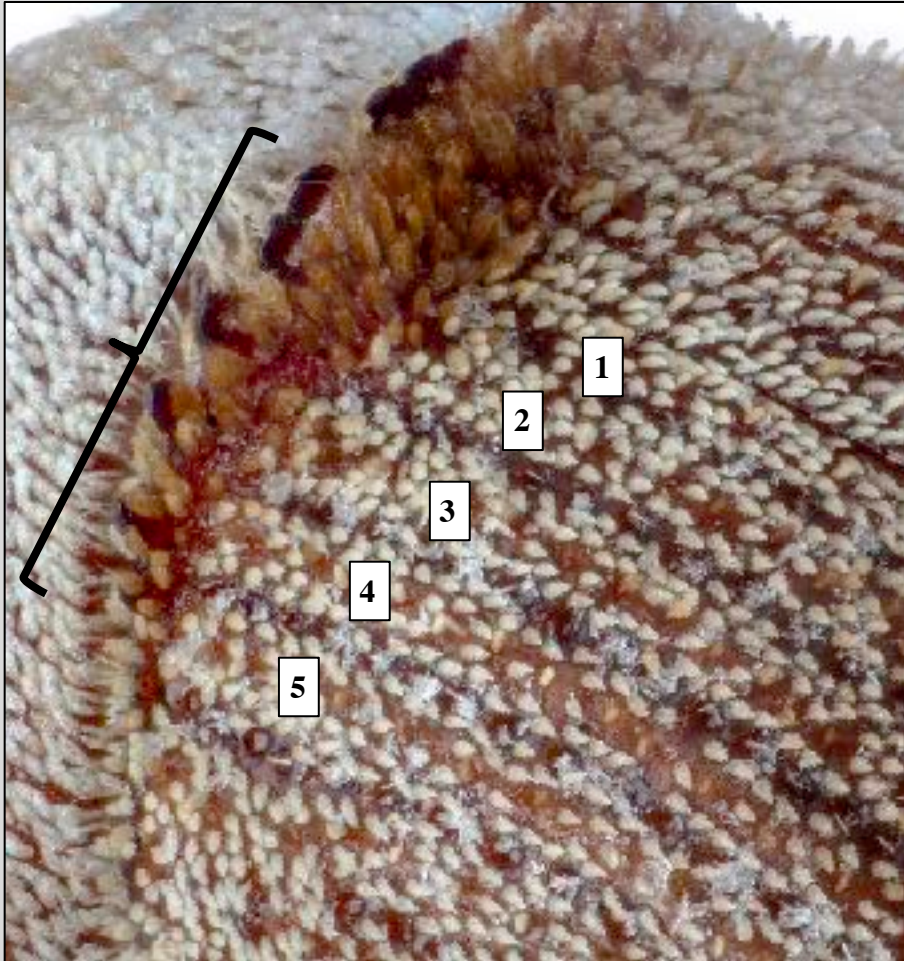
Body very stout and dorsal surface covered with scales (a); crenulations on anterior margin of elytron increasing in size to suture (forming a “saddle” in lateral view – see portrait) and extending laterally no farther than interstria 5 (d).....*Chaetophloeus*

Body more elongate - if scales present, most of dorsal surface visible (b-c); crenulations on anterior margin of elytron all about the same size and extending to the lateral margin (e).....8 ■



7 (6): Part II

d. Elytral crenulations extend no farther than interstriae 5 and get larger toward suture.



e. Elytral crenulations extend beyond interstriae 5 and all about the same size.



Chaetophloeus



8 (7)

Antennal club asymmetric, with segments from horizontally elongate to flattened plates and with a flattened apex (some species of *Phloeotribus* lack pronotal asperities and will key instead to Couplet 16).....*Phloeotribus*
Antennal club symmetric, more-or-less conical with a narrowed apex.....9



Phloeotribus

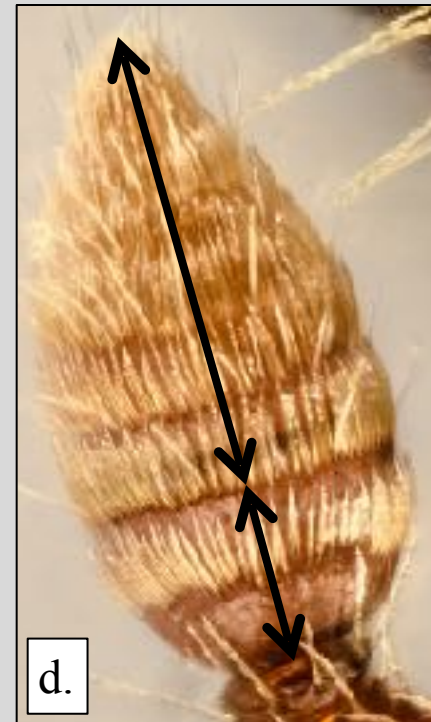
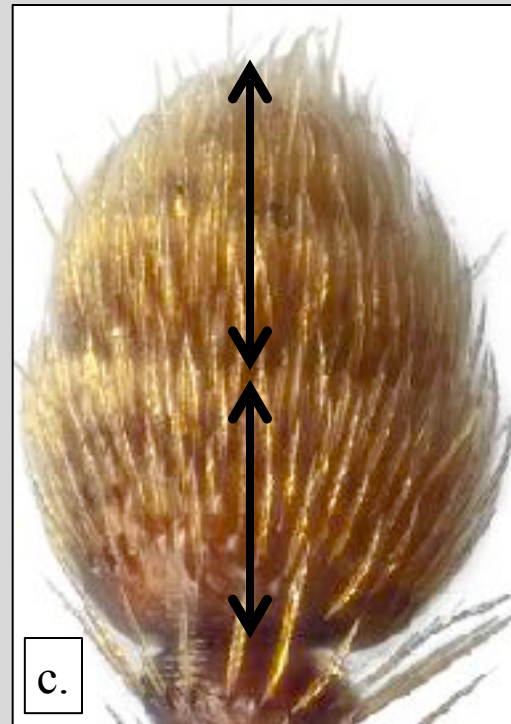
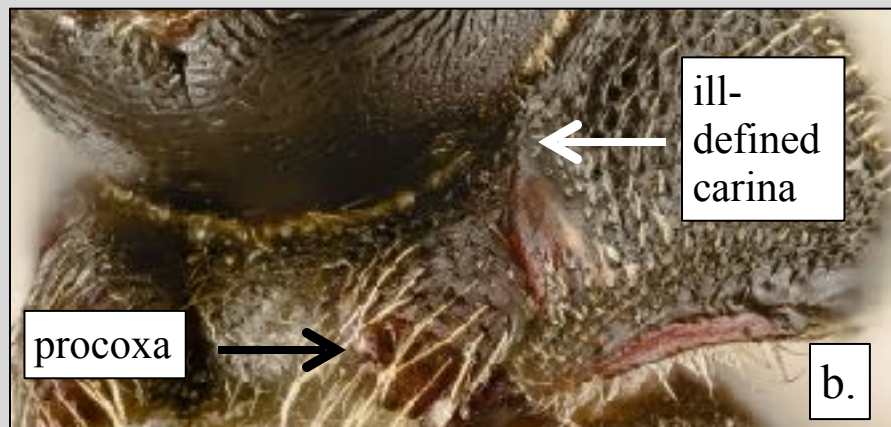
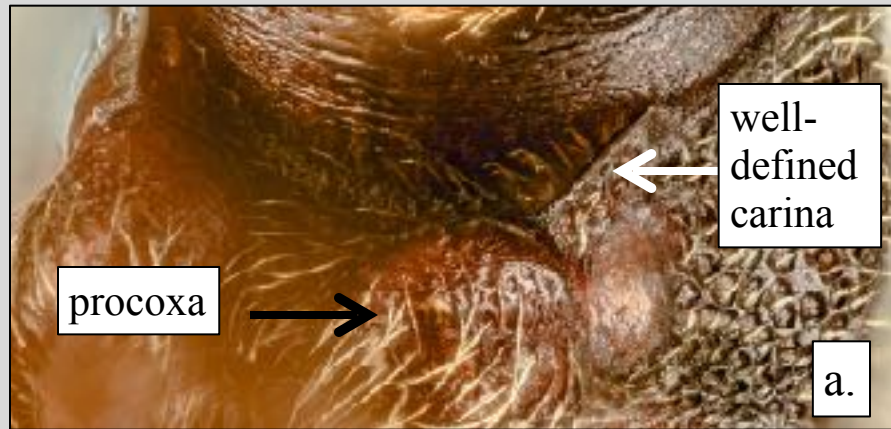
(with pronotal asperities)



9 (8)

A distinct and sharp precoxal carina extends from the anterior of the procoxa to the anterior margin of the prothorax (a); antennal club with the basal segment almost half the length of the entire club (c).....*Hylastinus**

At most, only an ill-defined precoxal carina between the procoxa and the anterior margin of the prothorax (b); basal segment of the antennal club no longer than about 1/4 of the length of the entire club (d).....10



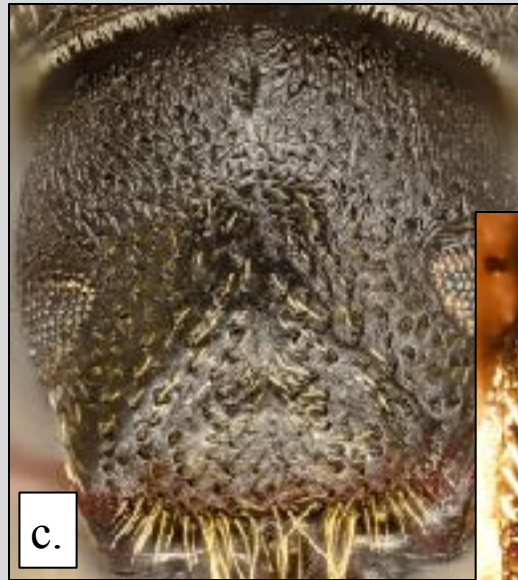
Hylastinus 🙄



10 (9): Part I

Anterior margin of eye emarginate (**a**); punctures on frons simple and well separated (**c**); antennal club with 6 pre-apical bands of setae (3 of these are secondary bands marking false segments and may not always be well-expressed) (**e**) (western North America) *Alniphagus*

Anterior margin of eye entire (**b**); punctures on frons contiguous and with raised margins (**d**); antennal club with 3 pre-apical bands of setae (**f**) (east of the Rocky Mountains)..... *Hylurgopinus*



10 (9): Part II



Alniphagus



Hylurgopinus



Note: the head capsule has swollen out of the pronotum, presenting an abnormal appearance.

11 (2)

Dorsum of pronotum covered with longitudinal ridges (a).....12

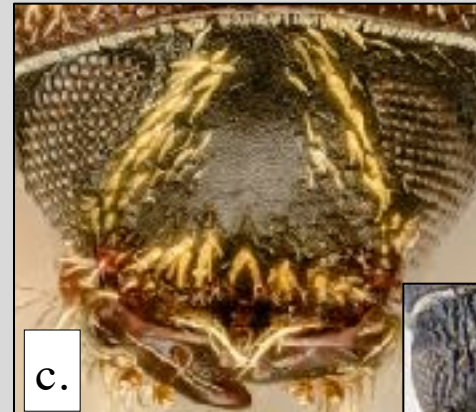
Dorsum of pronotum punctate (b).....13



12 (11)

Elytra elongate, about the same width throughout, with rows of scale-like setae (**a**); frons with rows of long setae along inner margins of eyes and convergent toward vertex, flattened but not impressed and about as broad as long (**c**) (SE U.S. & MX).....*Cnesinus*

Elytra ovate, becoming distinctly broader towards declivity, with rows of hair-like setae (**b**); frons without convergent rows of setae along inner eye margins, deeply medially impressed and longer than broad (**d**) (SE U.S. & MX, exotic in California).....*Pagiocerus* 😞



Cnesinus



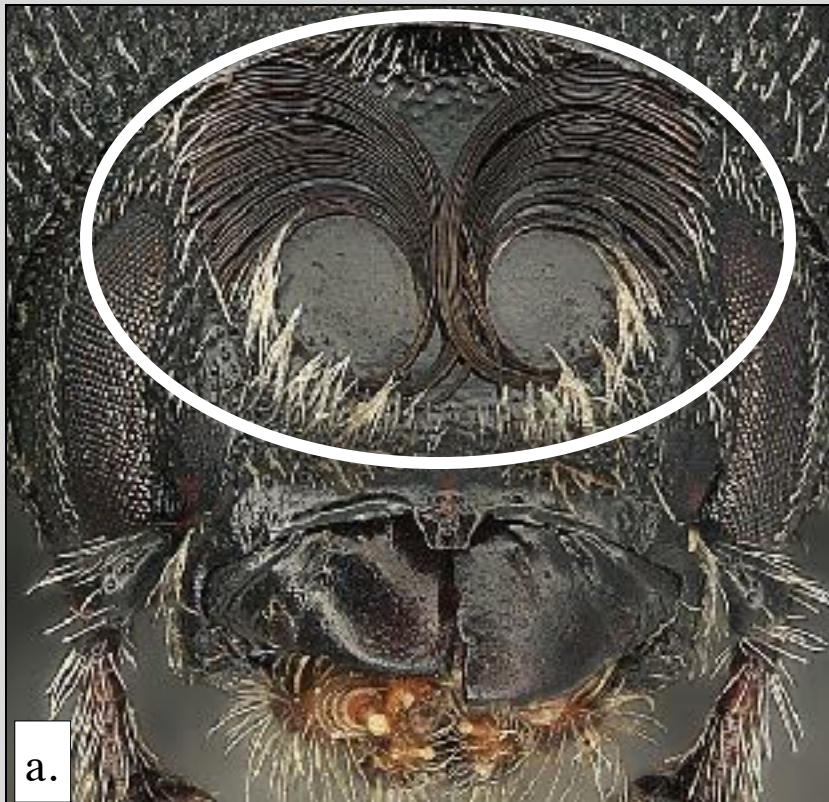
Pagiocerus 🙄



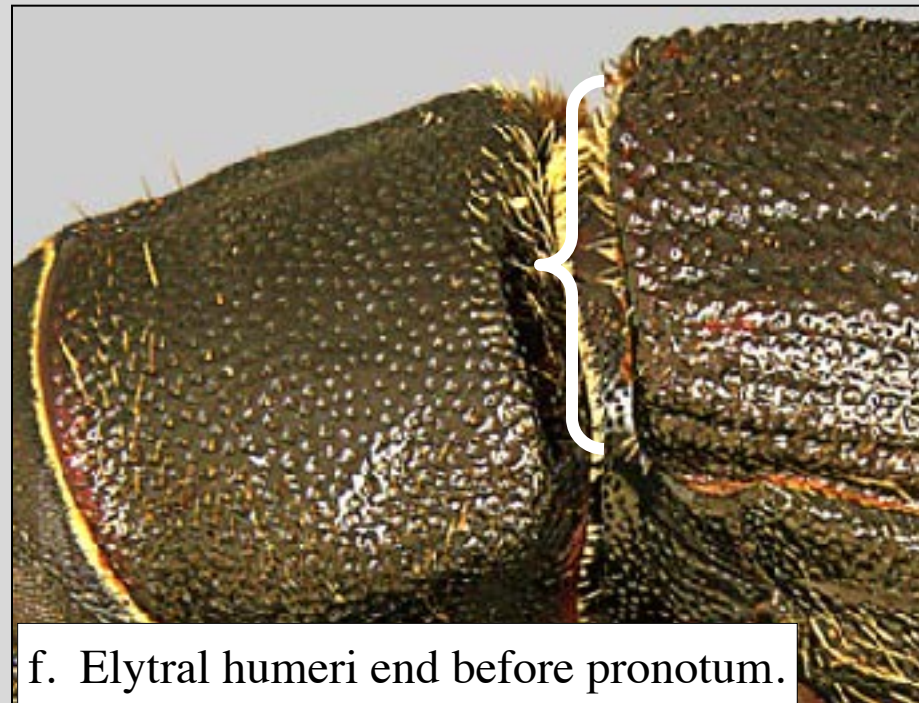
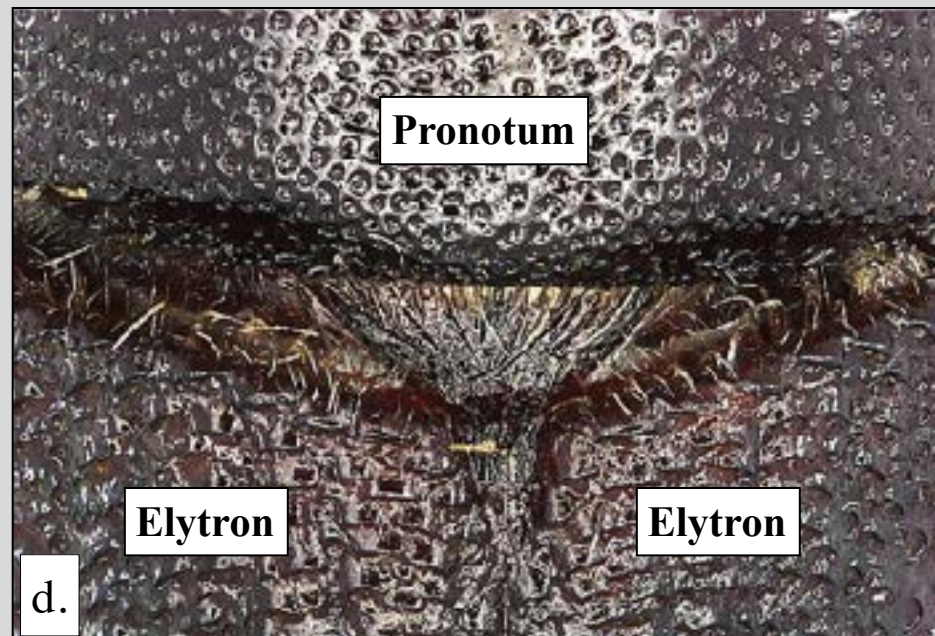
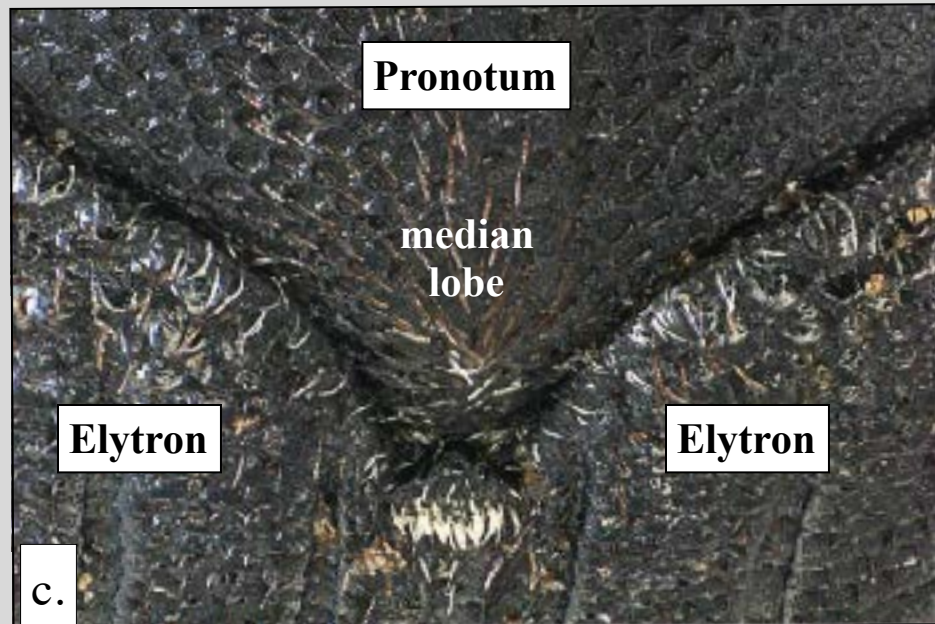
13 (11): Part I ■

Frons with long setae spiraling in from the sides to meet in the middle (**a**); posterior margin of pronotum prolonged as a narrowly triangular lobe (**c**); elytral humeri extended anteriorly over sides of pronotum (**e**) (FL).....*Dendrosinus*

Frons without long, spiraling setae (**b**); posterior margin of pronotum not prolonged as a narrowly triangular lobe (**d**); elytral humeri do not extend anteriorly over the sides of the pronotum (**f**).....14 ■



13 (11): Part II



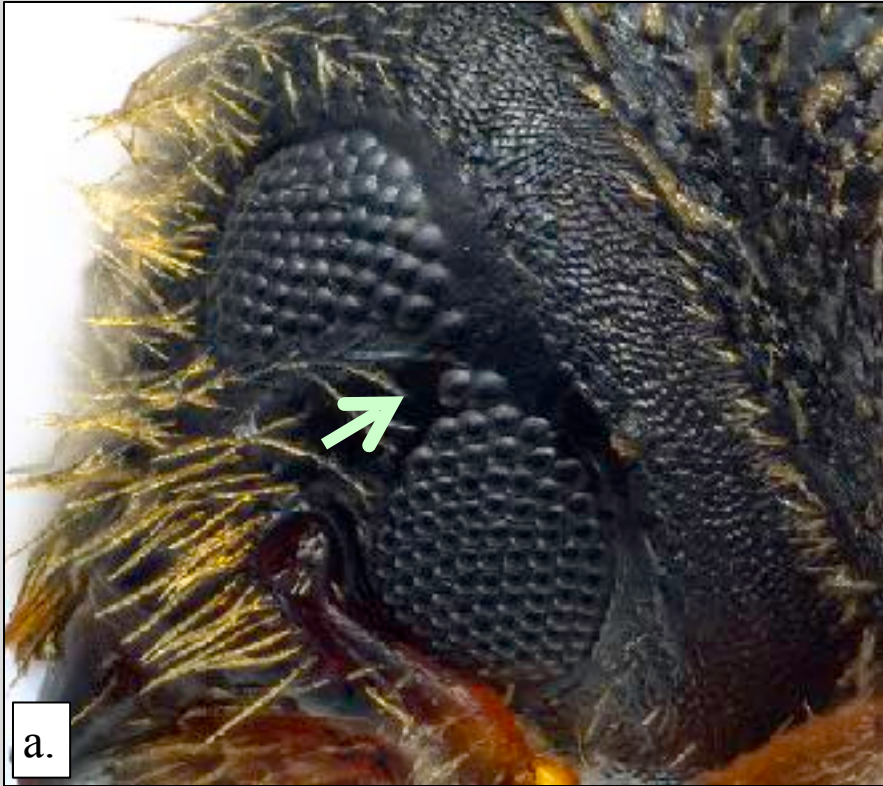
Dendrosinus



14 (13): Part I ■

Eye completely divided into two parts (the two lobes are sometimes connected by a single row of facets) (a); antennal club without sutures (c).....*Polygraphus*

Eye at most deeply emarginate on anterior margin (b); antennal club with sutures (d-g).....15 ■



14 (13): Part II



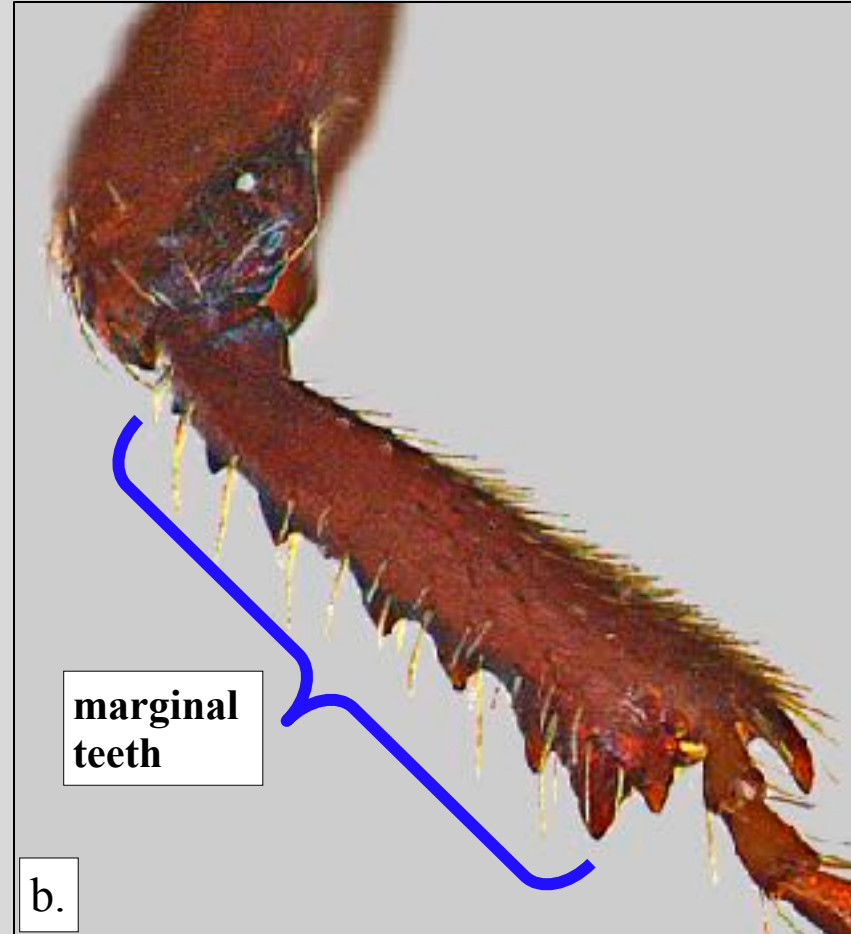
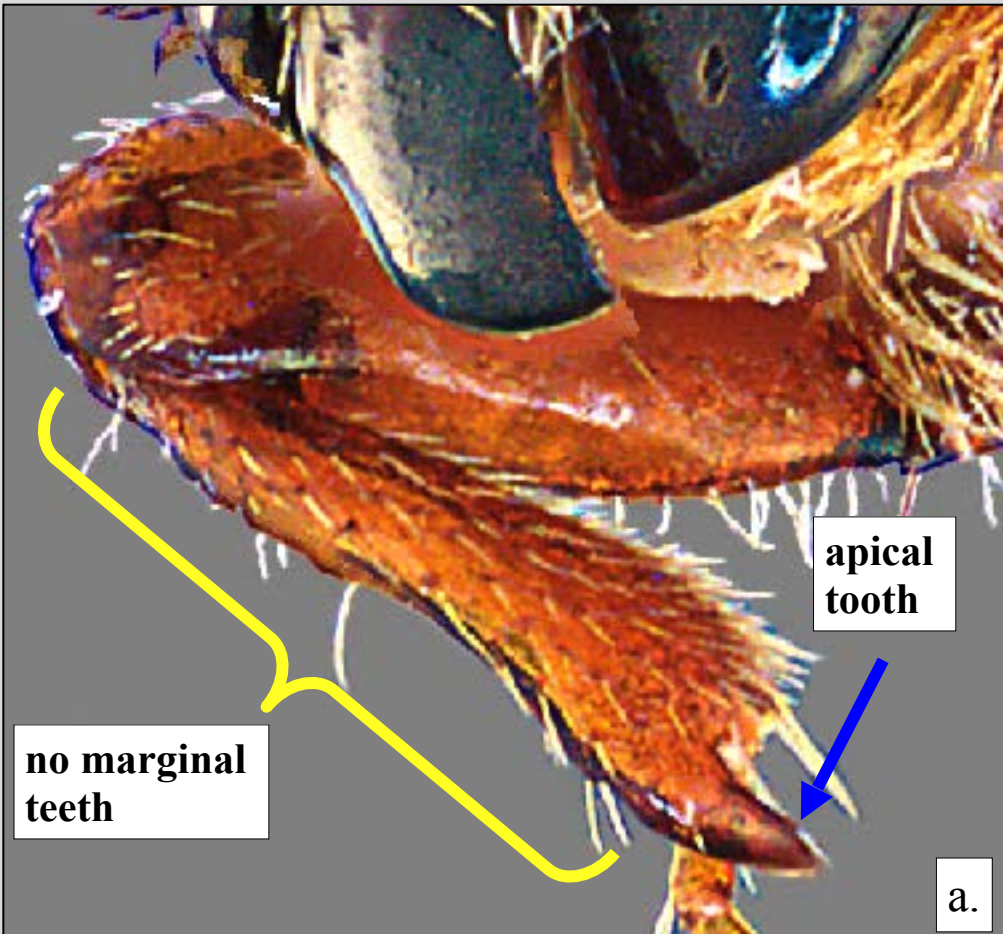
Polygraphus



15 (14): Part I ■

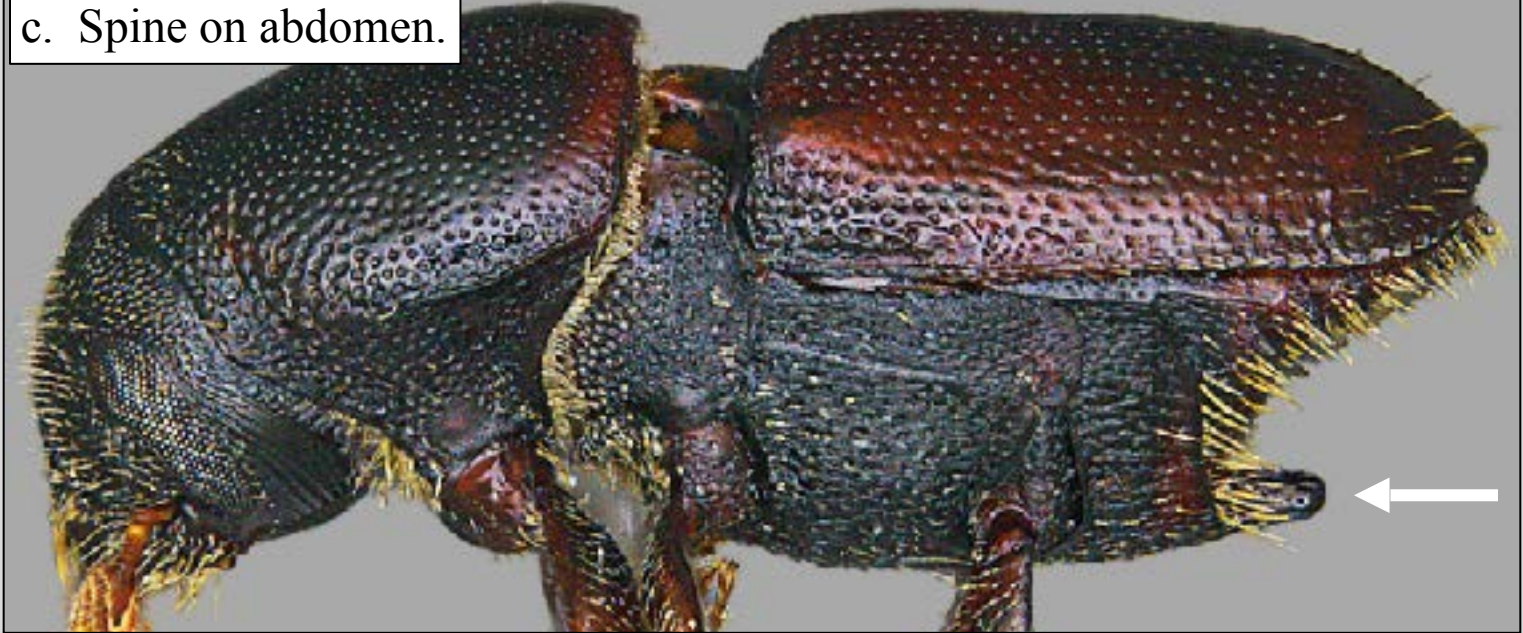
Outer lateral margins of protibiae without teeth (there is a single tooth at the outer outer apical angle (a); abdomen often with spine or tubercle and elytral (c).....16

Outer lateral margins of all tibiae with at least several teeth (b); abdomen without spine or tubercle (d).....17 ■



15 (14): Part II

c. Spine on abdomen.



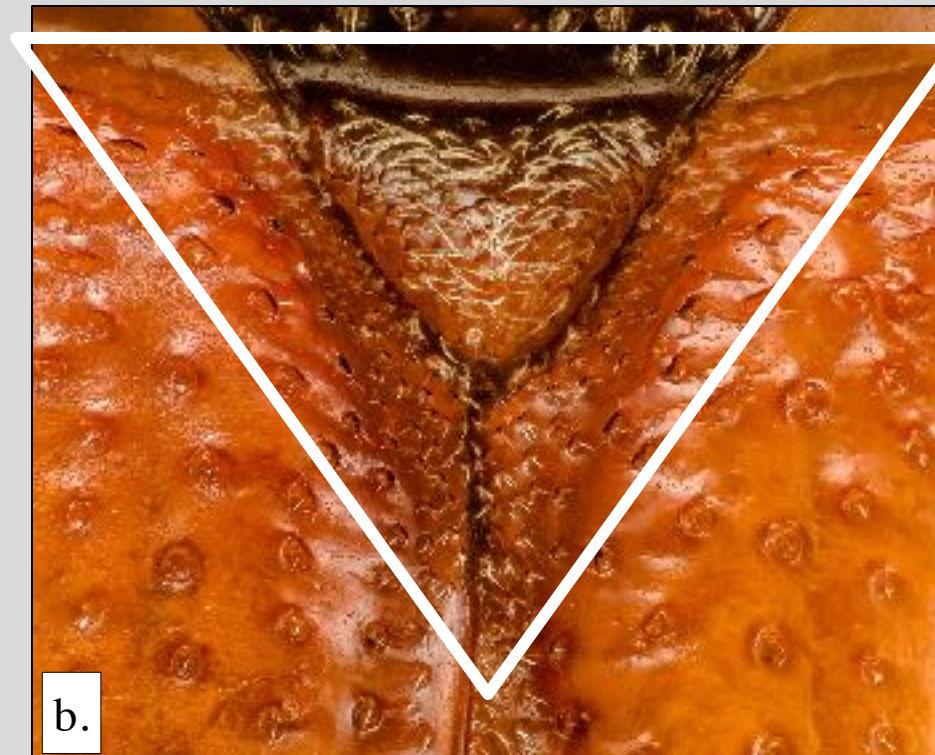
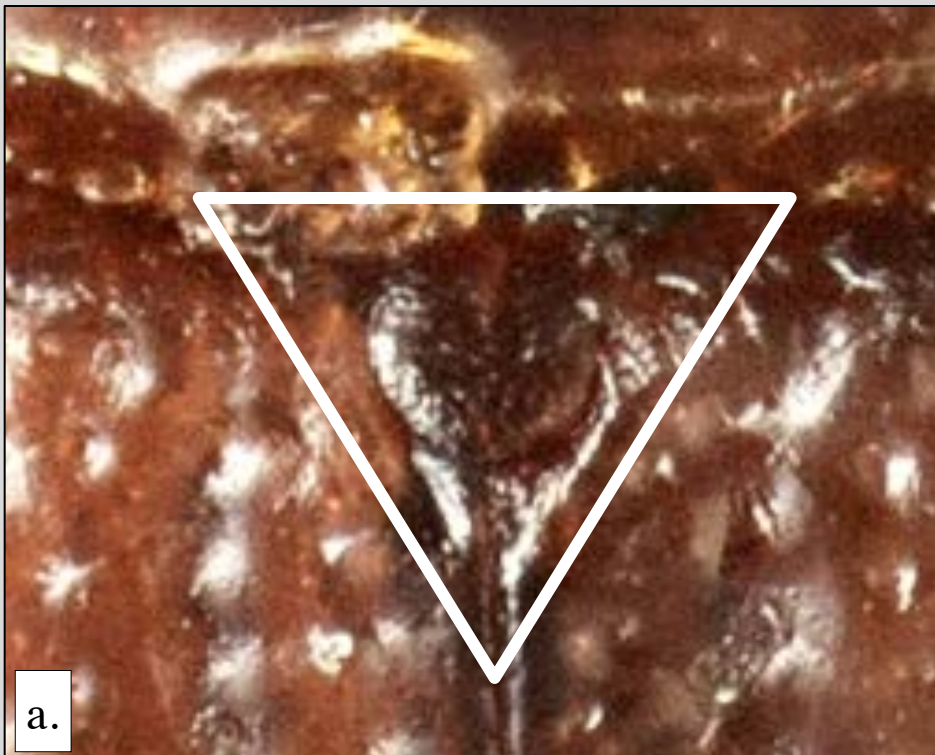
d. No spine on abdomen.



16 (15)

Scutellum round, small, in same plane as elytral surface (**a**); elytra in profile convex, with steep declivity and abdomen without spines or tubercles, venter of abdomen more or less horizontal (**see portrait**) (FL).....*Cnemonyx*

Scutellum triangular, large, in depression below plane of elytral surface (**b**); elytra in profile flattened, with shallow declivity and abdomen often with one or more spines or tubercles, with venter of abdomen ascending to meet apex of elytra (**see portraits**) (includes several exotic species).....*Scolytus* 😞



Cnemonyx



Scolytus



d.

without abdominal spines



f.

with abdominal spines



e.

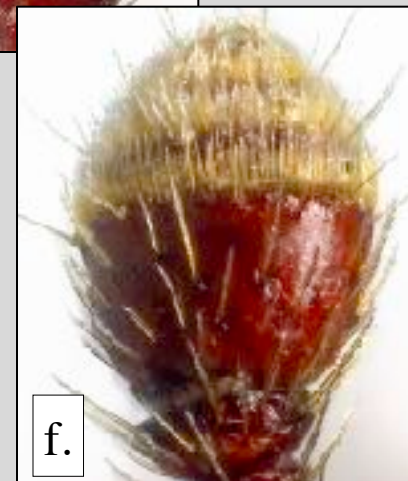
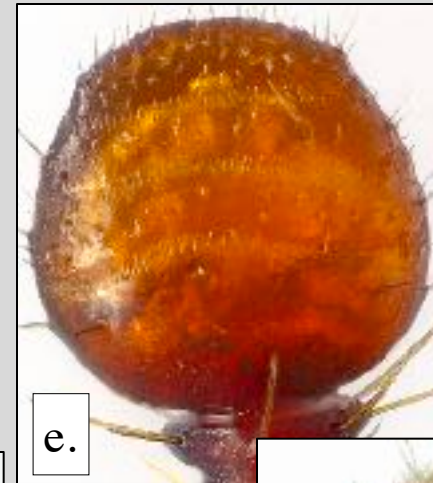


g.

17 (15)

Antennal club asymmetric, with segments from horizontally elongate to flattened plates (**a-b**) (some species of *Phloeotribus* have pronotal asperities and will key instead to Couplet 6).....*Phloeotribus*

Antennal club segments of various shapes but are not horizontally elongate to flattened plates (**c-f**).....**18**



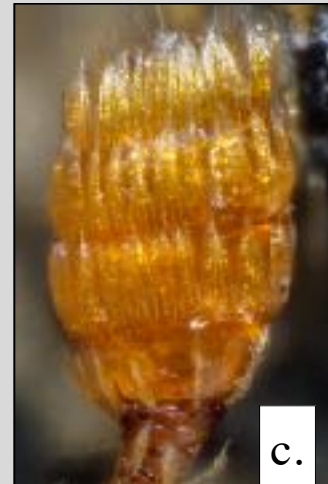
Phloeotribus (without pronotal asperities)



18 (17)

Sutures of antennal club oblique (**a**) (includes one exotic species in California).....*Phloeosinus* 😞

Sutures of antennal club transverse or arcuate (**b-e**).....19



Phloeosinus

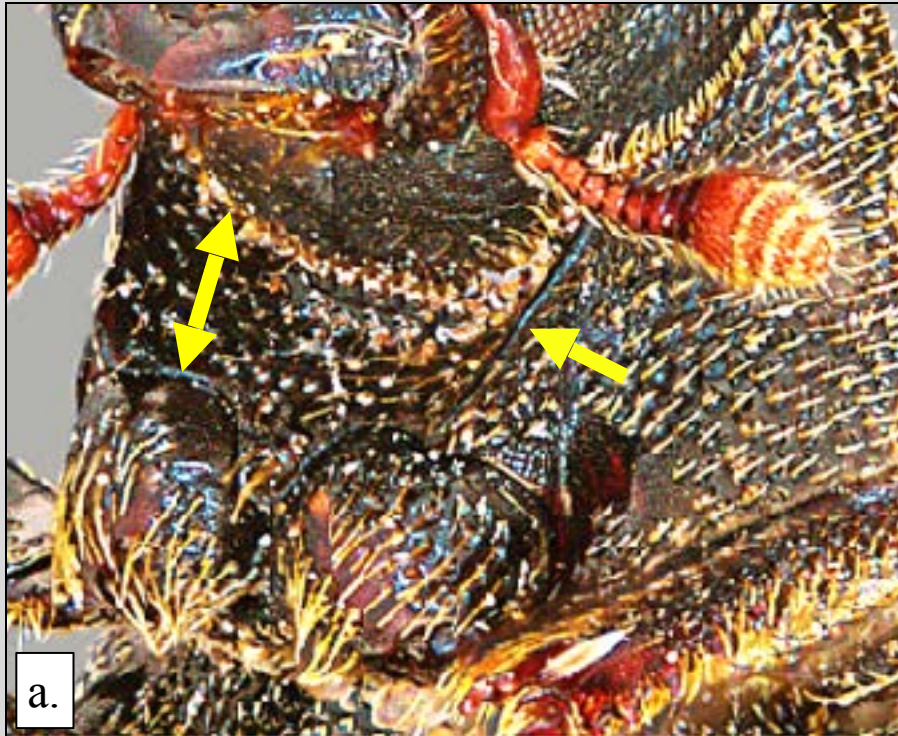


19 (18): Part I

There is a distinct carina from the procoxa to the anterior margin of the prothorax and the anterior prothoracic area is about half or more as long as the diameter of the procoxa (a)...20



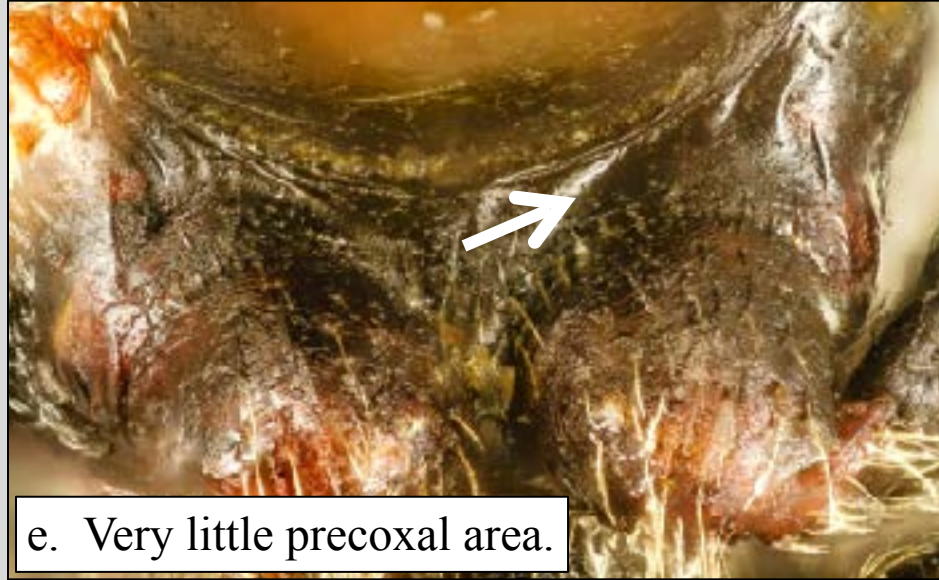
There is no distinct carina between the procoxa and the anterior margin of the prothorax (sometimes there is a very weakly expressed carina) and the anterior prothoracic area is much shorter than half the diameter of a procoxa (b) (the anterior prothoracic area in some genera is about half as long as the diameter of a procoxa but there is no precoxal carina (c-d)) - sometimes there is very little (e) or no precoxal area (f).....23



19 (18): Part II



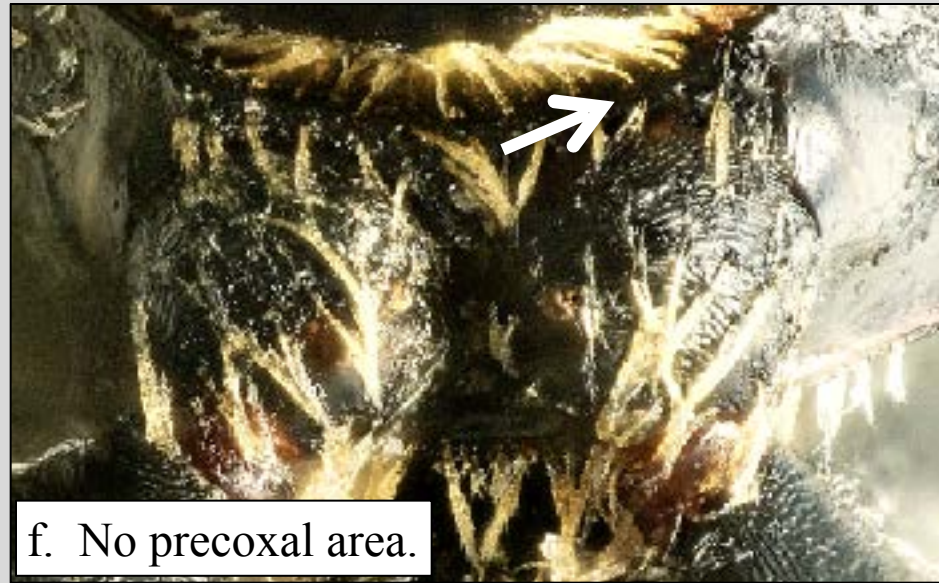
c. Precoxal area large, no strong carina.



e. Very little precoxal area.



d. Precoxal area large, no defined carina.

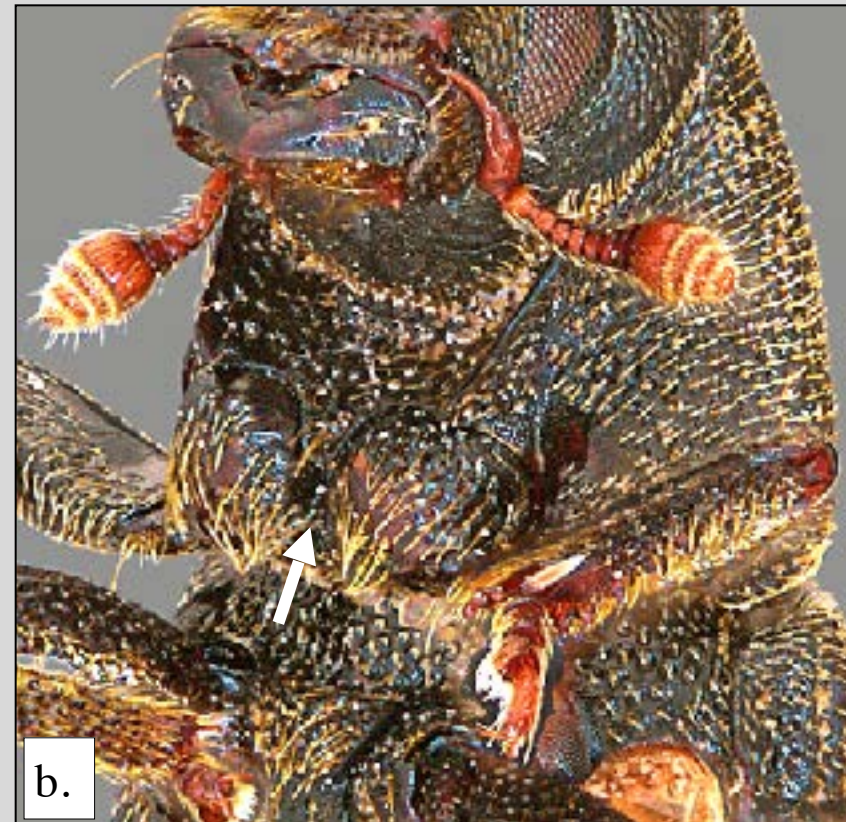


f. No precoxal area.

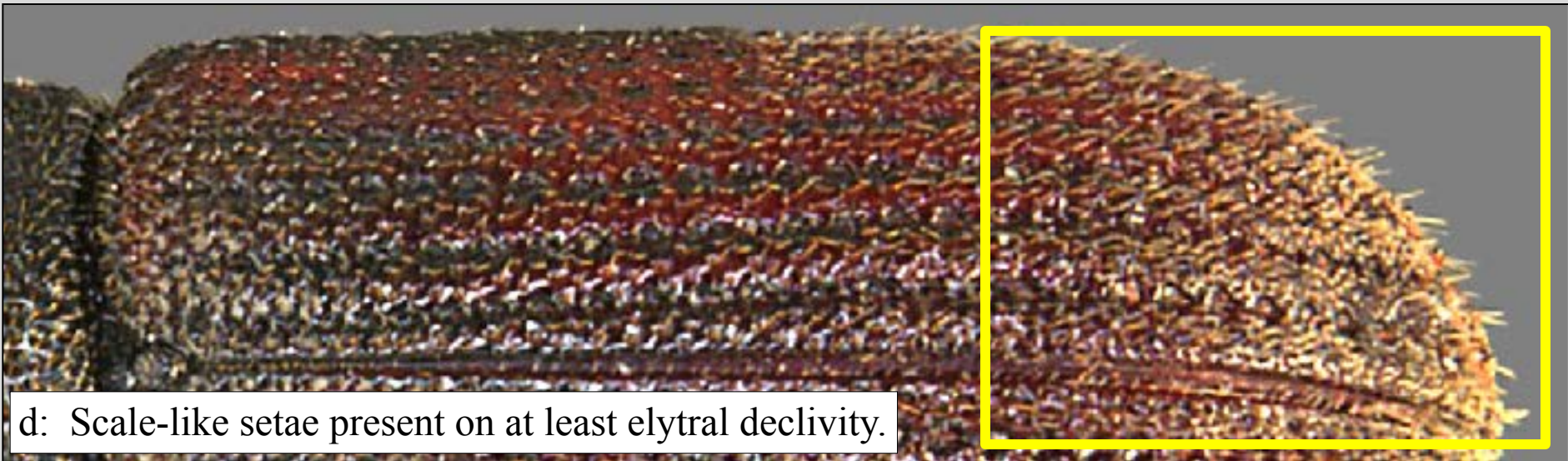
20 (19): Part I ■

Procoxae widely separated (a); scale-like setae absent on elytra (c); pronotum and elytra between punctures always dull (e).....*Scierus*

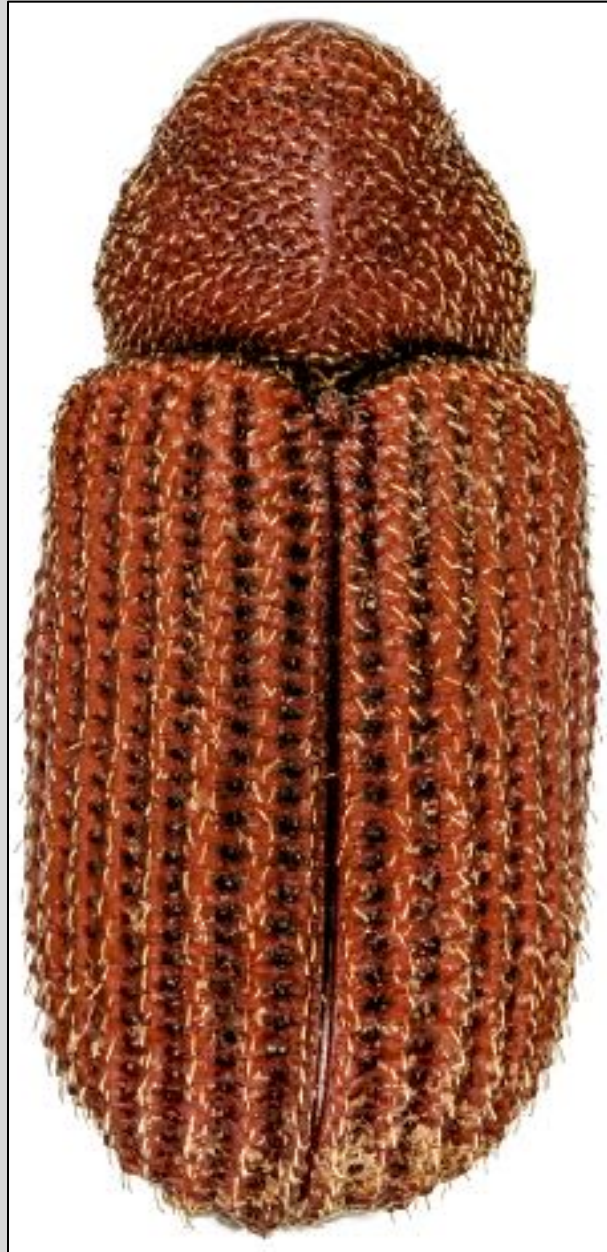
Procoxae narrowly separated, almost contiguous (b); scale-like setae present on at least elytral declivity (d); surface of pronotum and elytra between punctures often smooth and shiny (f).....21 ■



20 (19): Part II



20 (19): Part III



e: Pronotum and elytra dull between punctures.



f: Pronotum and elytra often smooth and shiny between punctures.

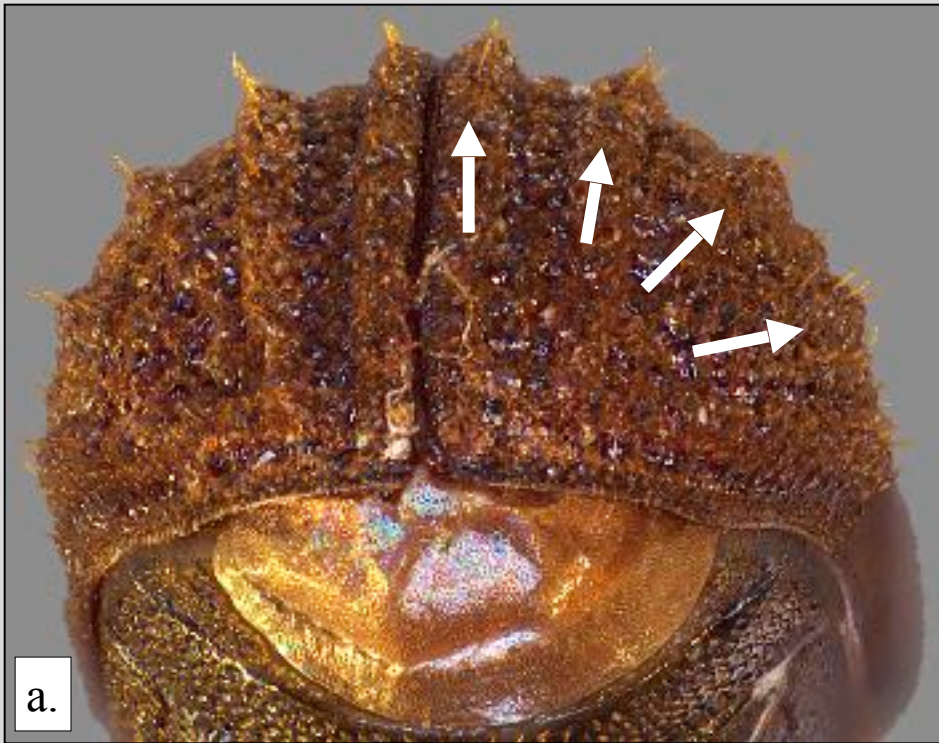
Scierus



21 (20)

Odd-numbered elytral interstriae elevated and strongly convex (particularly evident at the elytral declivity) (a).....*Pachysquamus*

All elytral interstriae equally elevated and slightly convex (b).....22



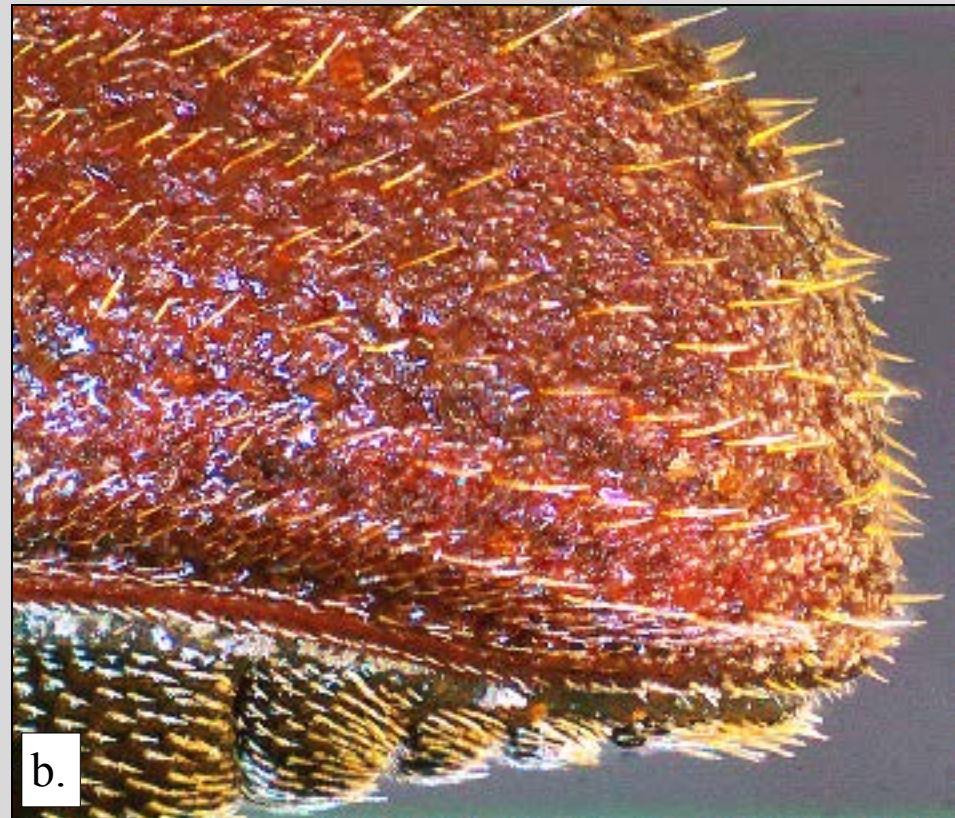
Pachysquamus



22 (21): Part I

Elytra with recumbant setae in posterior half shorter than elytral intervals (a); pronotal disc with most punctures uniform in size (there may be a few small punctures) (c) (includes one exotic species in North America).....*Hylastes* 😞

Elytra with erect setae in posterior half as long or longer than elytral intervals (b); pronotal disc with about equal numbers of small and large punctures (d) (includes one exotic species in eastern North America).....*Hylurgops* 😞



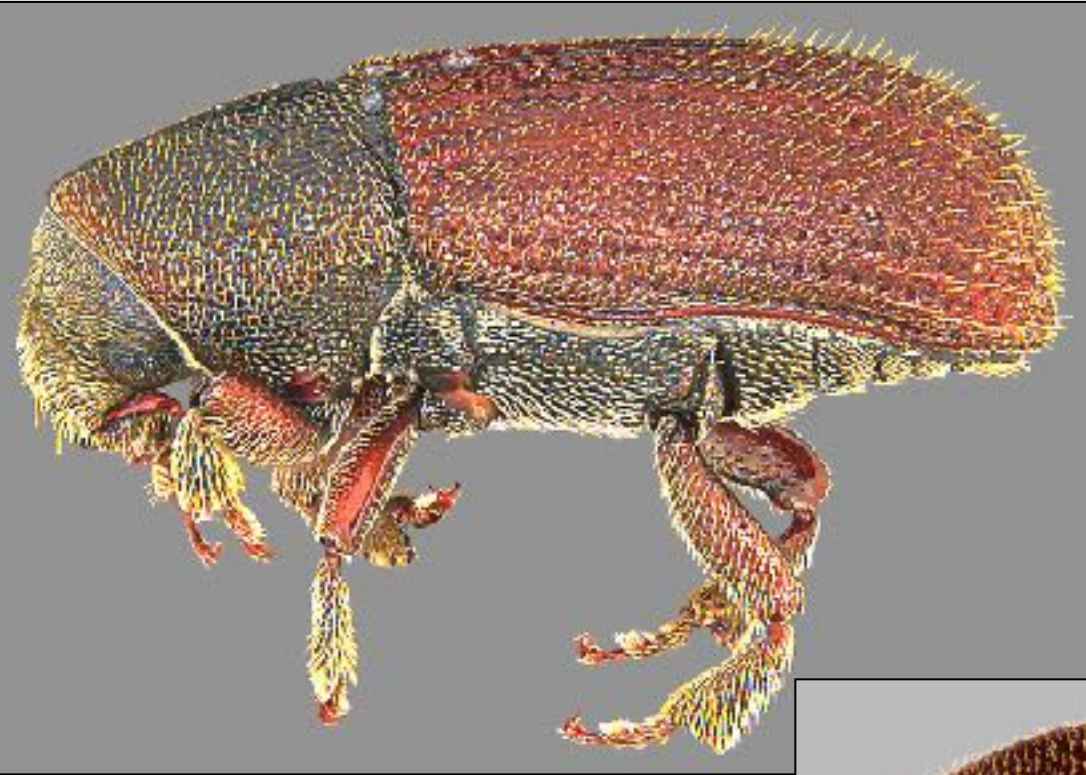
22 (21): Part II



Hylastes 😞



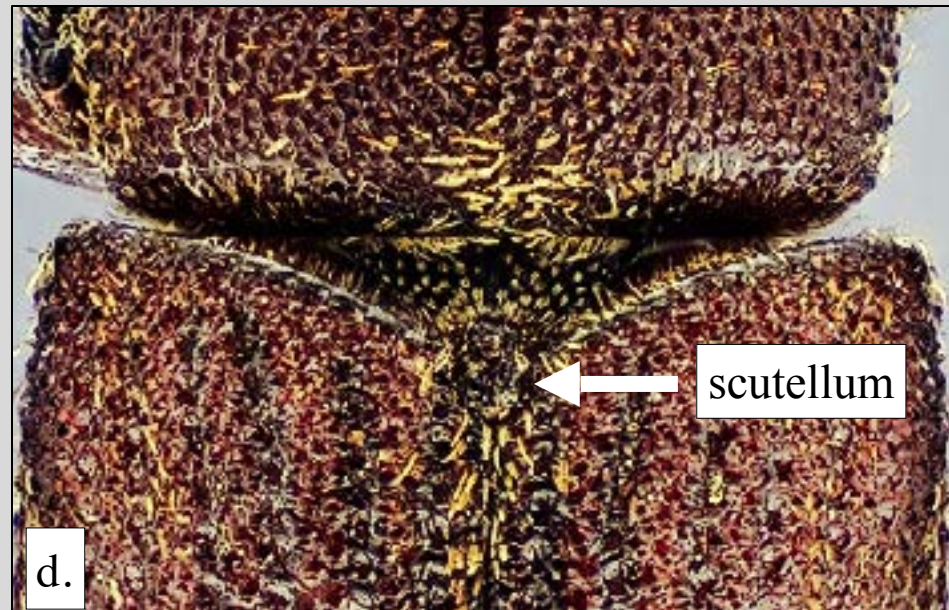
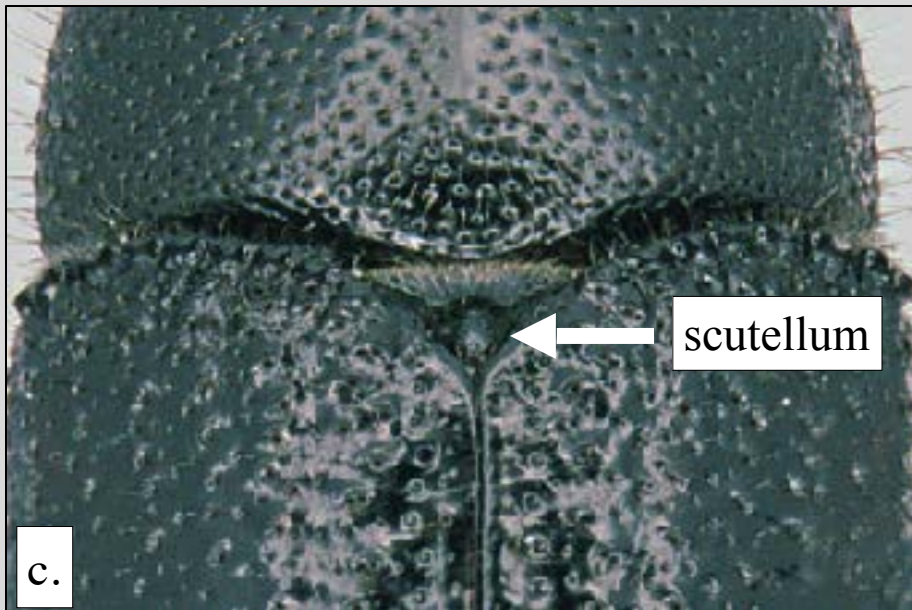
Hylurgops 🙄



23 (19)

Scutellum is not visible (**a-b**); always small, less than 3.5 mm in length**24**

Scutellum visible (**c-d**); many much larger than 3.5 mm in length.....**25**



24 (23): Part I

Pronotum and elytra with vestiture of fine setae (a); anterior eye margins only shallowly emarginate (c); third tarsal segment wide and bilobed (e) (SW US & MX).....*Carphobius*

Pronotum and elytral interstriae with vestiture of scales, often dense and covering much of surface (b); anterior eye margins deeply emarginate (d); third tarsal segment cylindrical and narrow (f).....*Carphoborus*



24 (23): Part II



c.



d.

No image currently available.

e. Third tarsal segment wide, bilobed.



f. Third tarsal segment cylindrical, narrow.

Carphobius



Courtesy of T.H. Atkinson

Carphoborus



25 (23) ■

Vestiture of scales or stout setae (**a**); most no more than 4 mm in length.....**26**

Vestiture of hair-like setae (**b**); many greater than 4 mm in length.....**27** ■



a.



b.

26 (25)

Each elytral interstria with a row of erect, hair-like setae, ground vestiture of scales or stout setae (a); antennal funicle with 7 segments (c).....*Pseudohylesinus*

Each elytral interstria with a row of erect, flattened scales, ground vestiture of recumbent scales (b); antennal funicle with 5 segments (d).....*Xylechinus*



Pseudohylesinus



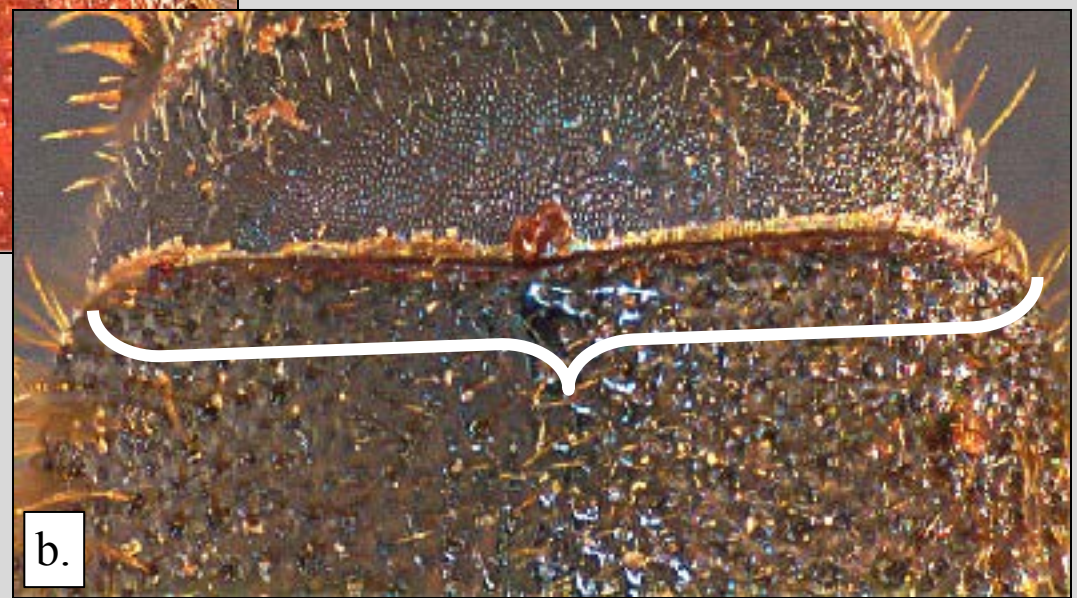
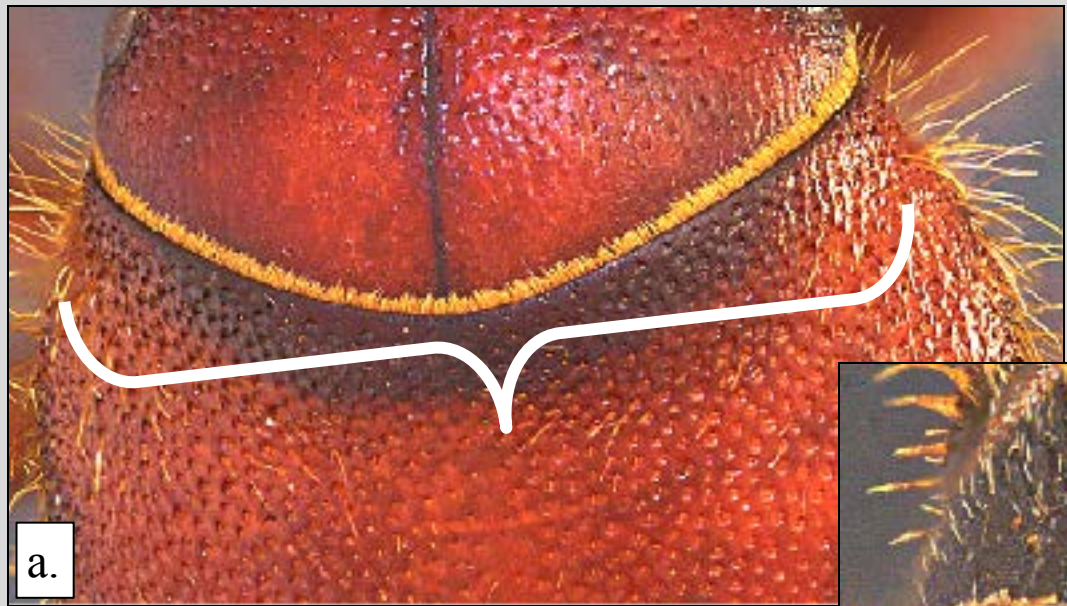
Xylechinus



27 (25): Part I ■

Anterior margin of pronotum distinctly emarginate (a); antennal sutures procurved and antennal funicle with 5 segments (c).....*Dendroctonus*

Anterior margin of pronotum truncate (b); antennal sutures transverse and antennal funicle with 6 segments (d-e).....28



27 (25): Part II

c: Funicle with 5 segments; club sutures procurved.



d-e: Funicle with 6 segments; club sutures transverse.



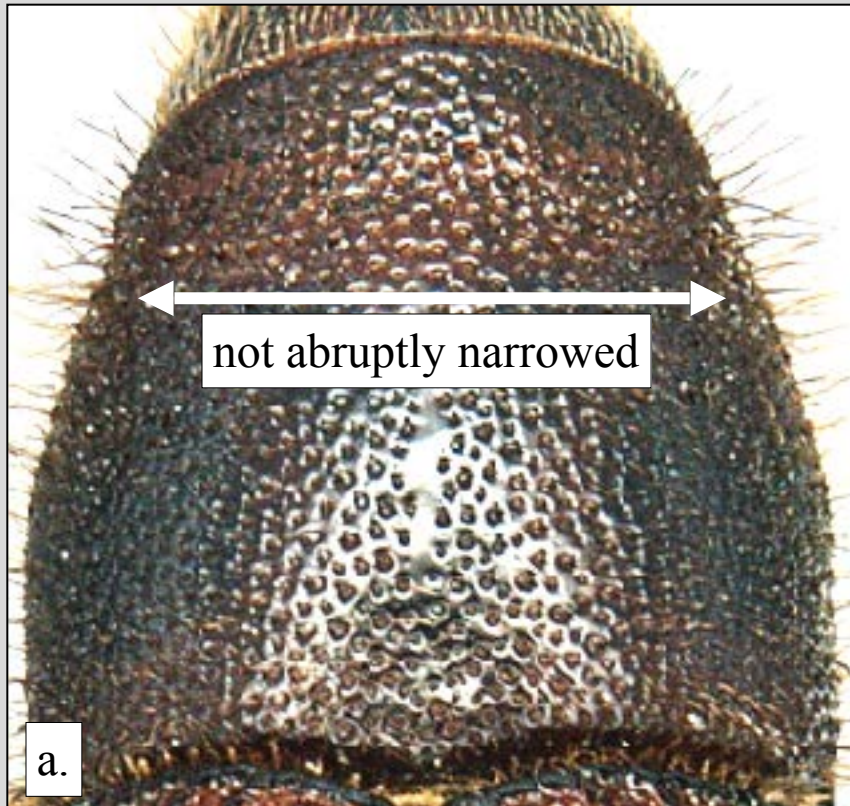
Dendroctonus



28 (27): Part I

Lateral margins of pronotum weakly arcuate throughout (a); discal elytral interstriae roughened, each with multiple rows of dense setae (c); antennal club broad, with first segment about as long as those following (e).....*Hylurgus* 😞

Lateral margins of pronotum strongly abruptly narrowed anterior of middle (b); discal elytral interstriae \pm smooth, with single row of sparse setae (d); antennal club narrow, with first segment much shorter than those following (f).....*Tomicus* 😞



28 (27): Part II



c. Interstriae roughened, with multiple rows of dense setae.



d. Interstriae smooth, with single rows of sparse setae.

28 (27): Part III

e: Antennal club broad, segment 1 about as long as all the rest together.



f: Antennal club narrow, segment 1 much shorter than the rest together.



Hylurgus 😞



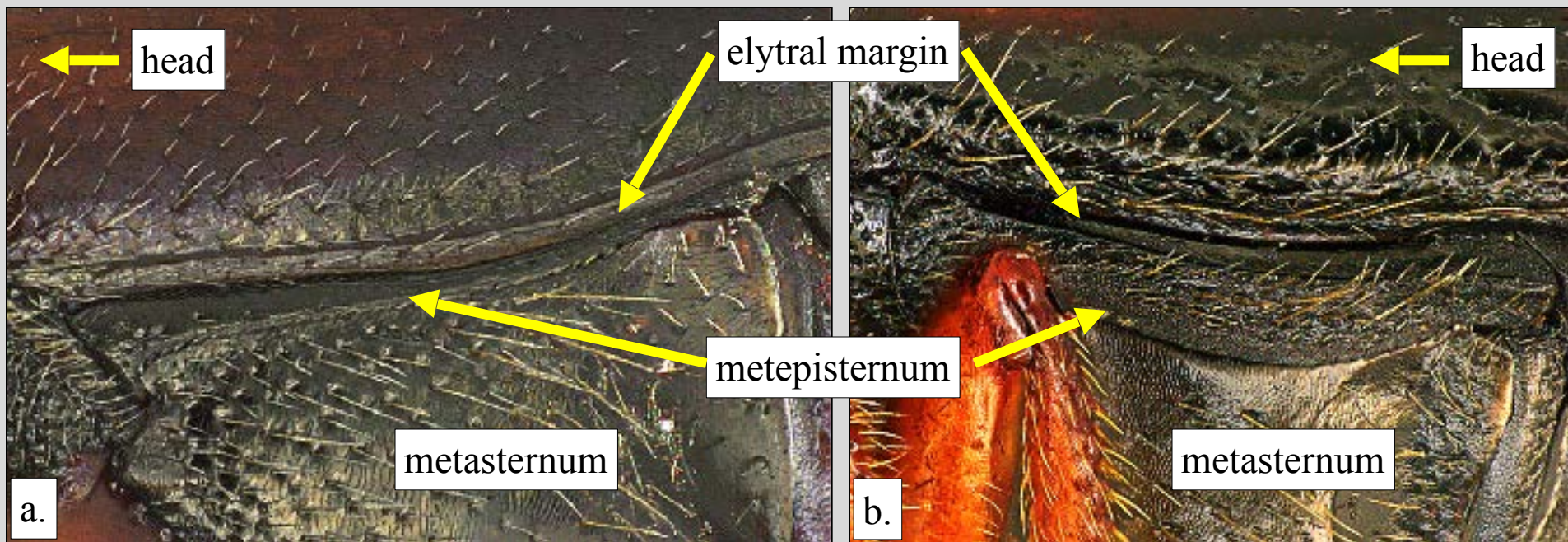
Tomiscus 🙄



29 (1)

Metepisternum largely covered by elytra (if visible, only in the anterior portion). If the elytra are slightly displaced, this character can be easily incorrectly assessed! (a).....30

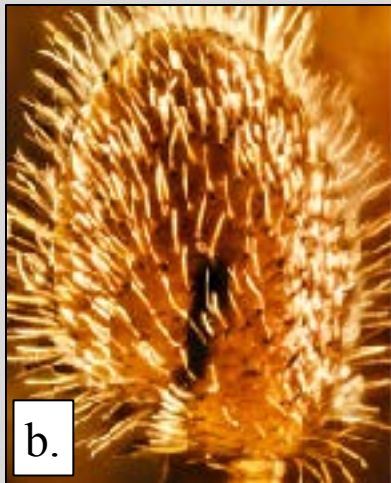
Metepisternum fully visible throughout its length. If the elytra are slightly displaced, this character can be easily incorrectly assessed! (b).....39



30 (29)

Antennal club in broadest aspect with base much narrower than at apex and middle (a-c).....31

Antennal club in broadest aspect with base broad, about as broad as at apex and middle (d-e).....33



31 (30)

Pronotum and elytra elongate and slender, lateral margins of pronotum parallel and asperities on anterior half of pronotum small (**a-b**).....*Monarthrum*

Pronotum and elytra stout, lateral margins of pronotum convex and asperities on anterior half of pronotum much larger (**c-d**)**32**



Monarthrum



female *Monarthrum*

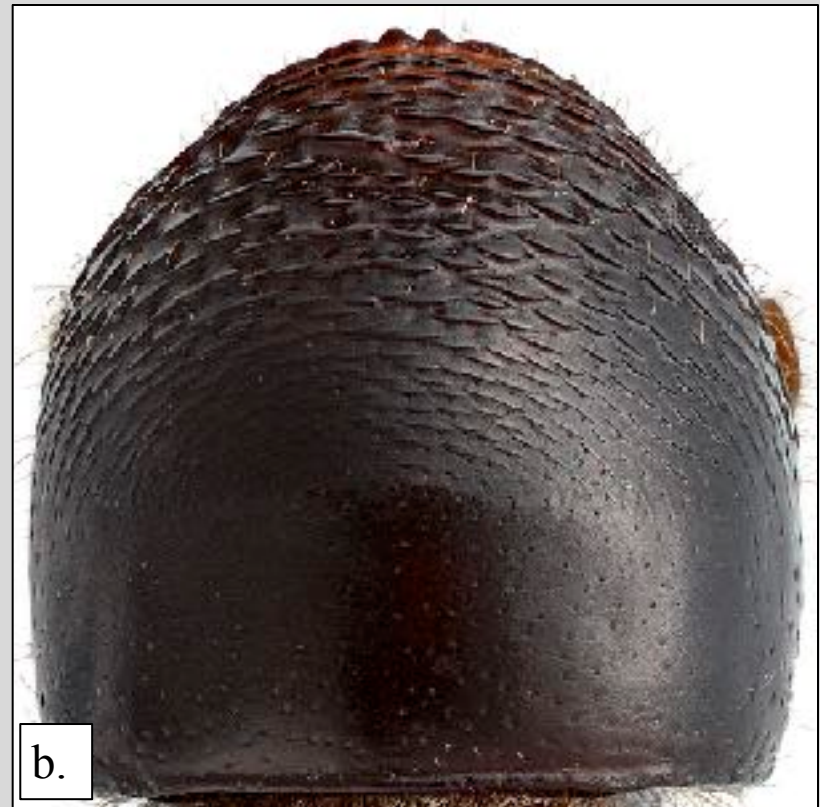
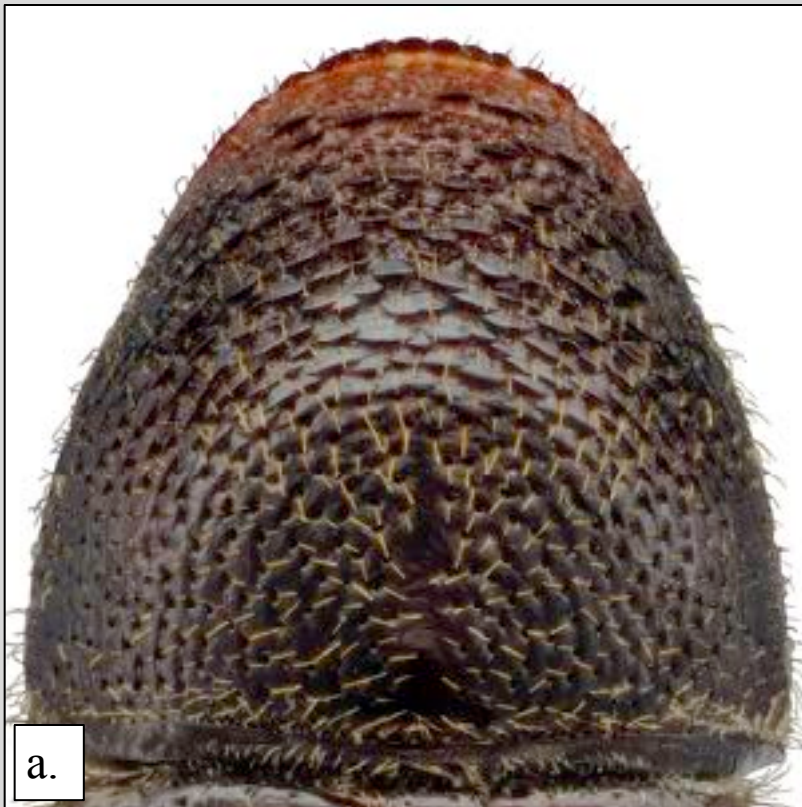


male *Monarthrum*

32 (31): Part I

Anterior margin of pronotum narrowly rounded (**a**); antennal club with only a partial suture visible near base of the anterior face (**c**) and posterior face (**e**); funicle with 5 segments (**c**) (one exotic species in southern California, two indigenous species in the Southeast).....*Araptus* 😞

Anterior margin of pronotum broadly rounded (**b**); antennal club with 2 or 3 sutures visible on both faces (**d**, **f**); funicle with 1 segment (**d**).....*Corthylus*



32 (31): Part II



e. No suture visible on posterior face (anterior suture can be seen through translucent posterior face).



Araptus 🙄



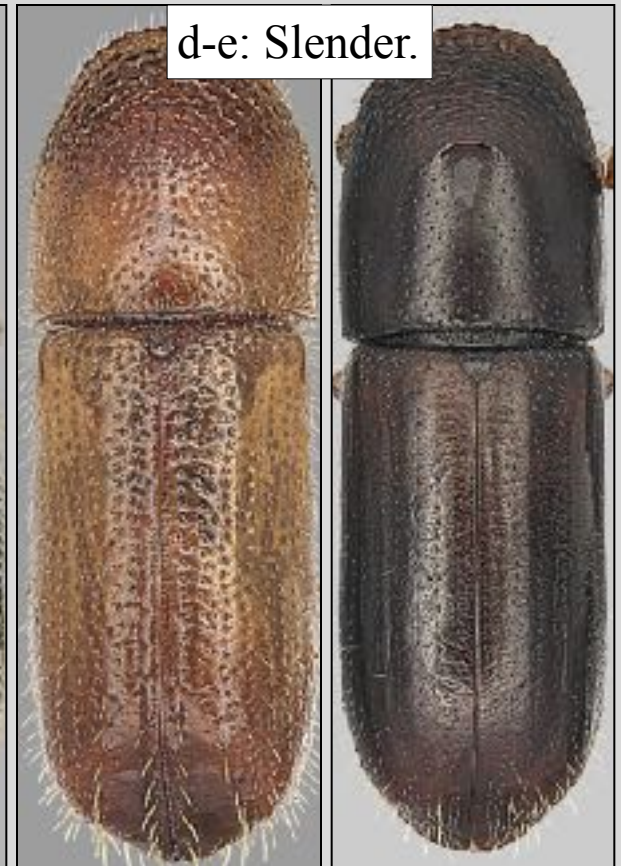
Corthylus



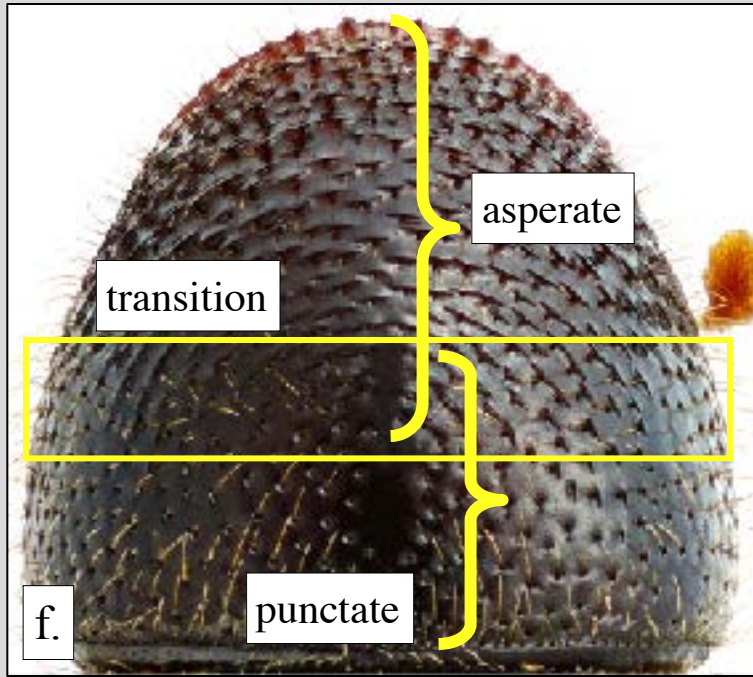
33 (30): Part I

Body moderately to very stout (a); lateral pronotal asperities extend posterior of middle and transition from asperate to punctate surface is gradual (f)...*Conophthorus*

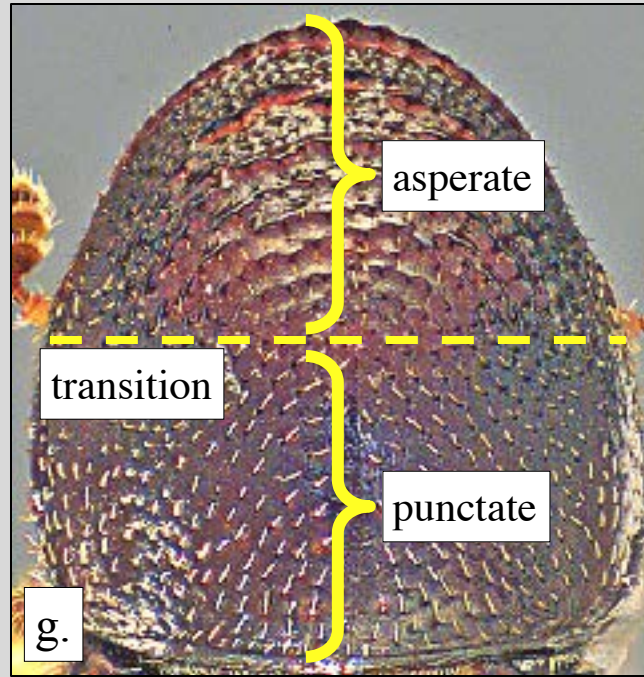
Body of some moderately stout (b-c) but many are very slender (d-e); lateral pronotal asperities mostly in anterior half and transition from asperate to punctate surface is abrupt (less so in *Dendroterus*) (g-h).....34



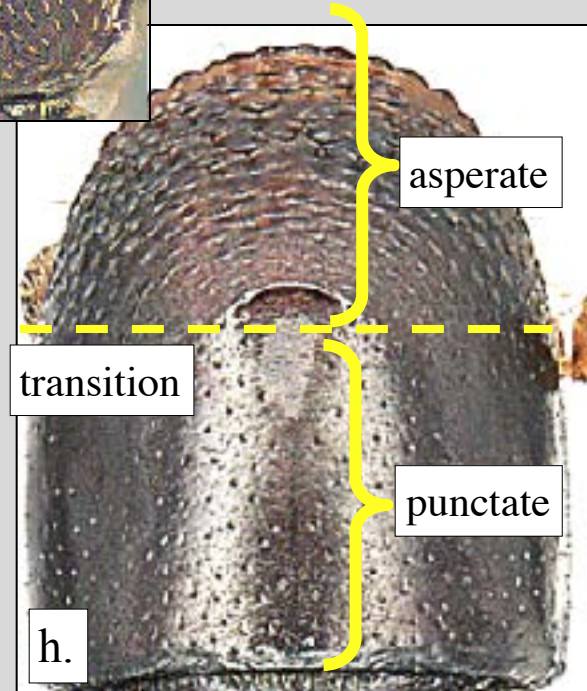
33 (30): Part II



f: Lateral asperities extend posterior of middle and transition to punctures is gradual.



g-h: Asperities are anterior of middle and transition to punctures is abrupt.



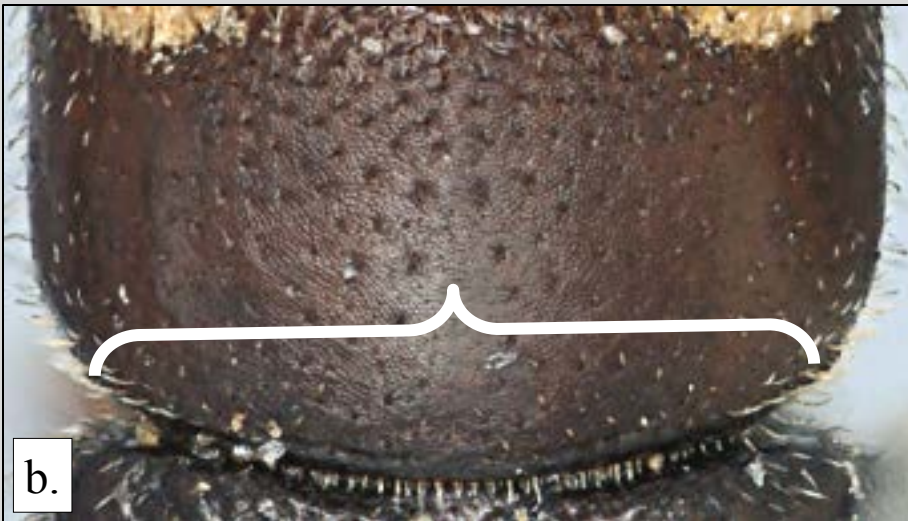
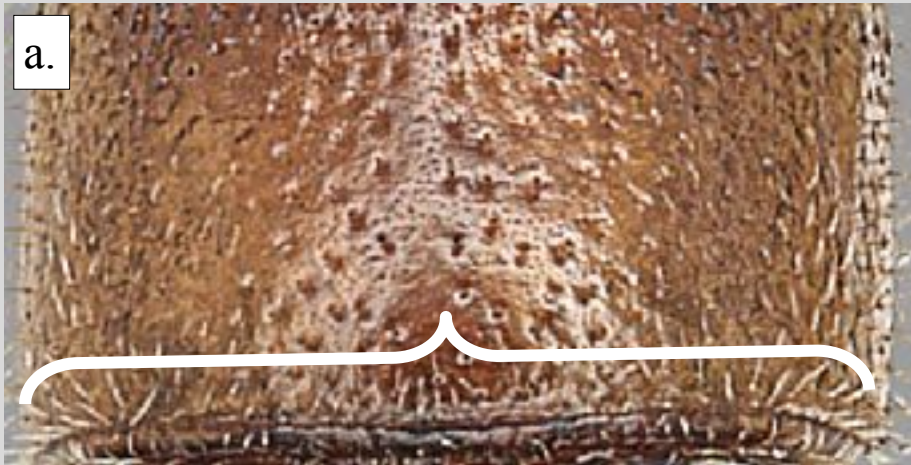
Conophthorus



34 (33)

Pronotum distinctly finely carinate along posterior margin (a) and at least the posterior half of each side (c).....35

Pronotum at most indistinctly carinate along posterior margin (b) and along each side (d) *anterolateral pronotal pubescent patches not present in all specimens*.....36



35 (34)

Dorsum more coarsely and sparsely punctate; elytral vestiture less dense, always erect and setose (a).....

.....*Pityophthorus*

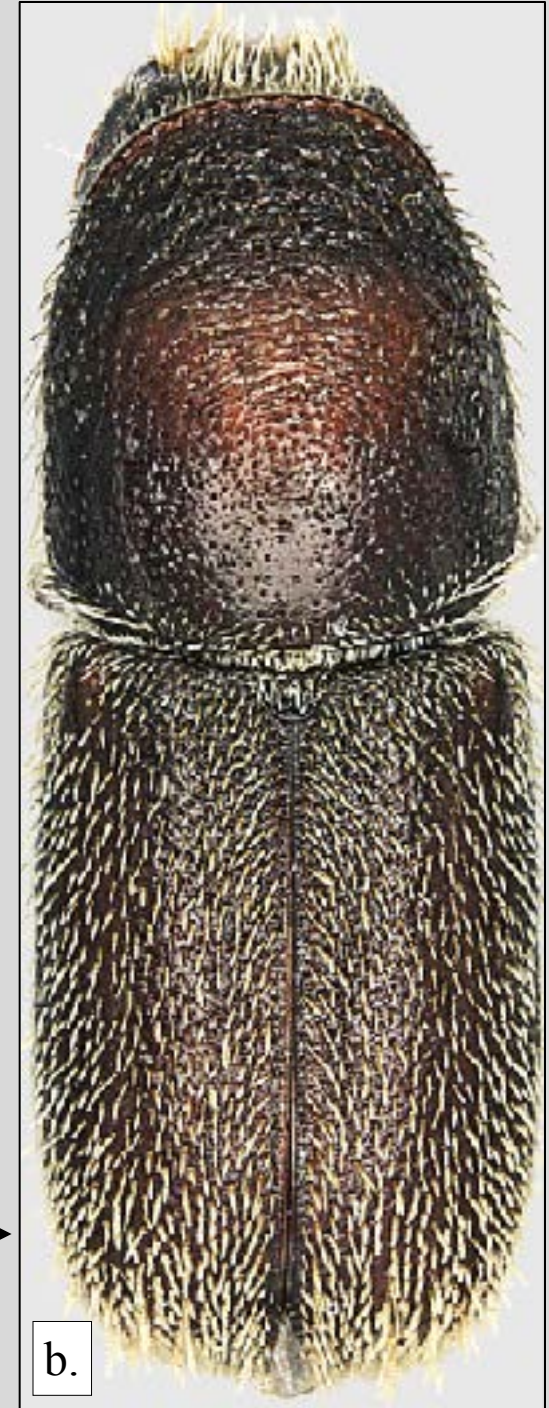


Pronotum and elytra minutely, densely punctured; elytral vestiture short, dense, recumbent, and almost always scale-like (hair-like in one species) except for a few scattered and erect interstitial setae or bristles (b).....

.....*Pseudopityophthorus*



a.



b.

Pityophthorus



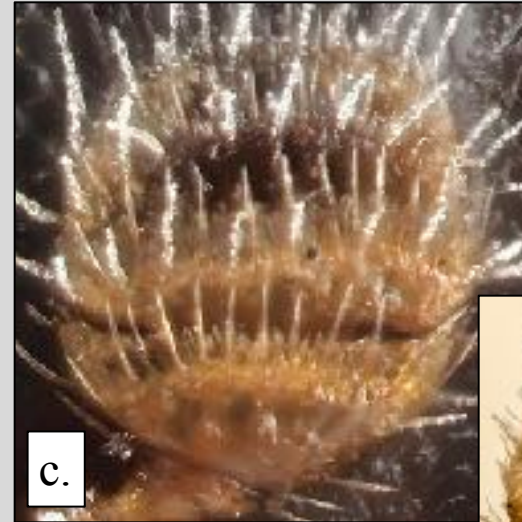
Pseudopityophthorus



36 (34) ■

Elytral striae deeply impressed, with large, deep punctures, and extending to elytral apex (**a**); antennal club with sutures straight or slightly recurved (**d**) (southern California, Texas).....*Dendroterus*

Elytral striae at most faintly impressed, with small, shallow punctures, and declivity without either impressed striae or large punctures (**b**); antennal club with procurved sutures (**d**).....37



Dendroterus

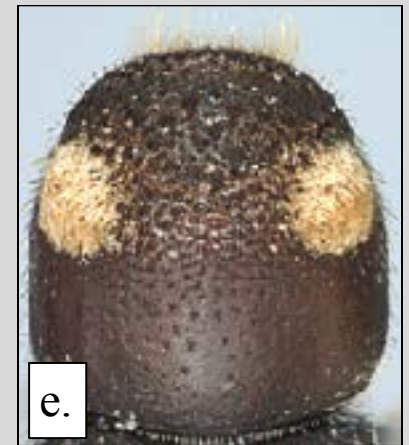
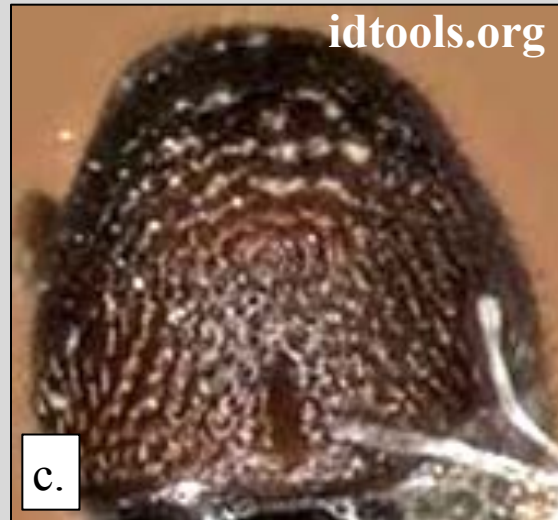


Note: the head capsule has swollen out of the pronotum, presenting an abnormal appearance.

37 (36)

Body short and stout (**a**); pronotum with large, deep punctures in posterior half (**c**) (SW U.S., MX).....*Pityotrichus*

Body long and slender (**b**); pronotum with only small, shallow punctures in posterior half (**d-e**).....**38**



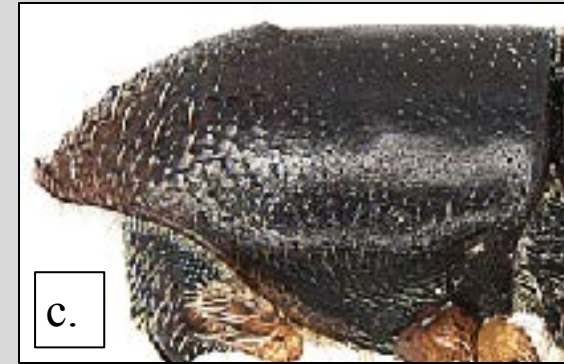
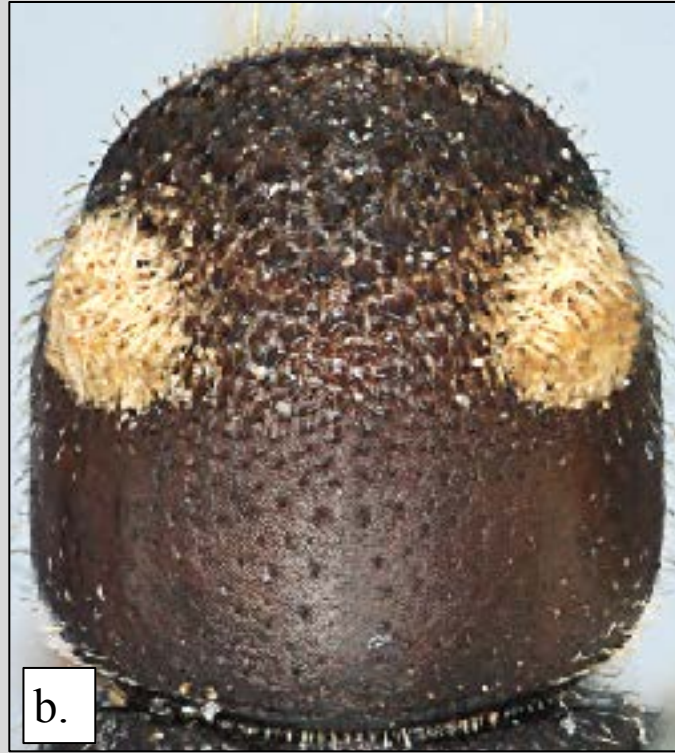
Pityotrichus



38 (37)

Pronotum in dorsal view much longer than wide, with an abrupt summit at about anterior third of length (a), pronotum without lateral pubescent patches (a, c).....
.....*Gnathotrichus*

Pronotum in dorsal view only slightly longer than wide, with a gradually rounded summit at about half of length (b), anterior half of female pronotum with a large rounded pubescent patch on either side of middle (b, d).....*Pityoborus*



Gnathotrichus



Pityoborus

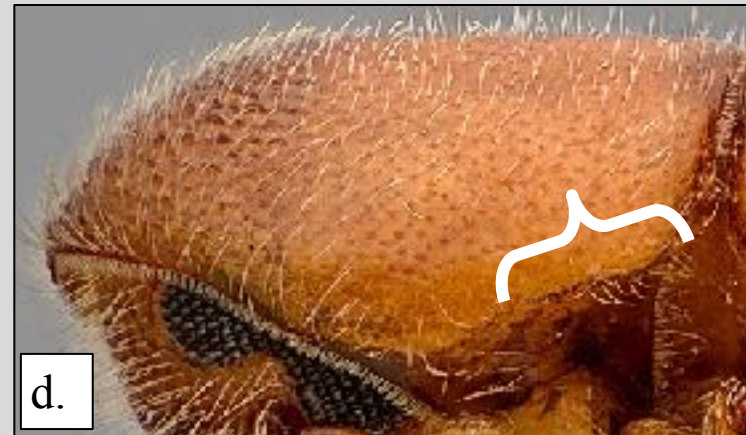
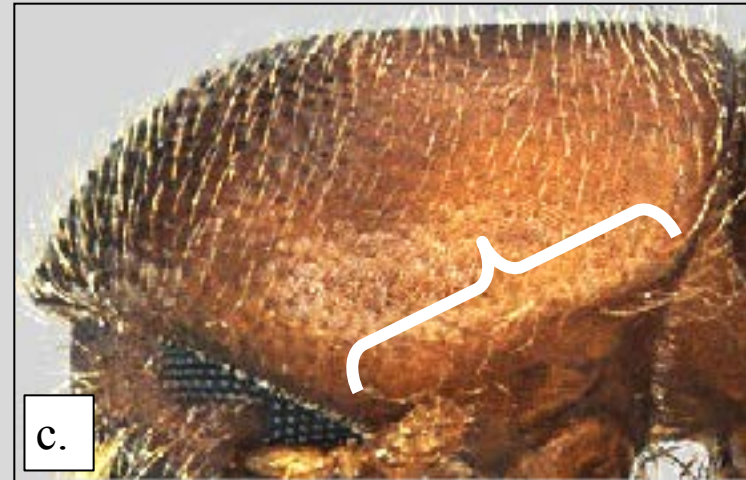
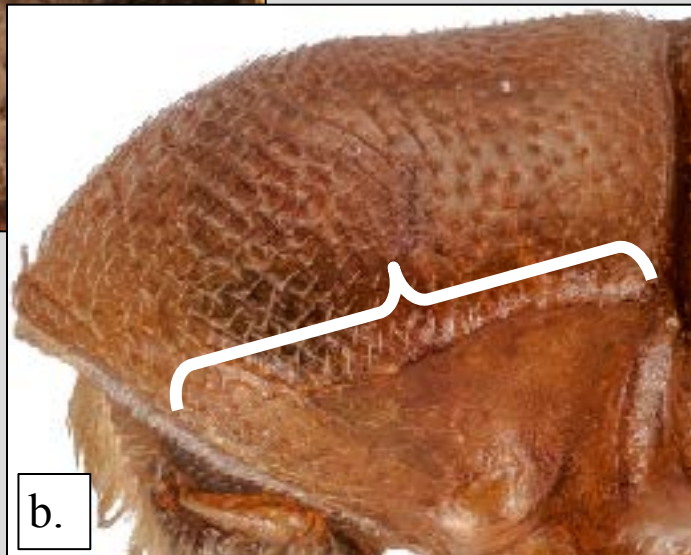
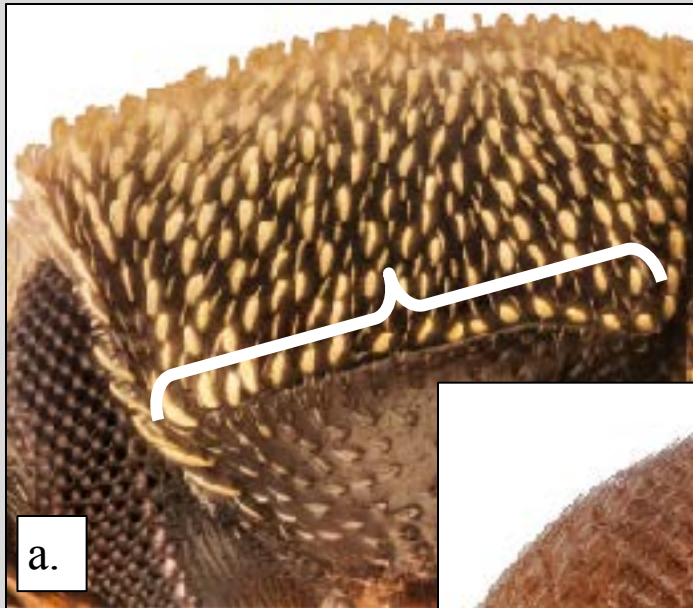


female

39 (29)

Each lateral margin of pronotum with a sharply defined lateral carina extending the length of the pronotum (**a-b**).....40

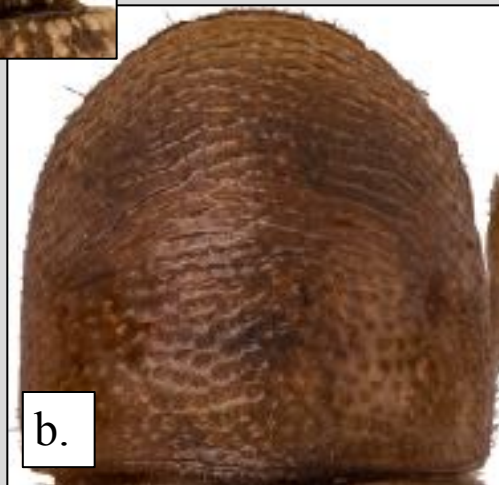
Each lateral margin of pronotum without a carina (**c**) or with a carina extending only part way toward the anterior (**d**) (some taxa, e.g., *Premnobius*, may have a sharp lateral margin but it is only carinate in the posterior half or so).....41



40 (39)

Pronotum without asperities (**a**); pronotum and elytra densely covered with erect, stout, scale-like setae (**c**) (FL, TX, MX).....*Pycnarthrum*

Anterior half of pronotum with asperities (**b**); pronotum and elytra with sparse, inconspicuous, fine hair-like setae (**d**) (FL, MX).....*Scolytodes*



Pycnarthrum



Scolytodes



41 (39): Part I

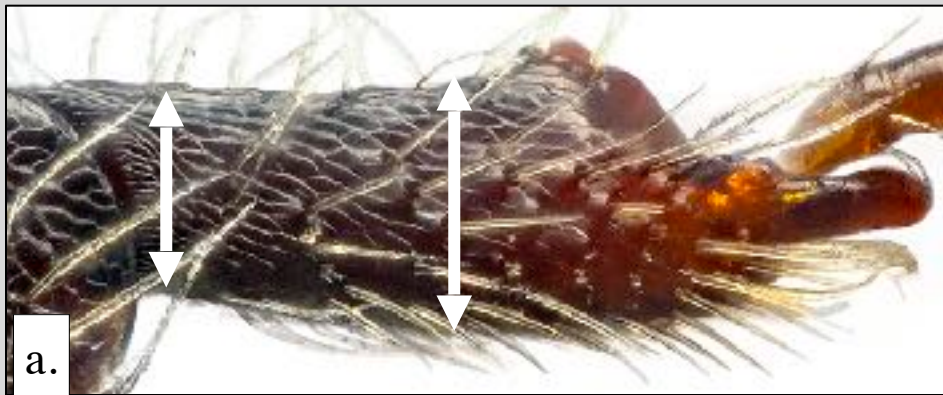
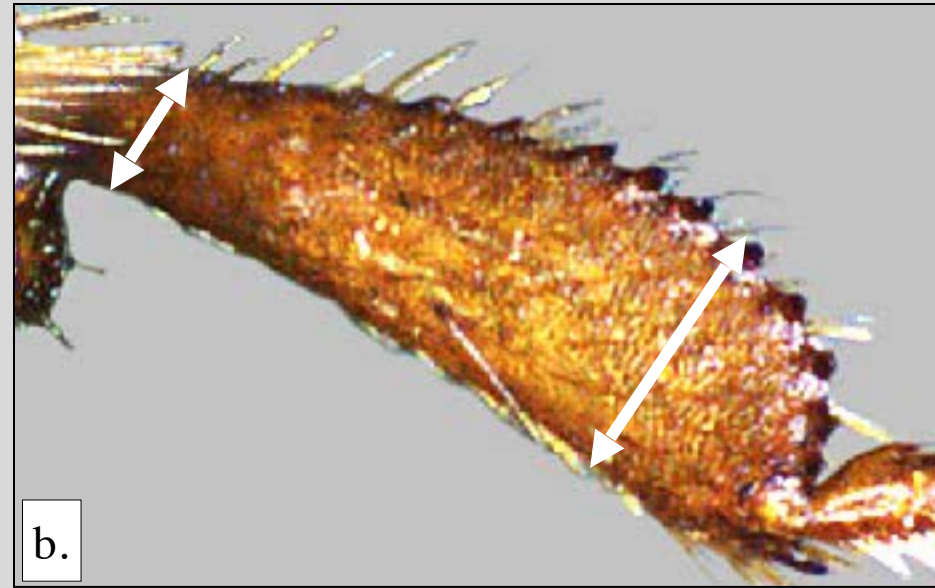


Protibia with outer and inner margins more-or-less parallel (a); procoxae distinctly separated (d) (it can sometimes be difficult to distinguish between very narrowly separated and contiguous procoxae – when in doubt, place the greatest weight on the protibial character)

.....42

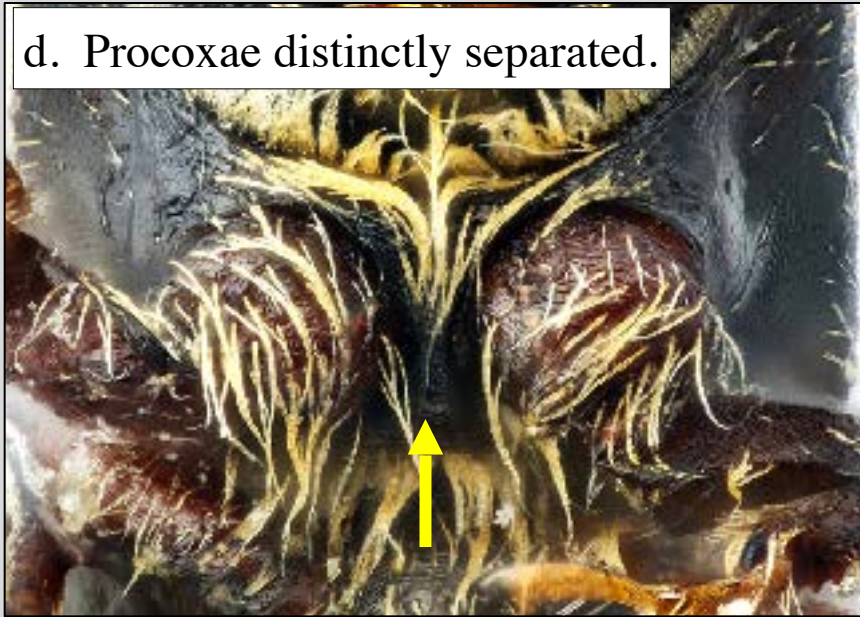


Protibia broader at middle (often much more so) and apex than at base (b-c); procoxae contiguous (e) (EXCEPT narrowly separated in *Cnestus* (f) and broadly separated in *Xylosandrus* (g))..... 47

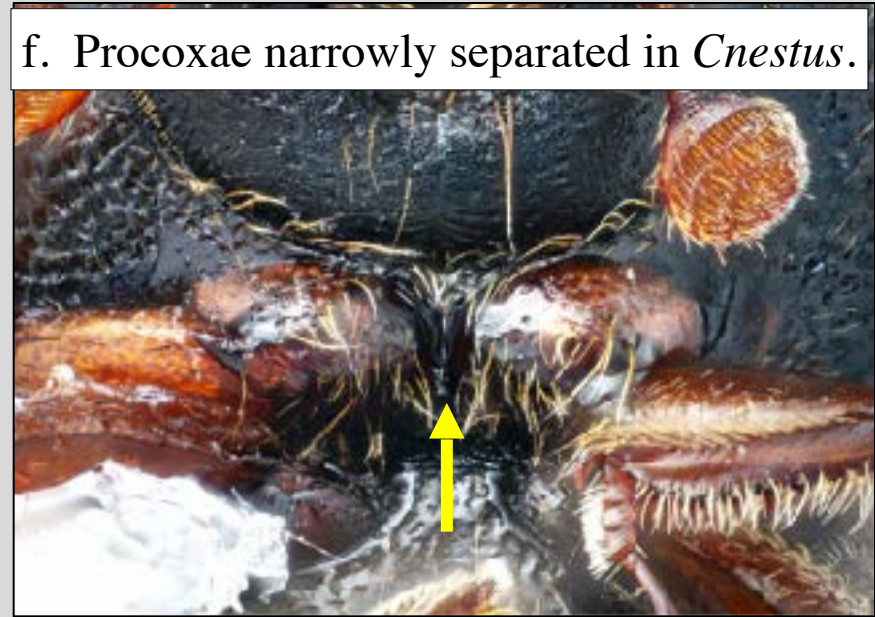


41 (40): Part II

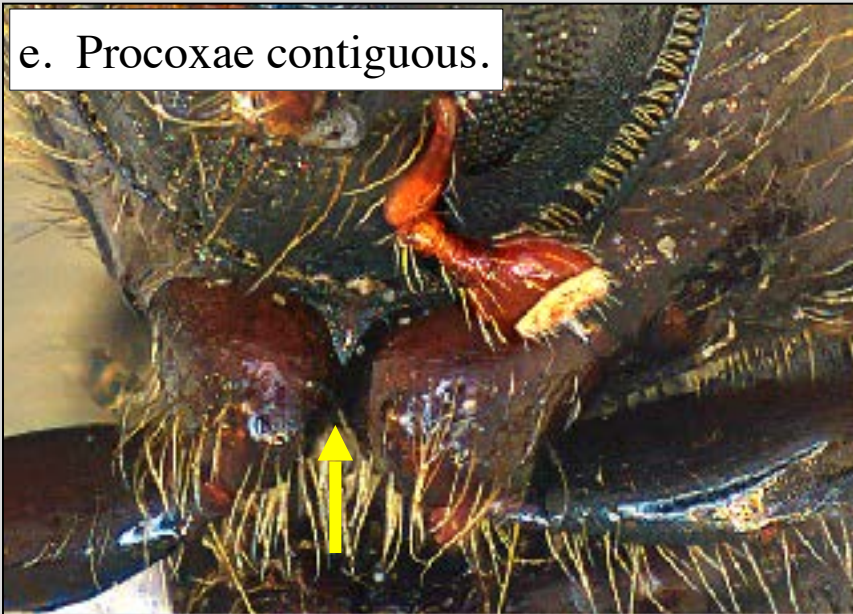
d. Procoxae distinctly separated.



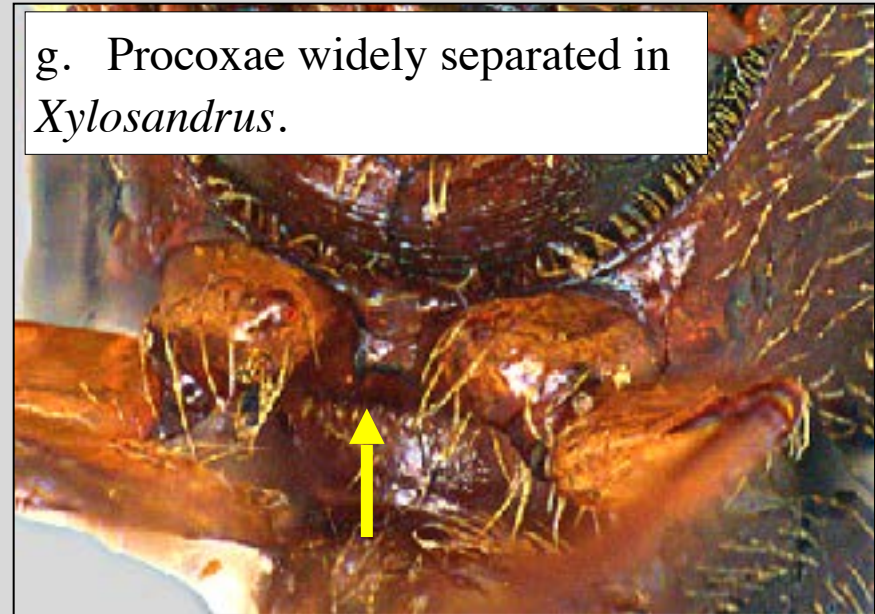
f. Procoxae narrowly separated in *Cnestus*.



e. Procoxae contiguous.



g. Procoxae widely separated in *Xylosandrus*.



42 (41): Part I

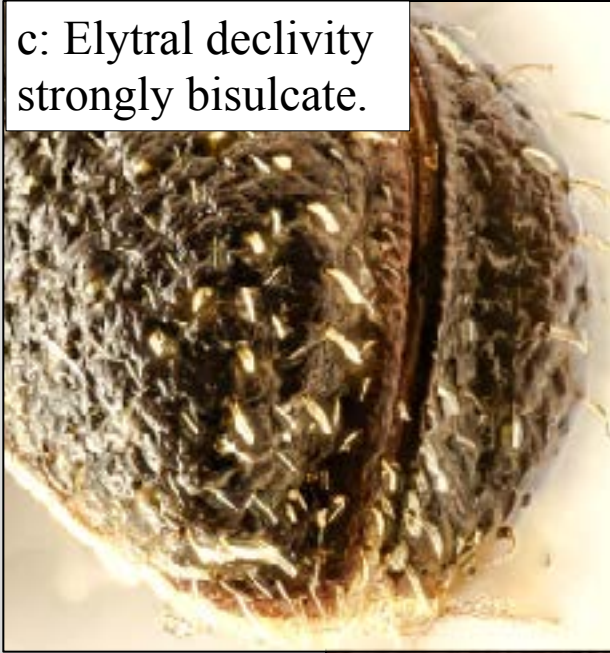
Elytral declivity steep (almost vertical) and obtusely angulate in lateral view (a), strongly bisulcate (c); antennal club with distinct and straight transverse sutures, with its greatest width in the basal half and with the apex narrowly rounded (e) (California, MX).....*Stenoclyptus*

Elytral declivity is more gradual and evenly convex in lateral view (b), at most weakly bisulcate (d); antennal club with sutures procurved (f) (sometimes obscure in *Pseudothysanoes* (g)), with its greatest width in the apical half or at the middle and with the apex broadly rounded.....43



42 (41): Part II

c: Elytral declivity strongly bisulcate.



d: Elytral declivity at most weakly bisulcate.



e: Antennal club with transverse sutures; widest near base, apex narrowly rounded.



f: Antennal club with sutures procurved; widest near apex or middle, apex broadly rounded.



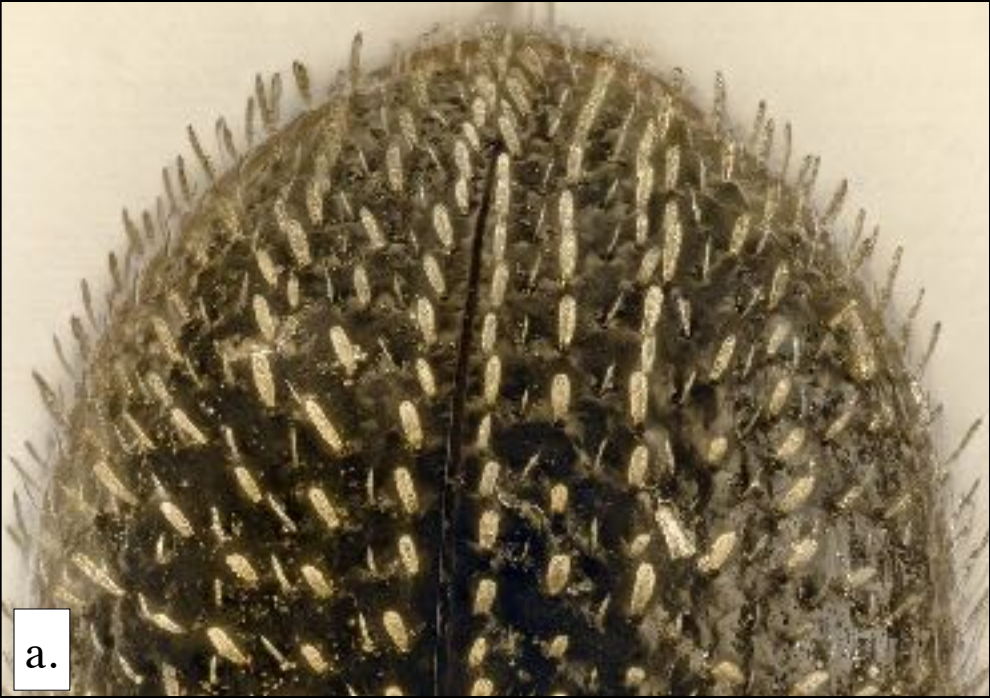
Stenocleptus



43 (42) ■

Elytral apex broadly rounded in dorsal view (a).....44

Elytral apex acuminate in dorsal view (b).....45 ■



44 (43)

Protibiae slender and narrowed toward apex (a).....*Pseudothysanoes*

Protibiae broad, with sides parallel (U.S. E of the Rocky Mountains, MX) (b)
.....*Thysanoes*



Pseudothysanoes



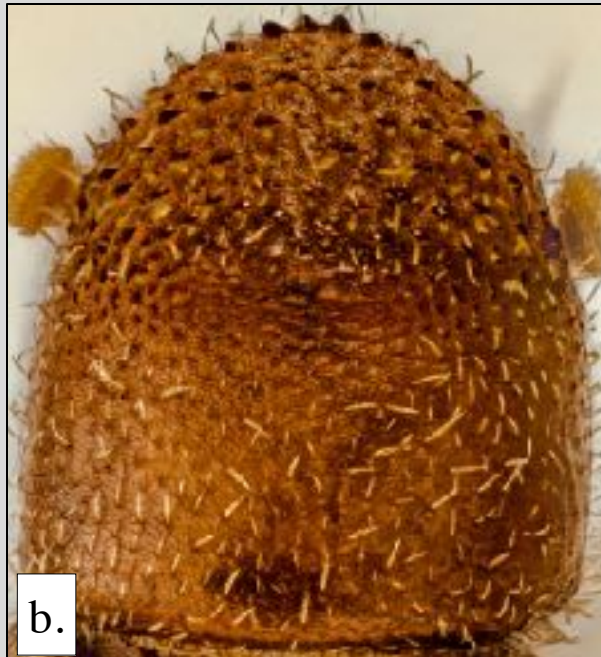
Thysanoes



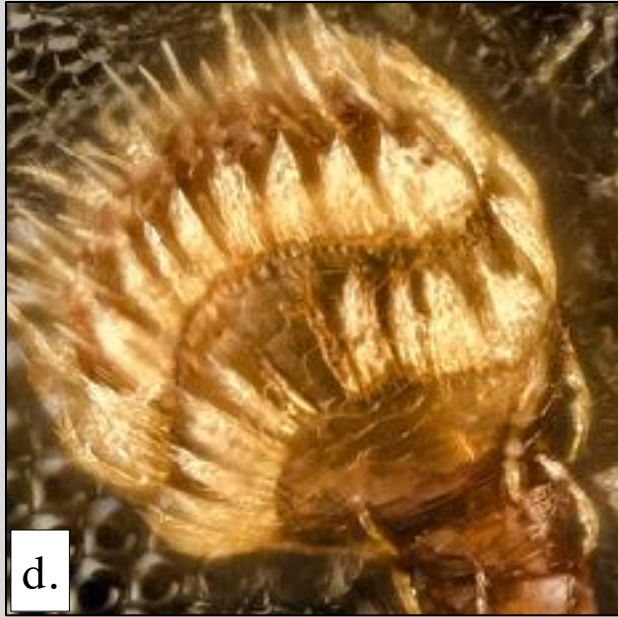
45 (43): Part I

Dorsal surface of pronotum coarsely asperate throughout (a); sutures of antennal club broadly procurved with suture 1 bisinuate (very slightly so in some species) and extending less than 1/3 the length of the club (d) (antennal club of *H. hirtellus*, e, similar to that of *Micracis* & *Micrasiella*); eyes small and oval (large and elongate in *H. hirtellus*) (h); posterior face of protibia with numerous small teeth or tubercles (j) (very few and hard to see in *H. hirtellus* (k)).....*Hylocurus*

Pronotum either asperate only in anterior half (b) or also with scattered small asperities in posterior half (c); sutures of antennal club strongly and narrowly procurved with suture 1 often extending to mid-length of the club (f-g); eyes large and elongate (i); posterior face of protibia without teeth or tubercles except at extreme apex (l).....46



45 (43): Part II



45 (43): Part III



j. Large tubercles on posterior face.



k. Very small tubercles on posterior face.



l.



m.

l-m. Teeth/tubercles only at or near apex.

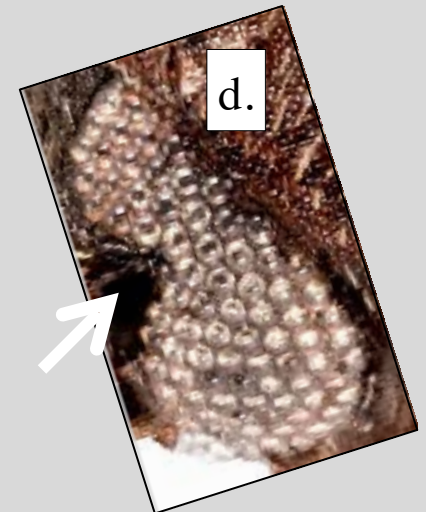
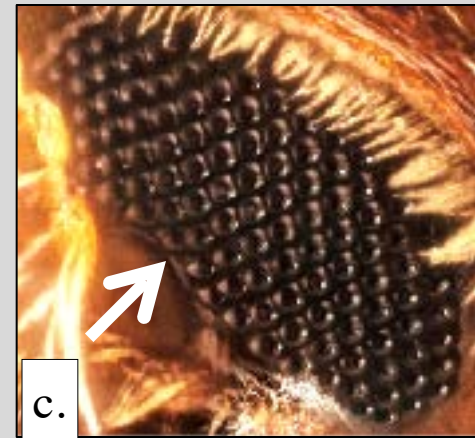
Hylocurus



46 (45)

Dorsal surface of pronotum asperate only in anterior half (a); anterior margin of eye only slightly sinuate (this feature is almost always hidden by the antenna) (c)*Micracis*

Dorsal surface of pronotum densely asperate in anterior half, with small and scattered asperities in posterior half (b); anterior margin of eyes deeply emarginate (this feature is almost always hidden by the antenna) (d).....*Micracisella*



Micracis



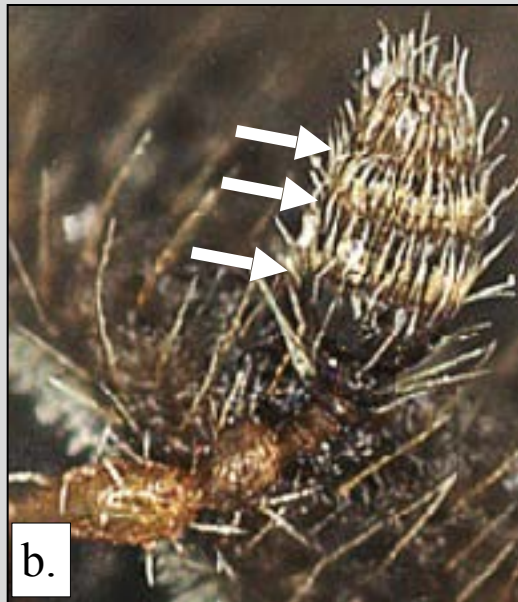
Micracisella



47 (41): Part I

Antennal club more strongly flattened (a), with sutures on both faces (b-c), those on posterior face limited to ~apical half (c); elytral vestiture generally scale-like, costal margins of elytra horizontal or slightly ascending toward apex (h); usually less than 2.0 mm in total length.....48

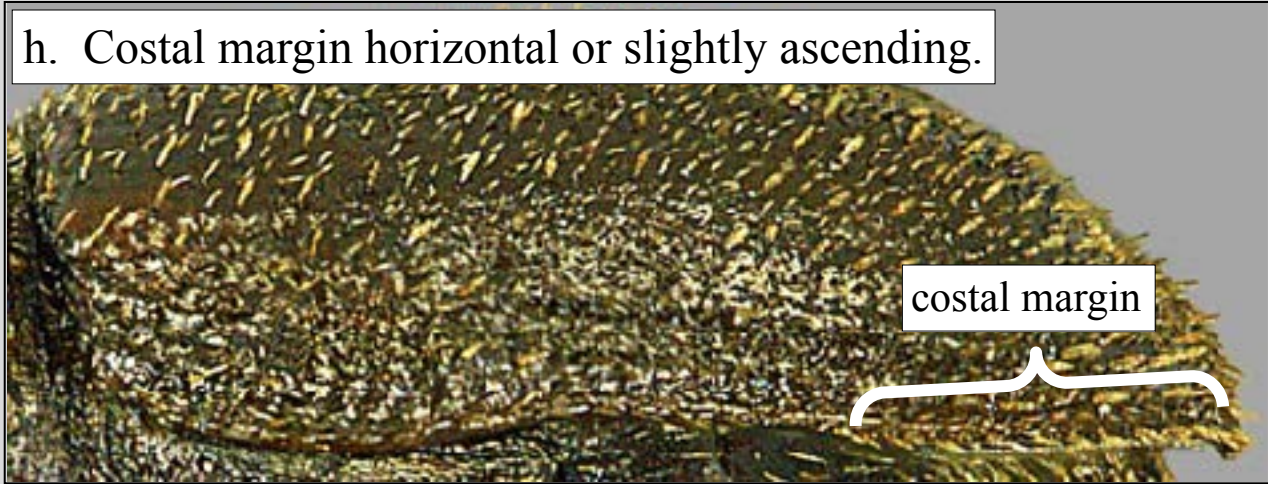
Antennal club less flattened or obliquely truncate (d-e) sutures often absent on posterior face (f) or if present, restricted to apical quarter (*Dolorgus* has sutures down to ~ the apical half) (g); elytral vestiture hair-like and costal margins of elytra slightly descending posteriorly (i); often much more than 2.0 mm long.....56



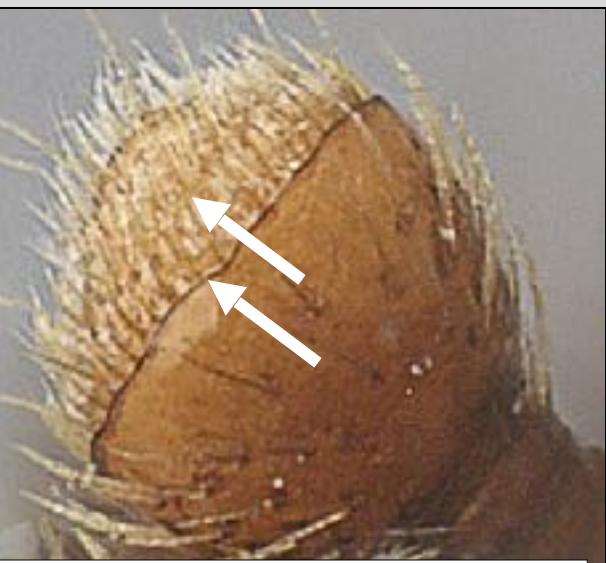
47 (41): Part II



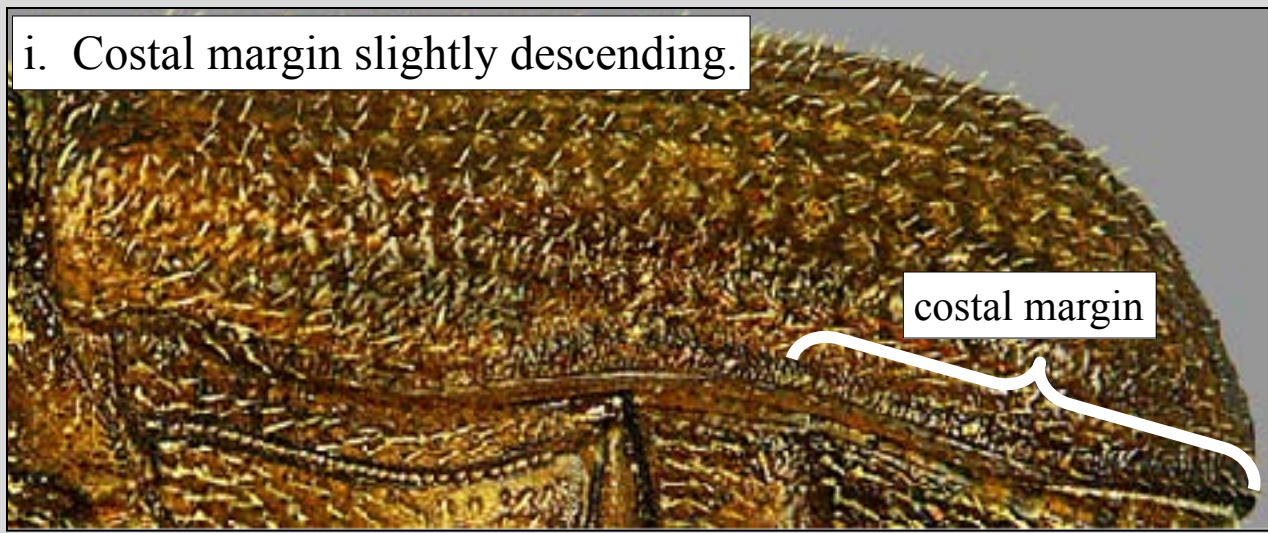
f. No sutures posterior face.



h. Costal margin horizontal or slightly ascending.



g. Sutures displaced apically.

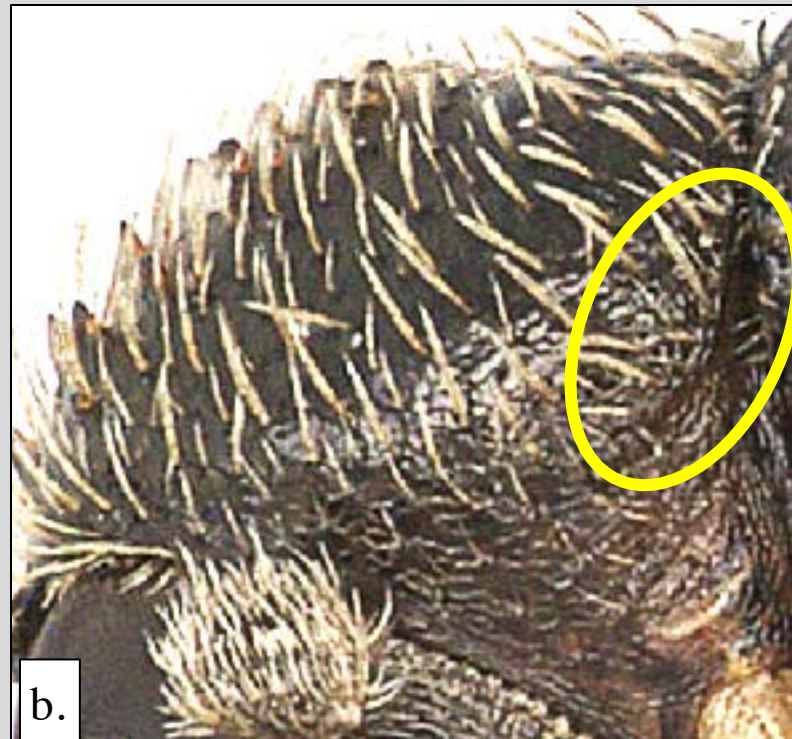
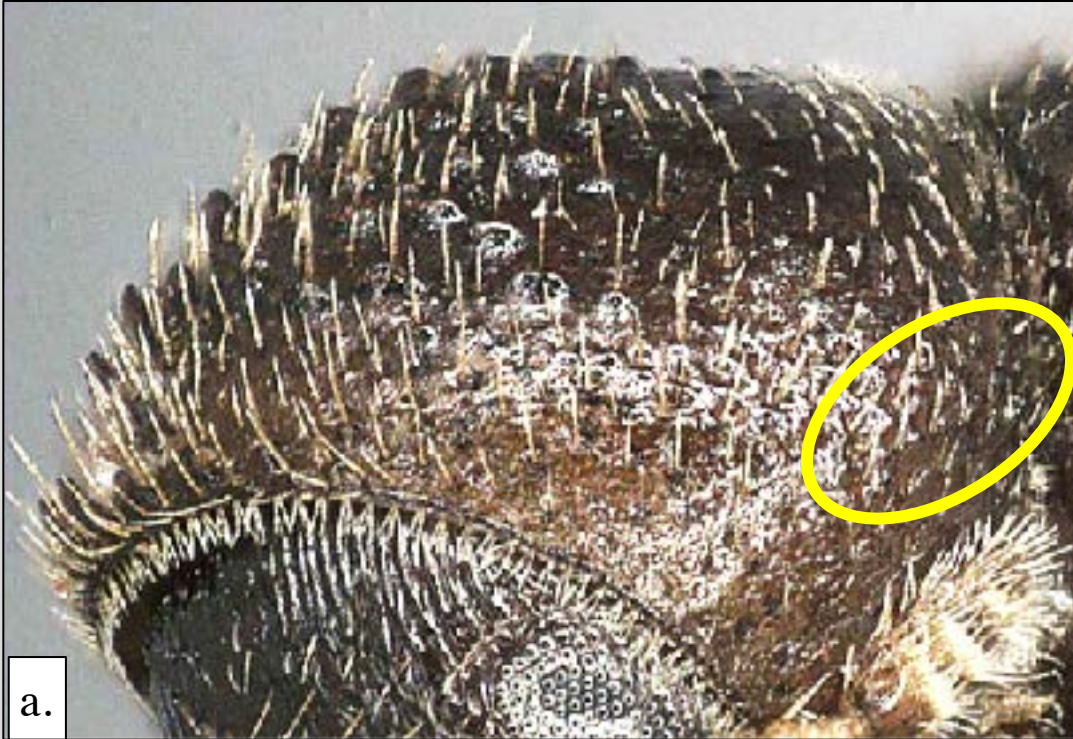


i. Costal margin slightly descending.

48 (47)

Pronotum without distinct, fine, raised lateral carinae (a).....49

Pronotum with distinct, fine, raised lateral carinae in at least posterior third (b)...52



49 (48)

Antennal club narrow, pointed at apex (**a**); posterior half pronotum with, hair-like setae (**c**).....*Trypophloeus*

Antennal club oval or semi-circular and rounded at apex (**b**); at least posterior half of pronotum with scale-like setae (**d**).....**50**



Trypophloeus

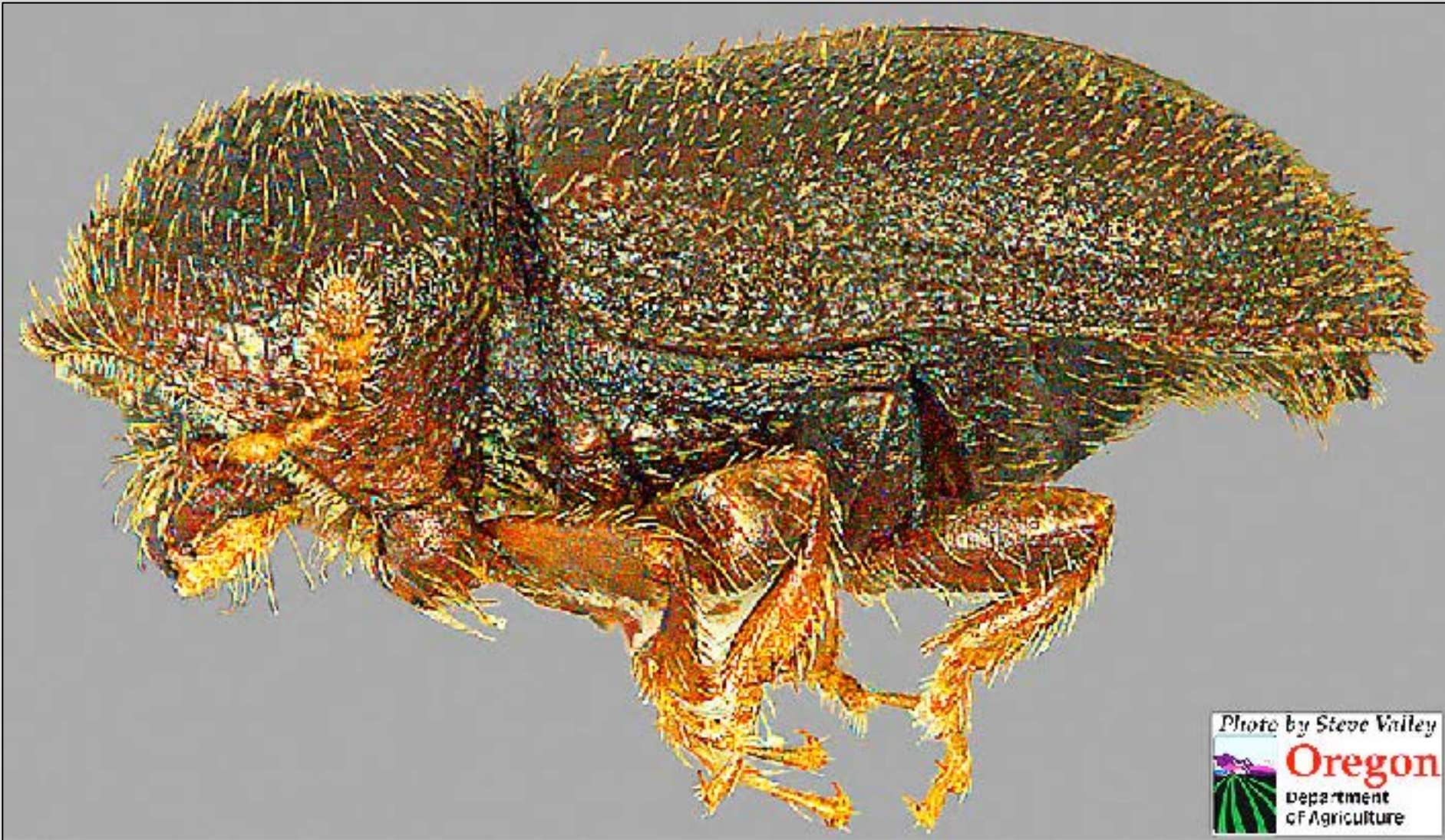
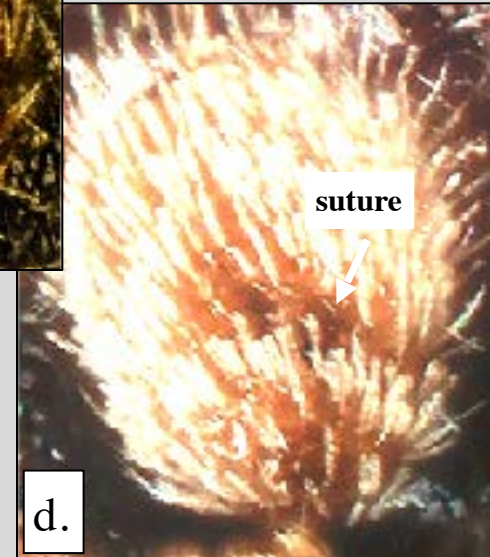
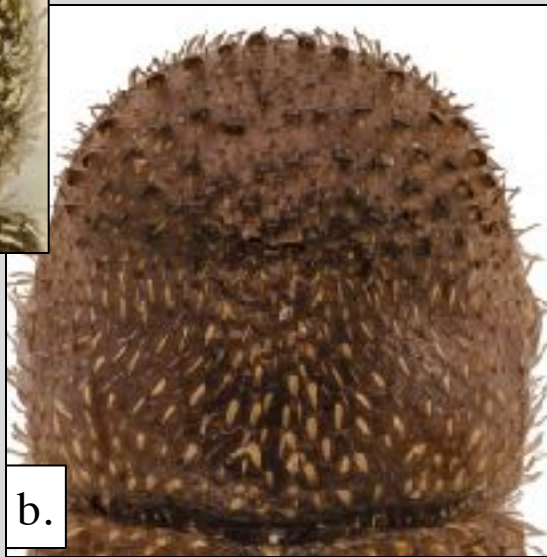
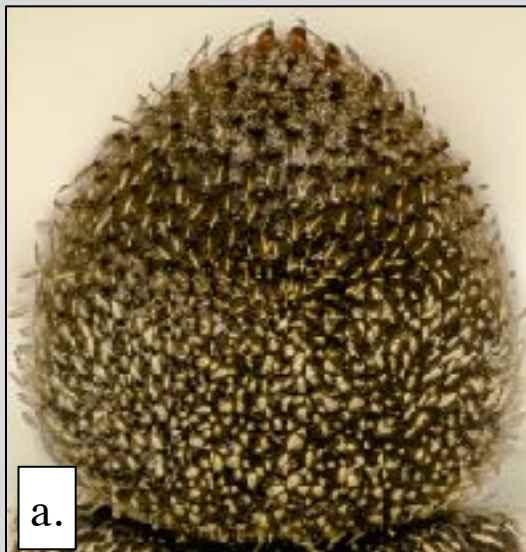


Photo by Steve Vitley
Oregon
Department
of Agriculture

50 (49)

Anterior margin of pronotum narrowed to an obtuse medial angle and with a pair of more prominent teeth at the apex (a); antennal club with straight or slightly recurved sutures (c) (W North America).....*Procryphalus*

Anterior margin of pronotum broadly and more-or-less evenly rounded and without a pair of more prominent teeth at the apex (b); antennal club with oblique (d) or procurved (e) sutures.....51



e. No image available at this time.

Procryphalus

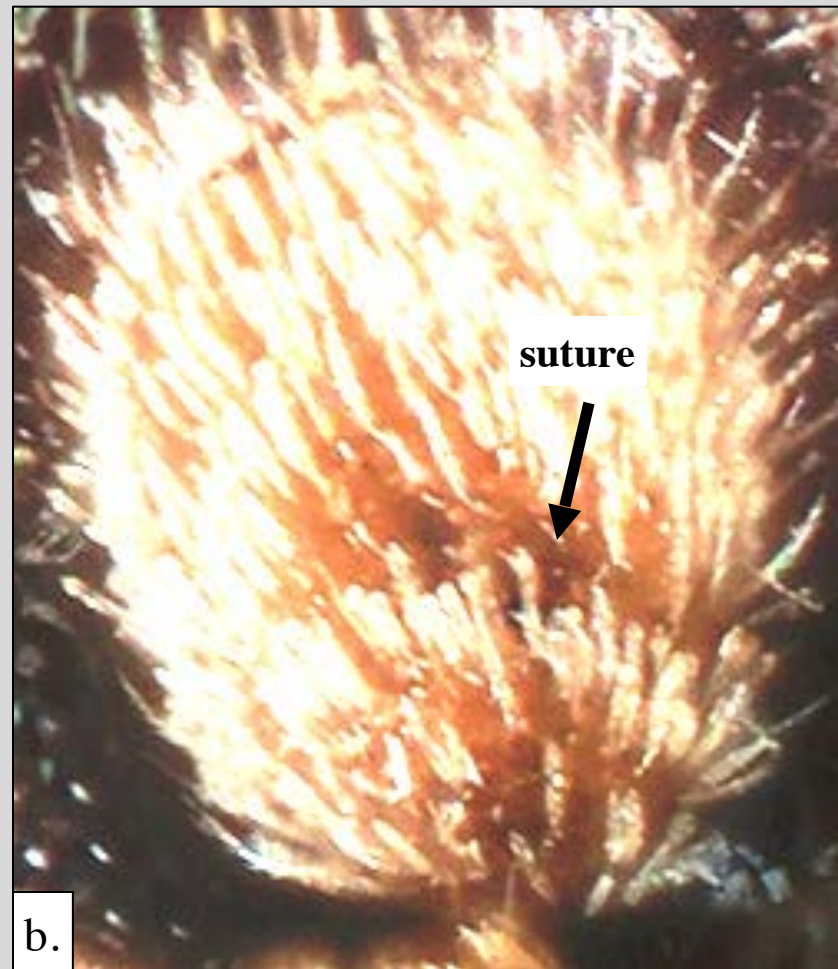


51 (50)

Antennal club with three procurved sutures (a) (WV).....*Ernoporicus*

Antennal club with only a partial and oblique suture in the basal half (b) (FL, MX).....*Scolytogenes*

a. No image available at this time.



Ernoporicus



Courtesy of T.H. Atkinson

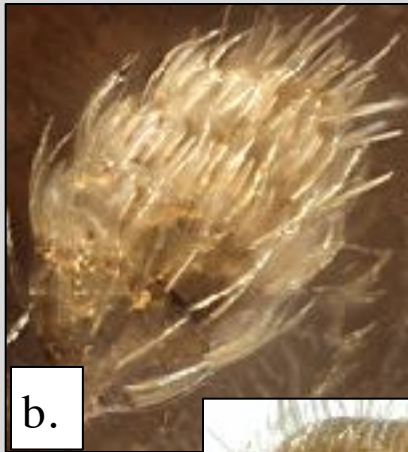
Scolytogenes



52 (48)

Antennal club with sutures recurved (**a**); third tarsal segments broad and apically emarginate (**d**) (this character can be very difficult to see on these small beetles).....*Cryphalus*

Antennal club with sutures straight (**b**) or procurved (**c**); third tarsal segments narrow, cylindrical, and not emarginate at apex (**e**) (this character can be very difficult to see on these often tiny beetles).....**53**



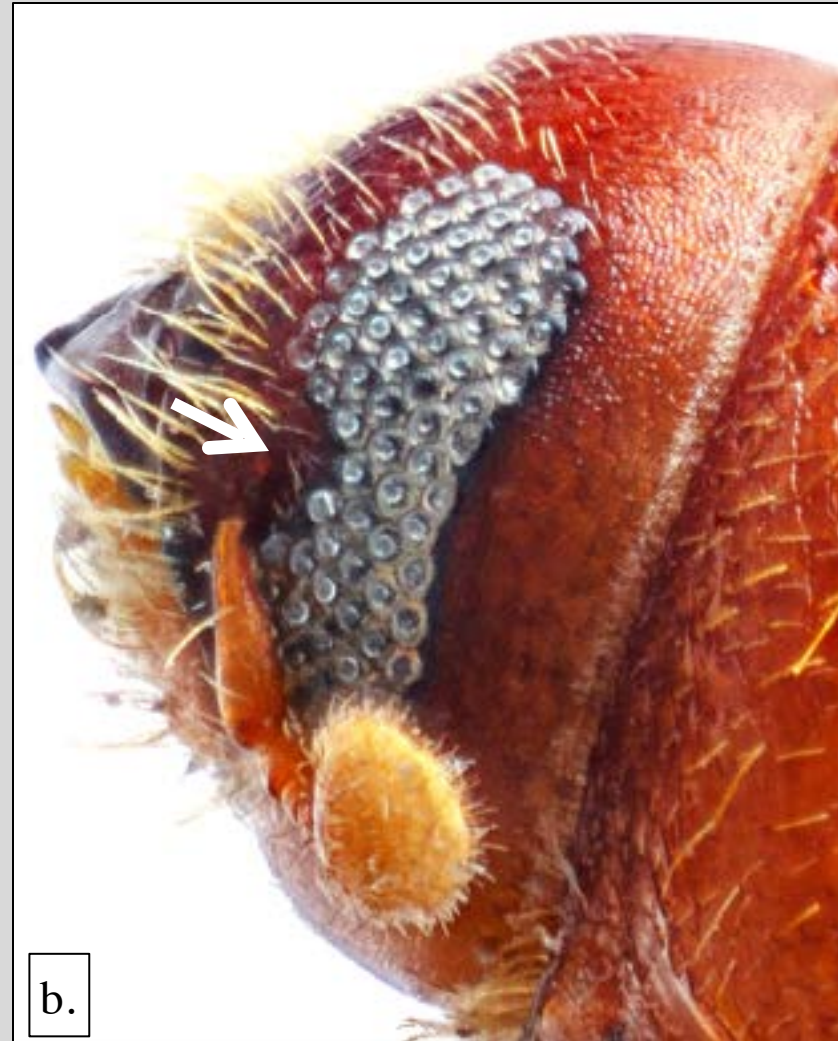
Cryphalus



53 (52)

Eye entire (a); body no more than 1.1 mm in length (SE U.S.).....*Trischidias*

Eye emarginate (b); most with body length greater than 1.1 mm.....54



Trischidias



54 (53)

Elytral striae with punctures virtually absent (a); surface of posterior half of pronotum finely granulate (c) (FL).....*Hypocryphalus* 😞

Elytral striae with large and distinct punctures (b); surface of posterior half of pronotum not granulate, at most punctate (d).....55



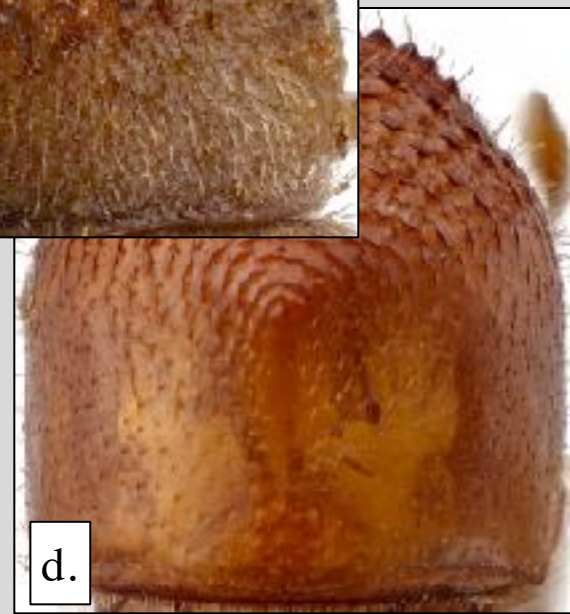
a.



c.



b.



d.

Hypocryphalus 😞



55 (54): Part I

Raised lateral margins of pronotum extend about 2/3 of the distance from the posterior margin to the anterior margin (**a**); elytra are mostly glabrous except for incomplete rows of widely separated interstitial setae (**c**); generally more than 2 mm long (FL, TX, MX).....*Cryptocarenus* 😞

Raised lateral margins of pronotum extend only about 1/3 of the distance from the posterior margin to the anterior margin (this character can be extremely difficult to see on these tiny beetles) (**b**); elytra with complete rows of relatively closely spaced interstitial and strial setae (**d**); generally no more than 1.5 mm long.....*Hypothenemus*



55 (54): Part II



c. Mostly glabrous except for incomplete rows of widely separated setae.

d. Complete rows of relatively closely spaced interstitial and striae setae.



Cryptocarenum 😞



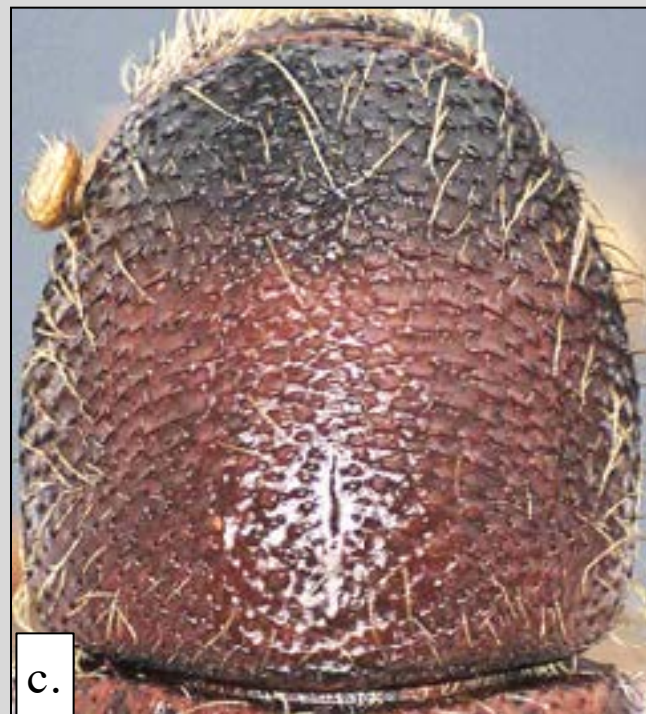
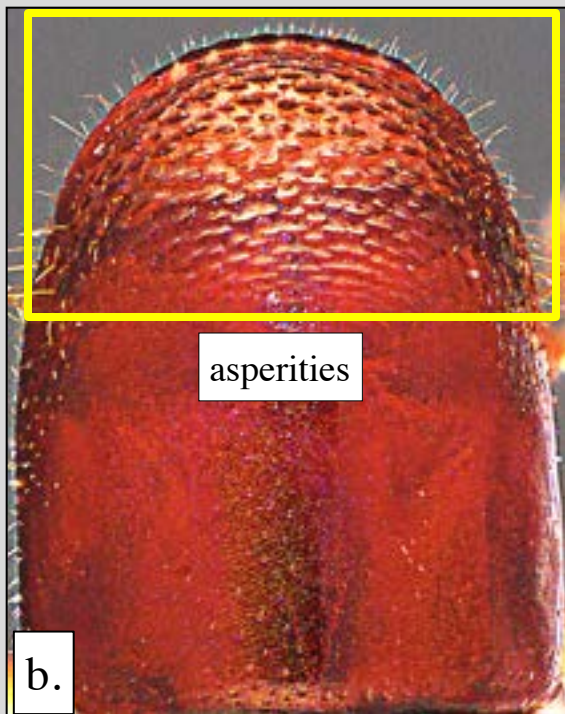
Hypothenemus



56 (47): Part I

Dorsal surface of pronotum punctate over entire surface and without asperities (**a**); antennal club sutures either incomplete (**d**) or transverse (**e**); antennal funicle 2- (**d**) or 3-segmented (**e**); body slender (**i-j**) and no more than 2 mm long.....**57**

At least anterior half of dorsal surface of pronotum almost always asperate (**b**) and sometimes completely asperate (**c**), but if only punctate, body is larger and stouter and the first antennal club segment is obliquely truncate in lateral view and is corneous (**inset**); antennal club sutures absent (**f**) or complete and either procurved (**g**) or recurved (**h**); antennal funicle 4- (**f**) or 5-segmented (**g-h**); bodies of most are stout (**k-o**) and over 2 mm long.....
.....**58**



56 (47): Part II



Antennal clubs: (d) sutures incomplete, funicle 2-segmented; (e) sutures transverse, funicle 3-segmented; (f) no sutures, funicle 4-segmented; (g) sutures procurved, 5-segmented funicle; (h) sutures recurved, 5-segmented funicle.

56 (47): Part III

i-j: Bodies slender.



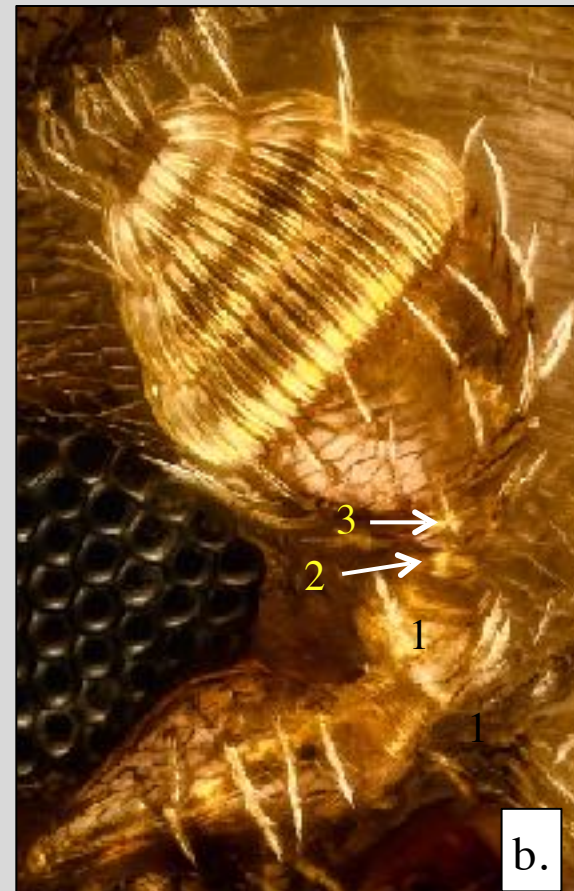
k-o: Bodies stout.



57 (56)

Antennal club with an incomplete oblique suture at about middle and antennal funicle 2-segmented (on these small beetles, funicular segmentation is difficult to see and the funicle appears 1-segmented) (a).....*Crypturgus*

Antennal club with 3 distinct, complete, transverse sutures and antennal funicle 3-segmented (b) (west of the Rocky Mountains).....*Dolurgus*



Crypturgus



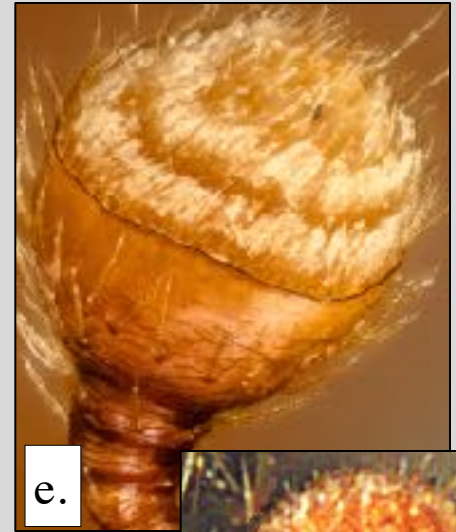
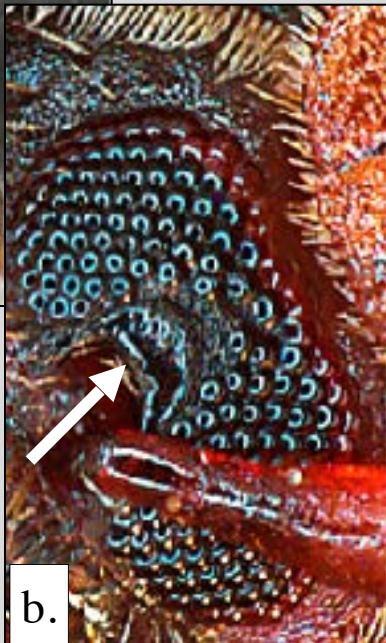
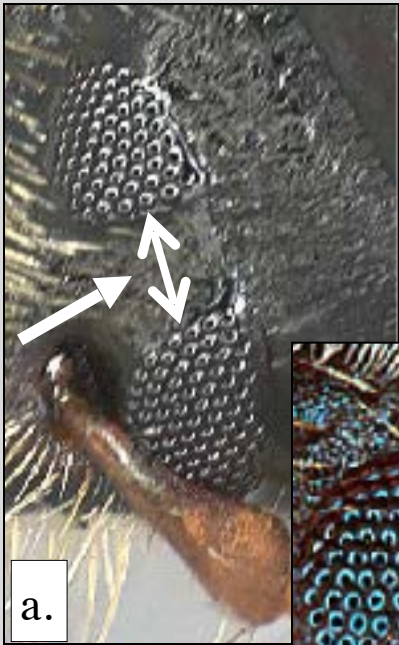
Dolurgus



58 (56)

Each eye completely divided into 2 parts (a); antennal club without sutures (c-d)59

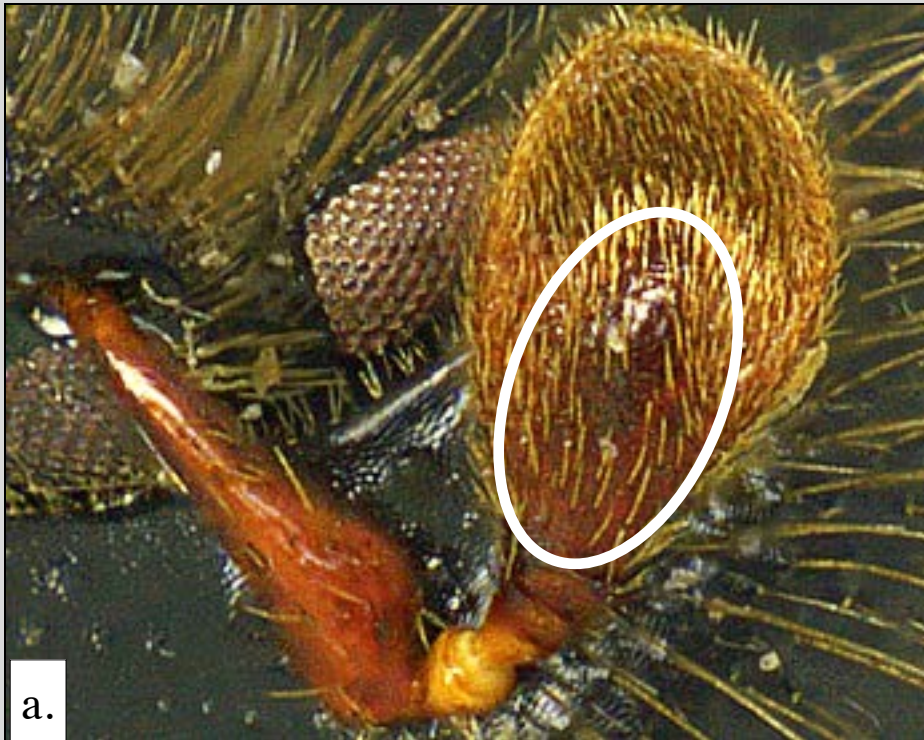
Each eye with anterior margin at most sinuate or emarginate (b); at least anterior face of antennal club with sutures (e-f).....60



59 (58): Part I

Antennal club with subcorneous basal area strongly and narrowly procurved (**a**); anterior margin of pronotum without distinct tubercles (**c-d**) and males with anterior margin truncate (**d**); males with deeply concave frons (**f**) (one exotic species known from British Columbia and Washington).....*Trypodendron* 😞

Antennal club with subcorneous basal area broadly procurved (**b**); anteromedial margin of pronotum with 4 distinct tubercles (in full dorsal view) and convex in both sexes (**e**); frons of both sexes convex (**g**) (exotic in w. N.A.).....*Xyloterinus*

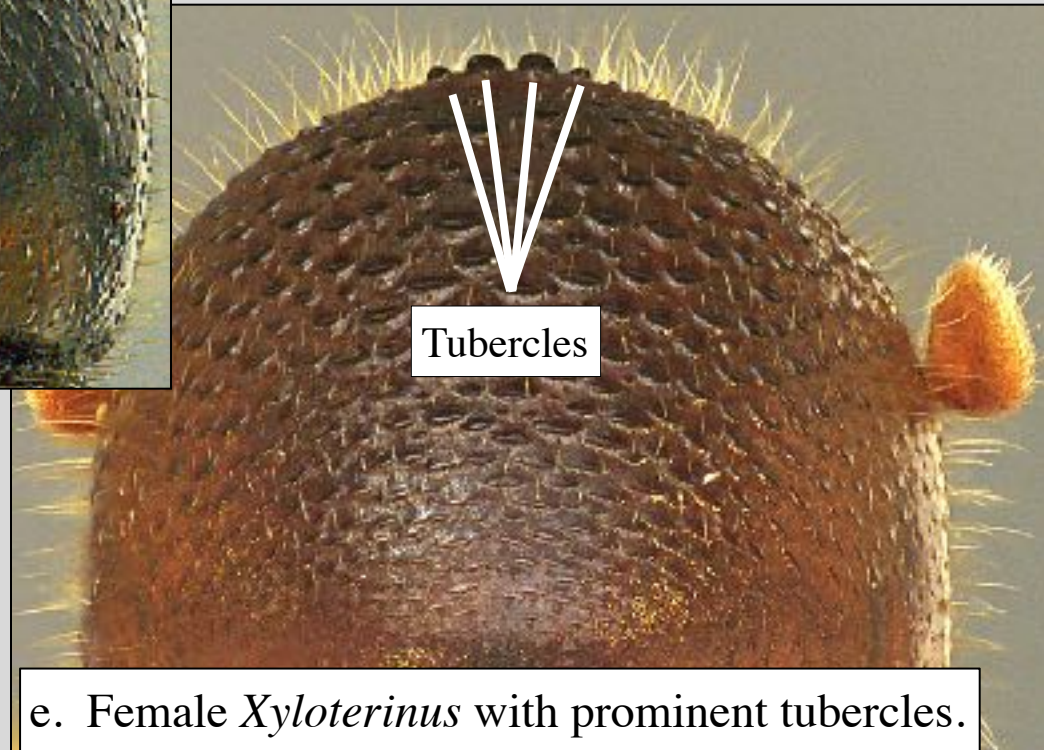


59 (58): Part II

c. Female *Trypodendron*,
tubercles not prominent.



d. Male *Trypodendron*, anterior margin
truncate.



e. Female *Xyloterinus* with prominent tubercles.

59 (58): Part III



f. Male *Trypodendron*, frons concave.

g: Male *Xyloterinus*, frons convex.



Trypodendron 🙄



Female



Male

Xyloterinus



Female

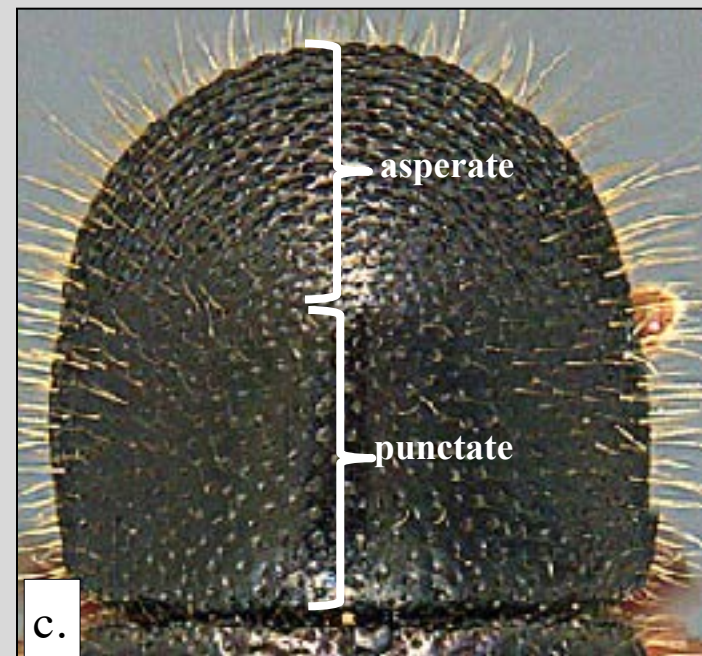
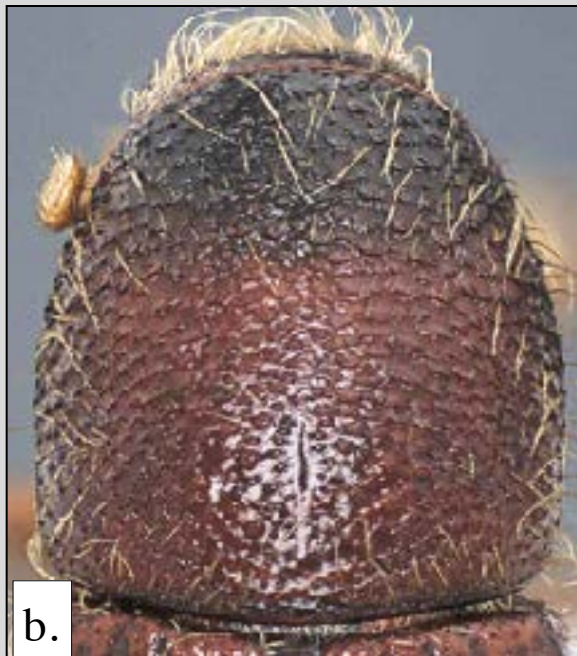


Male

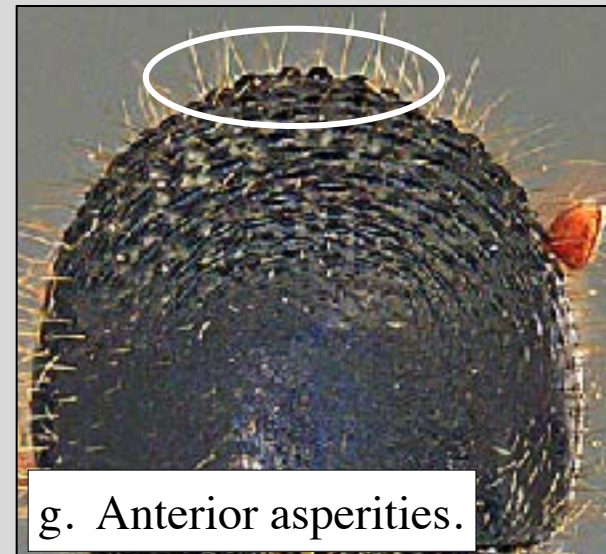
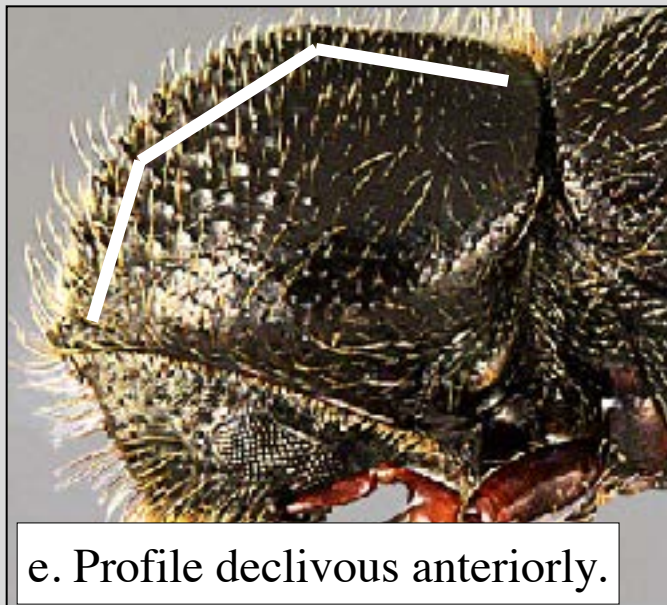
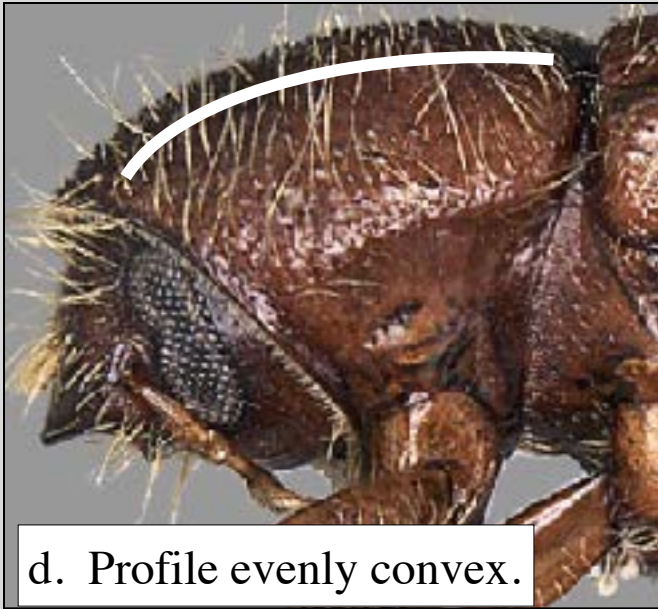
60 (58): Part I ■

Pronotum either punctate (**a**) or rugose/asperate (**b**) over almost entire dorsal surface (*Coccotrypes*, *Lymantor* exceptions – couplets 62, 63), dorsal profile evenly convex and not strongly declivous anteriorly (**d**), anterior margin never with asperities (**f**); elytral declivity with at most very small tubercles, never with asperities or spines (**h**).....**61** ■

Dorsal surface of pronotum coarsely asperate in at least anterior third, otherwise punctate (**c**), dorsal profile strongly declivous anteriorly (**e**), anterior margin sometimes with asperities or tubercles (**g**); elytral declivity often with asperities or spines (**i-l**).....**65** ■



60 (58): Part II



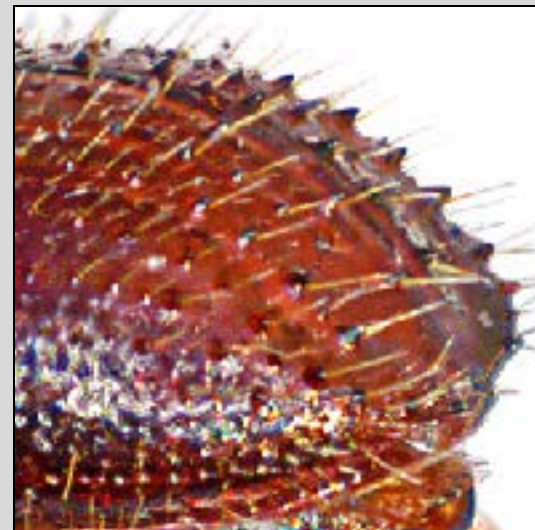
60 (58): Part III



h: Elytral declivity without spines
(small tubercles may be present).



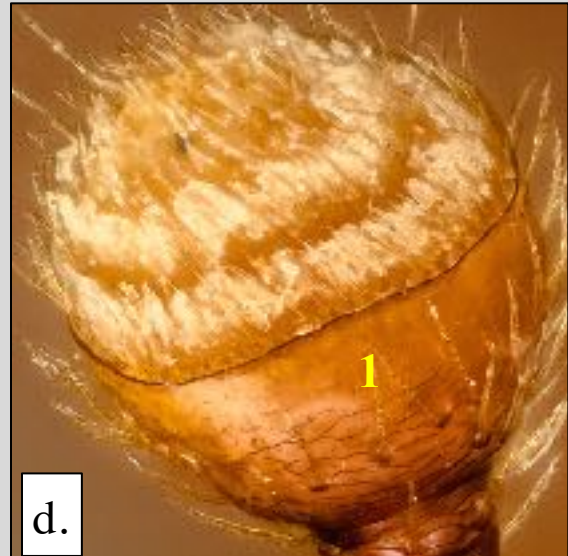
i-l: Elytral declivity with spines.



61 (60): Part I

In lateral view, the first segment of the antennal club is flattened on both anterior and posterior faces (**a**), in anterior view, first segment is relatively narrow, not extending to sides of club (**c**); body slender (**e-f**).....**62**

In lateral view, anterior face of first segment of antennal club is convex and also anteriorly obliquely truncate (**b**), in anterior view, first segment extends across entire base of club (**d**); body stout (**g-i**).....**63**



61 (60): Part II

e-f: Body slender.

g-i: Body stout.



e.

f.

g.

h.

i.

62 (61)

Dorsal surface of pronotum rugose or asperate throughout its length (a)
.....*Dendrocranulus*

Dorsal surface of pronotum asperate in no more than anterior half, only
coarsely punctate in posterior half (b) (Alaska & east of the Rocky
Mountains).....*Lymantor*



Dendrocranulus



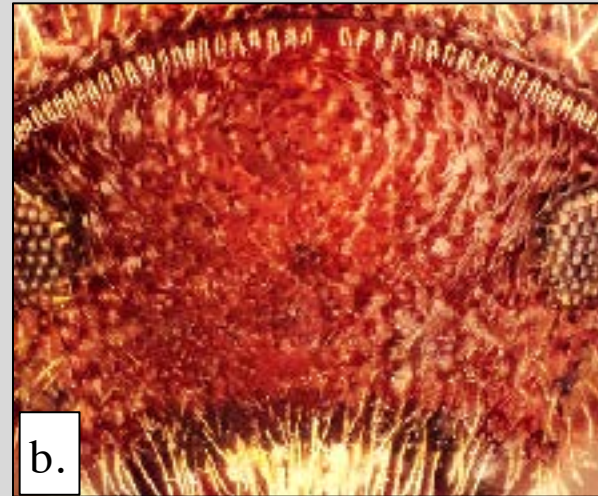
Lymantor



63 (61): Part I

Frons with fine striae converging toward mandibles (**a**); protibia with 2-4 socketed teeth (**d**) (in the West in palm and other seeds in California).....*Coccotrypes* 😞

Frons punctate (**b**) or asperate (**c**), without fine, convergent striae; protibia with at least 5 socketed teeth (**e-f**).....**64**



63 (61): Part II

d: Protibia with 2-4 socketed teeth.

e-f: Protibia with at least 5 socketed teeth.



Coccotrypes 😞



64 (63): Part I ■

Scutellum very small, convex, and bead-like (**a**); tibiae broadest about mid-length and with many fine teeth of about the same size evenly distributed on the outer lateral margins (**c-e**); anterior face of protibia with deep, broad, sharply defined tarsal channel (**i**) (in North America, only known from palm seeds in California)....

.....*Dactylotrypes* 😞

Scutellum much larger and plate-like (**b**); tibiae broadest at or near apices and with only a few coarse teeth dissimilar in size and unevenly distributed on the outer lateral margins (**f-h**); anterior face of protibia at most with a shallow, shallow, and poorly defined tarsal channel (**j**).....*Dryocoetes*

a: Scutellum very small, bead-like.

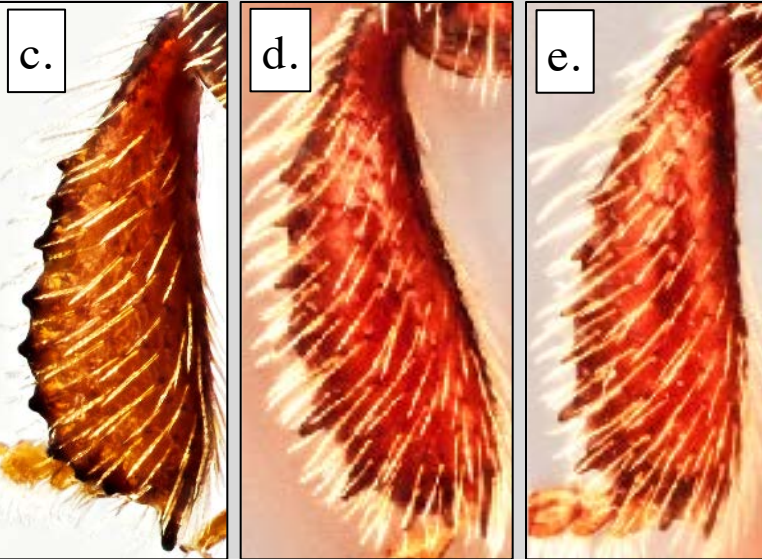


b: Scutellum much larger, plate-like.

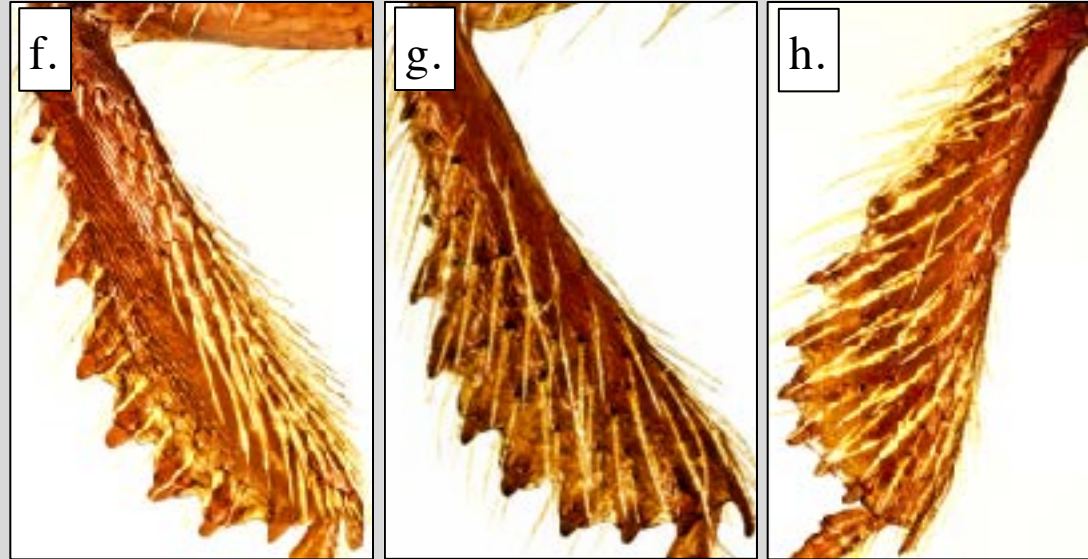


64 (63): Part II

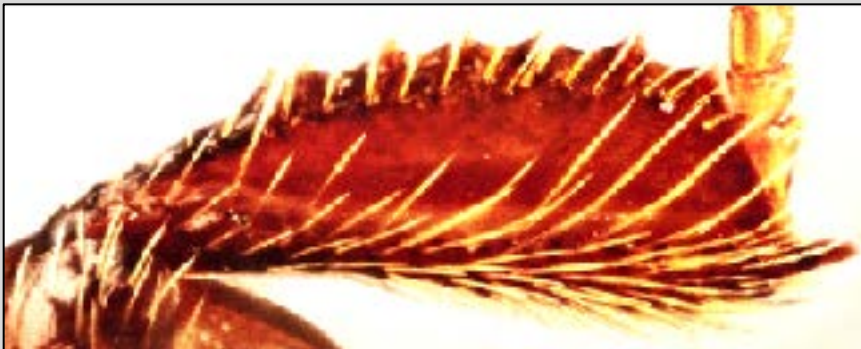
c-e: Pro- (c), meso- (d), and meta- (e) tibiae with many small lateral teeth.



f-h: Pro- (f), meso- (g), and meta- (h) tibiae with few, dissimilarly-sized, lateral teeth.



i: Anterior face of protibia with deep, broad, sharply defined tarsal channel.



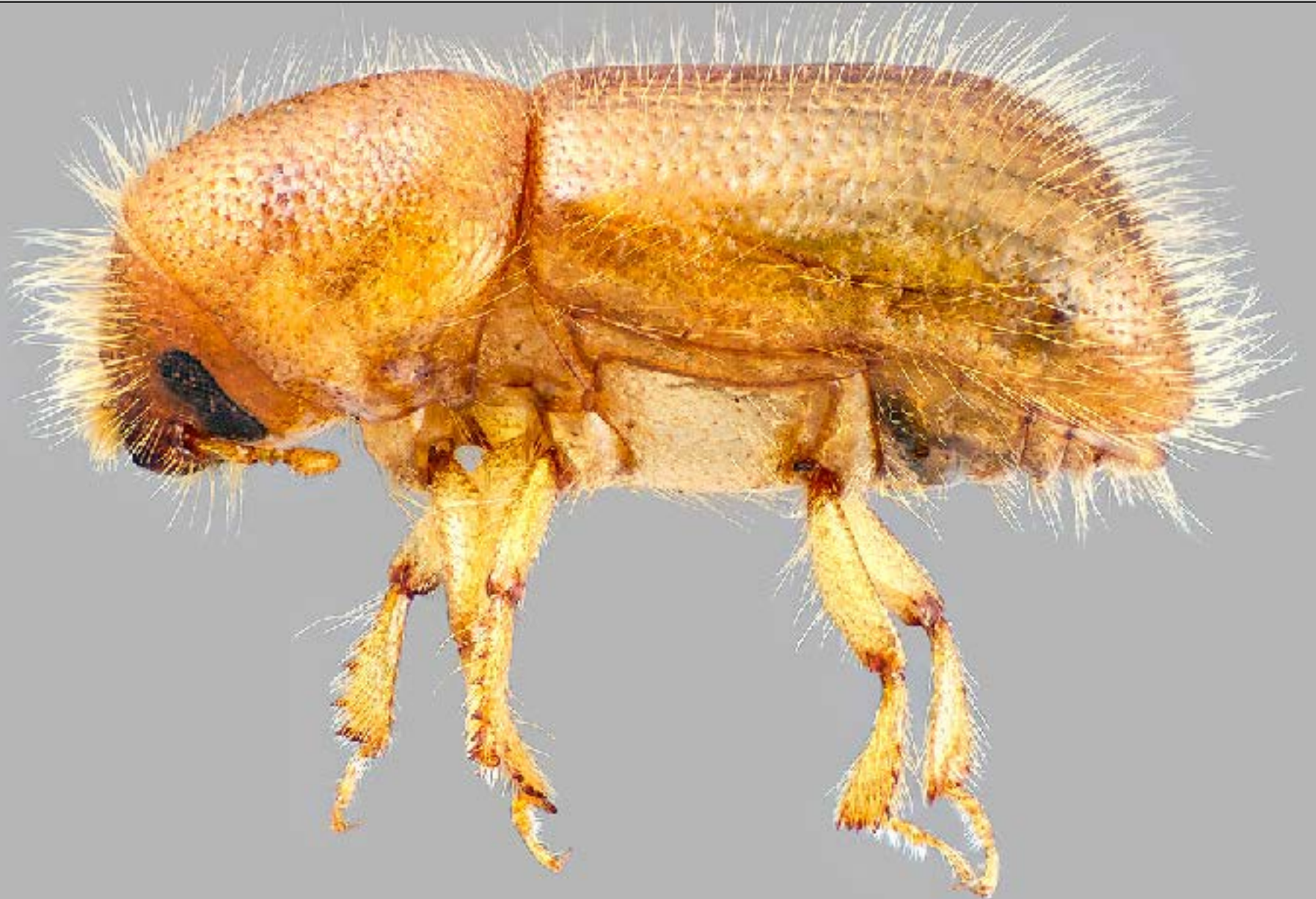
j: Anterior face of protibia with shallow, narrow, poorly defined tarsal channel.



Dactylotrypes



Dryocoetes



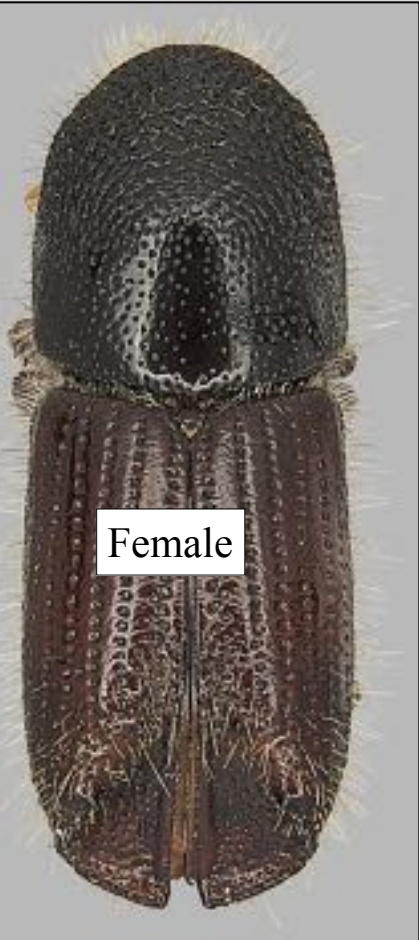
65 (60): Part I ■

Mid- and hind tibiae rather slender, abruptly truncate apically, with a few rather widely spaced coarse teeth on the outer lateral margins (**a**); females and males similar in size and appearance (**c-d**).....**66**

Mid- and hind tibiae rather broadly dilated to a point slightly beyond middle then gradually narrowed to apex, with numerous small closely set teeth on the outer lateral margins (**b**); males rarely encountered, usually smaller and very different in appearance from females (**e-f**).....**70** ■



65 (60): Part II

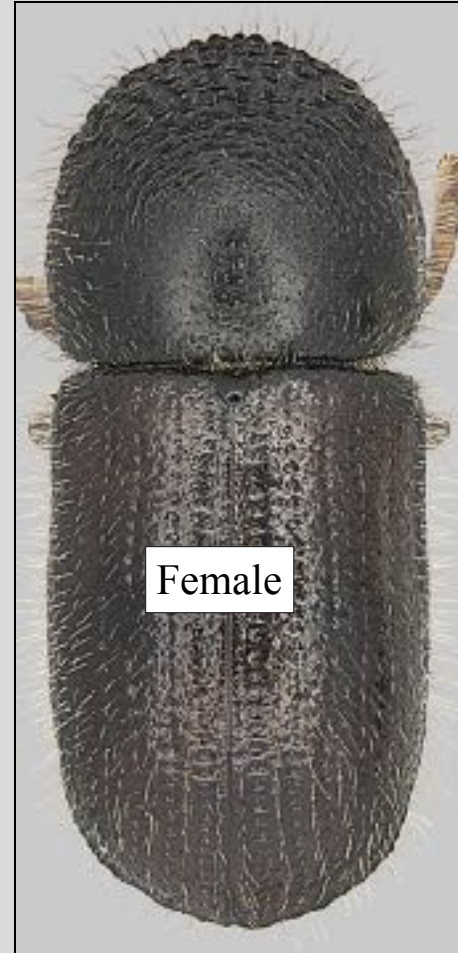


Female



Male

c-d: Females and males similar in appearance and size.



Female



Male

e-f: Females and males different in appearance and size.

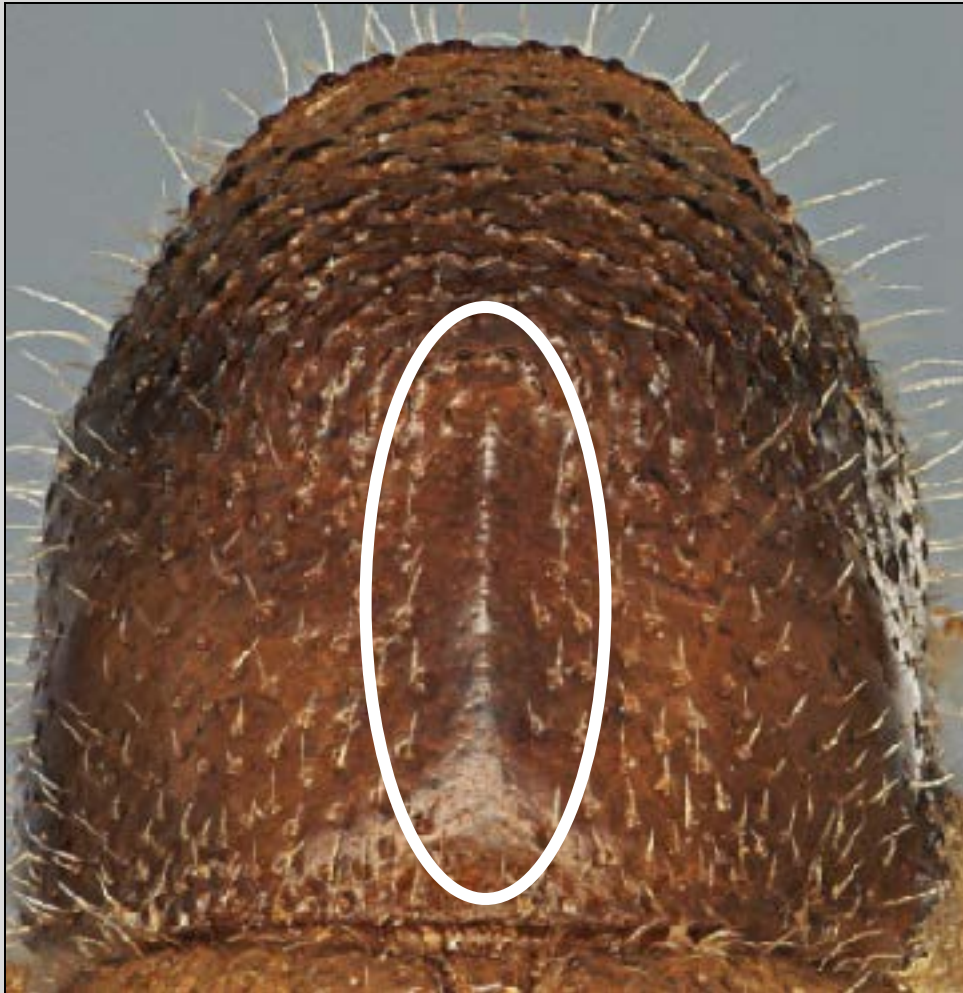
66 (65): Part I

Elytral striae with very small, shallowly impressed punctures (**a**); pronotum with smooth, sharply raised, median ridge in posterior half (**c**); females of most species with large, pubescent medial pit on frons (**e-f**) (one exotic species in the northeastern U.S.).....*Pityogenes* 😞
Elytral striae with large, deeply impressed punctures (**b**); posterior half of pronotum more-or-less evenly convex and without a sharply raised median ridge (**d**); never with a pubescent medial pit on frons (**g-h**).....**67**

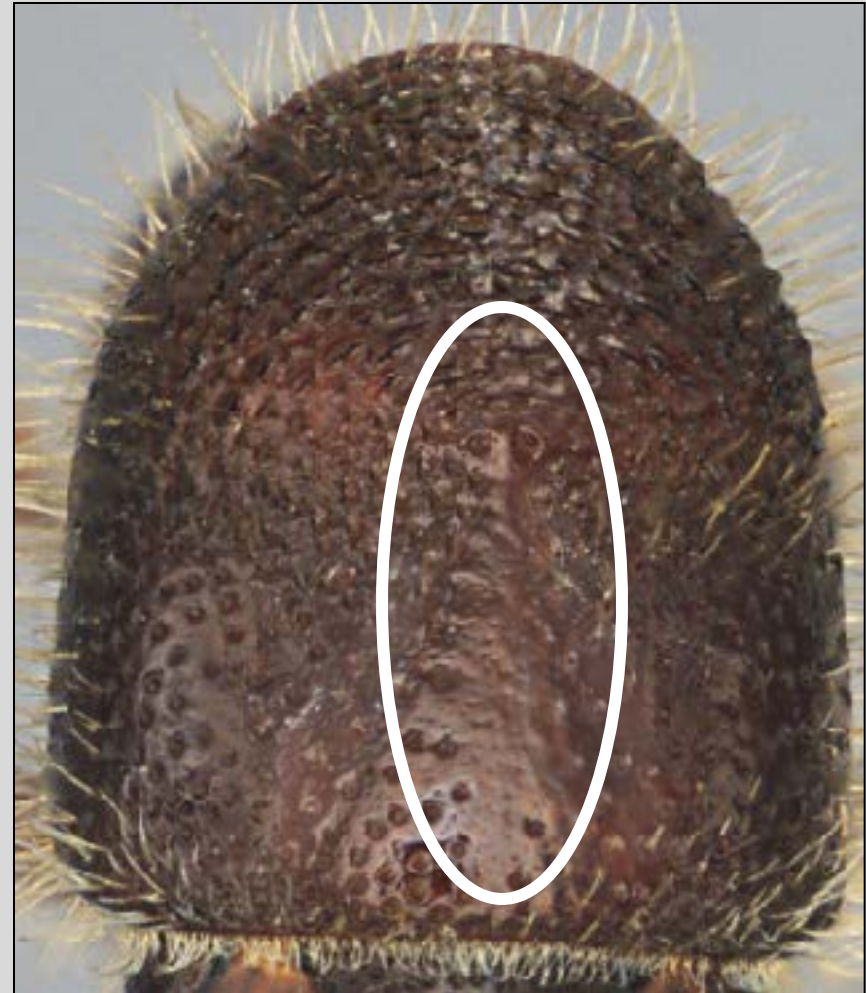


66 (65): Part II

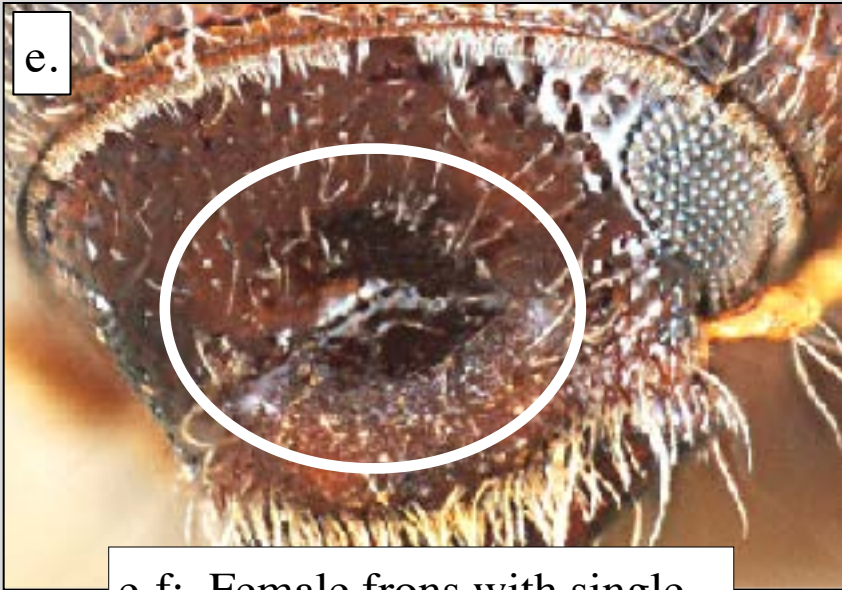
c: Posterior half of pronotum with sharply raised median ridge.



d: Posterior half of pronotum without sharply raised median ridge.



66 (65): Part III



e-f: Female frons with single (e) and with two (f) deep pits .

g-h: Female frons without pits.



Pityogenes



Female



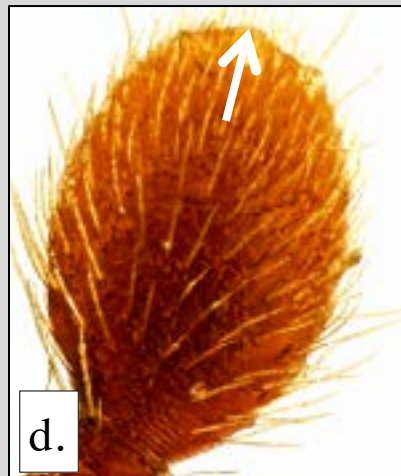
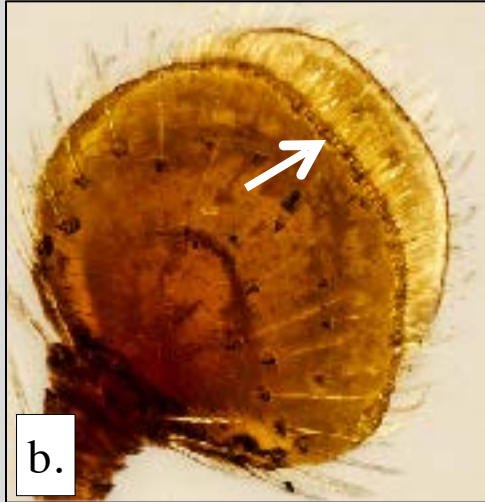
Male

67 (66)

In lateral and posterior views of antennal club, at least one segment extends beyond the apical margin of the first club segment (**a-b**) (one exotic species in California and Utah).....*Orthotomicus* 😞

In lateral (**c**) and posterior (**d-e**) views of antennal club, no segments extend beyond the apical margin of the first club segment (**c-e**).....**68**

a: Lateral antennal club – segment visible beyond apex of first segment.



Orthotomicus 🙄



Female

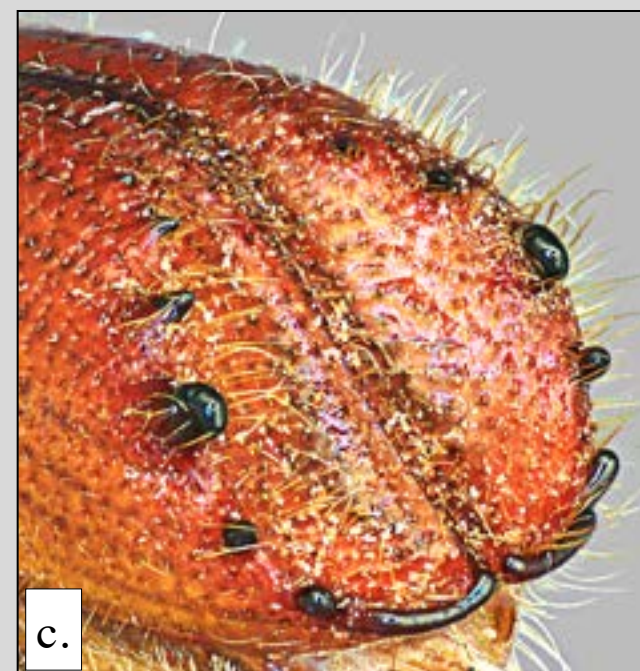
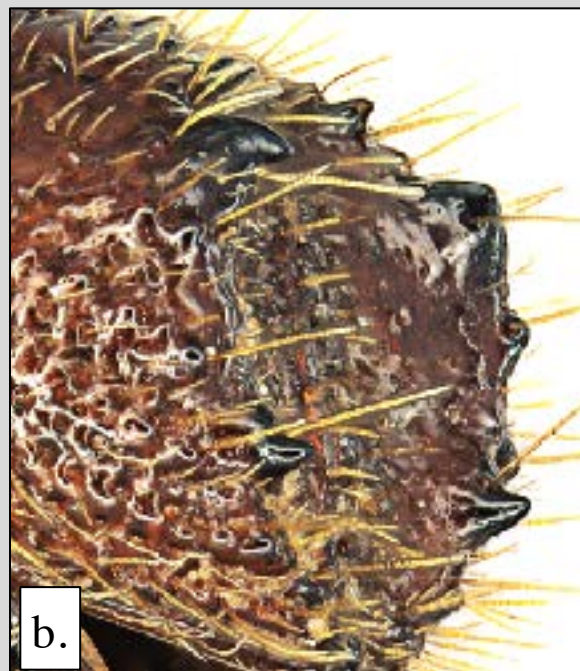


Male

68 (67): Part I

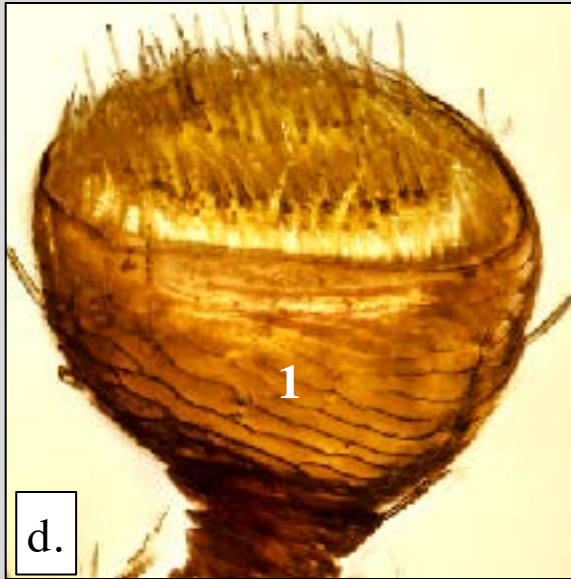
Lower portions of elytral declivity rounded or with a broken, poorly defined carina along the lower margins: female elytral declivity narrowly excavated and depressed (most strongly on either side of suture) (**a**); male elytral declivity broadly depressed and excavated (**b**); first antennal club segment occupying at least half of the anterior face, with sutures recurved (**d**) or transverse (**e**).....*Pityokteines*

Elytral declivity always broadly depressed and excavated, with a continuous and well-defined carina along the lower margins (**c**); first antennal club segment occupying much less than half of the anterior face, with sutures procurved (**f-g**)....**69**



68 (67): Part II

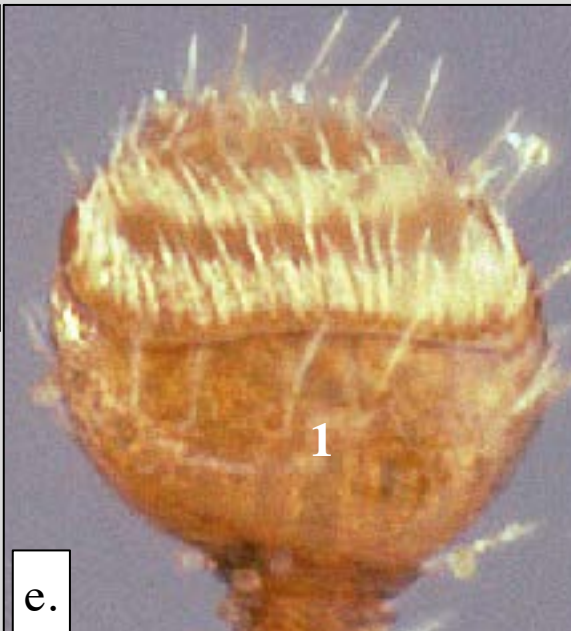
d. First segment covering at least half of club, with recurved sutures.



f-g: First segment covering much less than half of club, with procurved sutures.



e. First segment covering at least half of club, with transverse sutures.



Pityokteines



Female

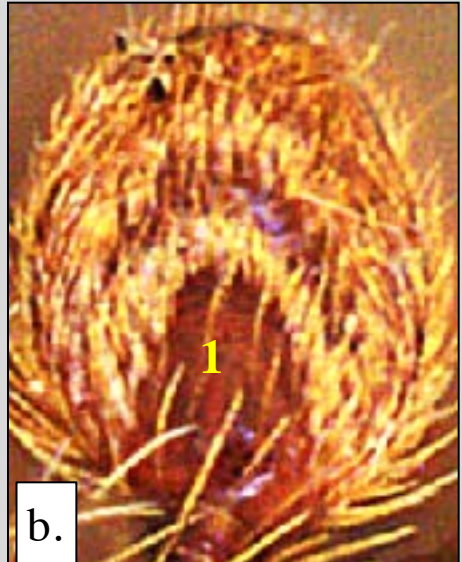
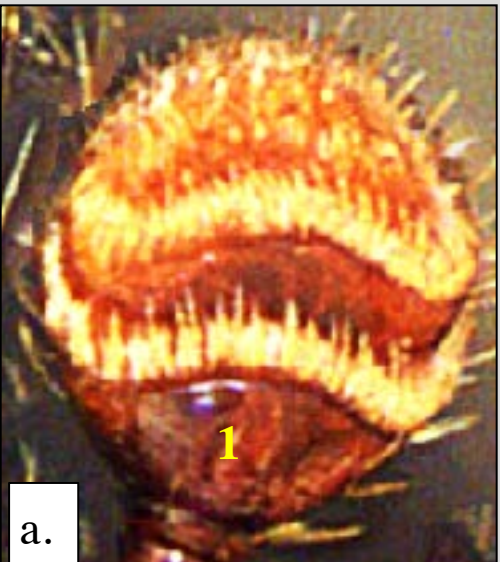


Male

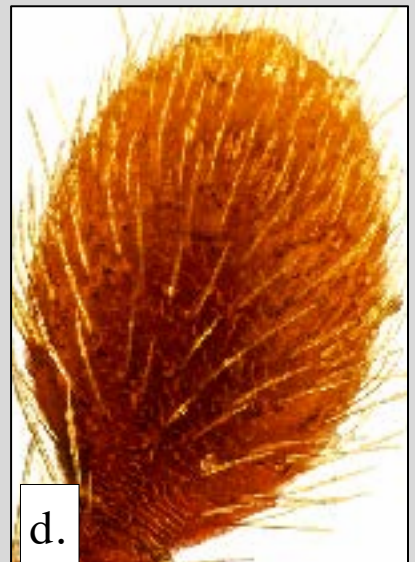
69 (68): Part I ■

Anterior face of first antennal club segment broad, extending to lateral margins of anterior face (a); posterior face of antennal club with at most only scattered, short pubescence, so surface mostly glabrous and shiny (c); elytral declivity with at least 4 major spines per side (e-g) (*Ips emarginatus* may have only 3 spines per side (h))..

.....*Ips*
Anterior face of first antennal club segment oval and narrowed, not extending to lateral margins of anterior face (b); posterior face of antennal club densely covered with long pubescence, so without luster (d); elytral declivity with 3 major, pointed spines on each side (i) (*Ips emarginatus* often have 3 spines per side but the third “spine” is very broad and flattened (h)).....*Pseudips*



No image currently available.

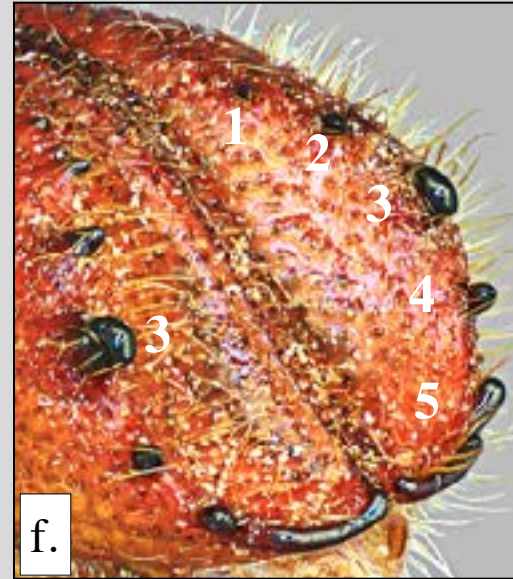


69 (68): Part II

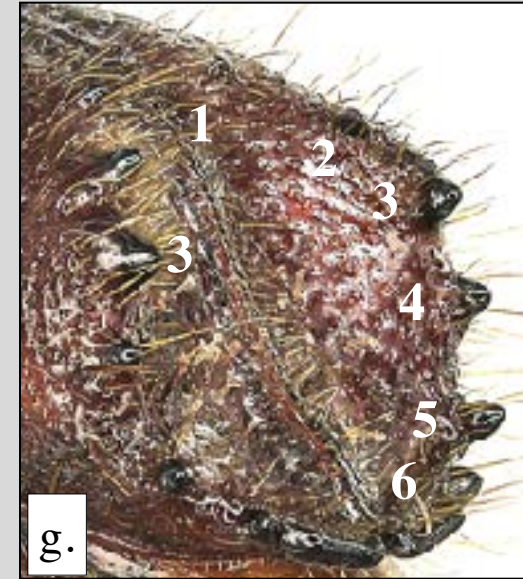
e-g: Elytral declivity of *Ips* with 4 (e), 5 (f), or 6 (g) major spines per side.



e.

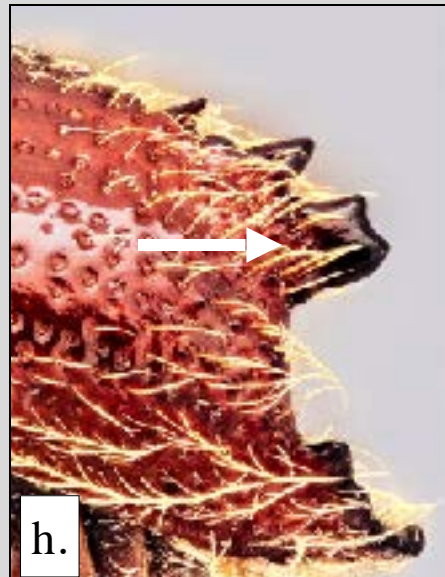


f.

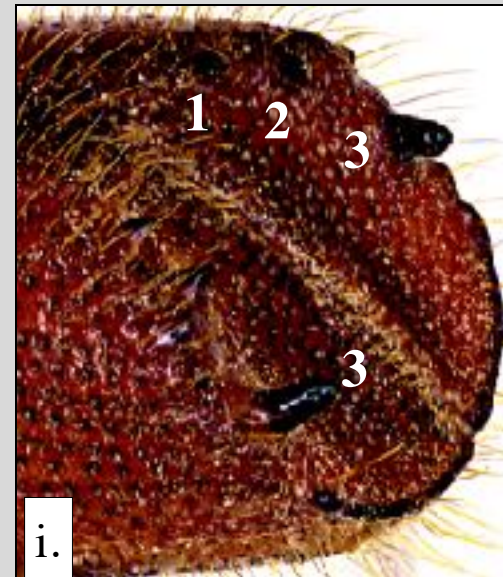


g.

h. Elytral declivity of *Ips emarginatus* with 3 major spines per side (spine 3 flattened and emarginate).



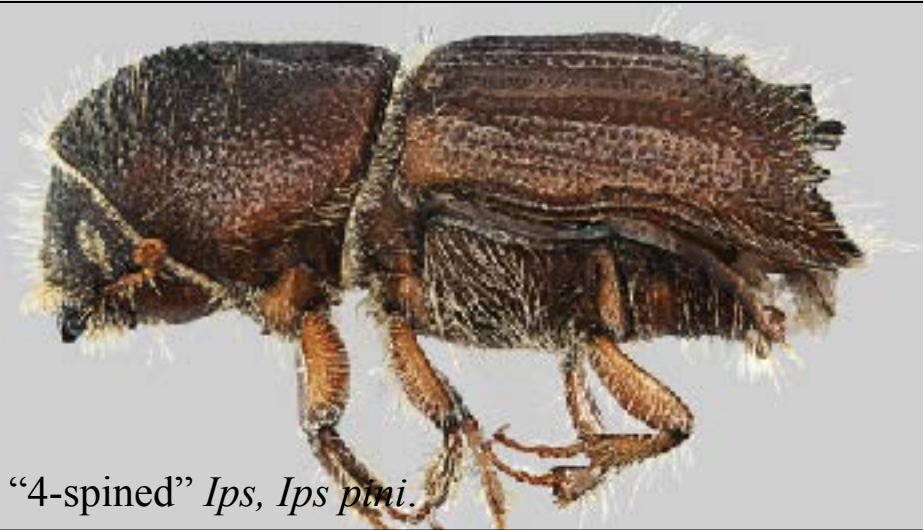
h.



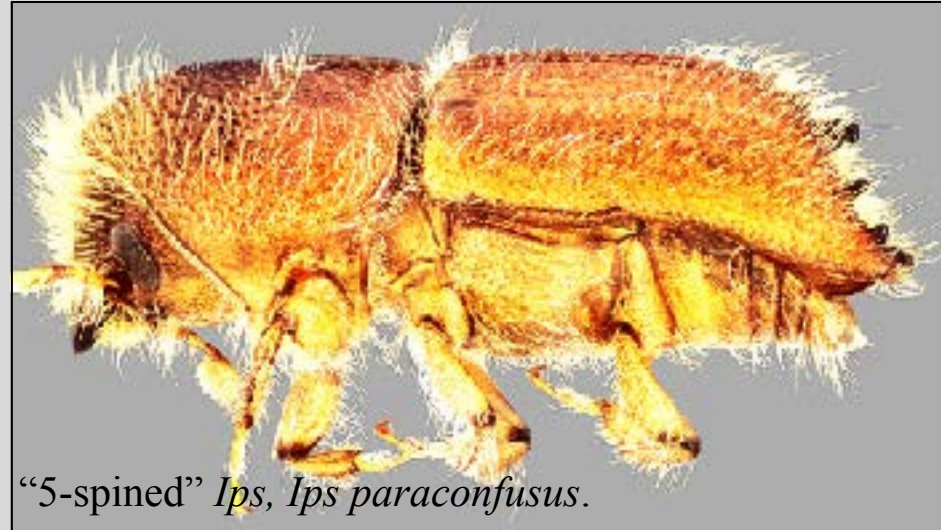
i.

i. Elytral declivity of *Pseudips* with 3 major spines per side.

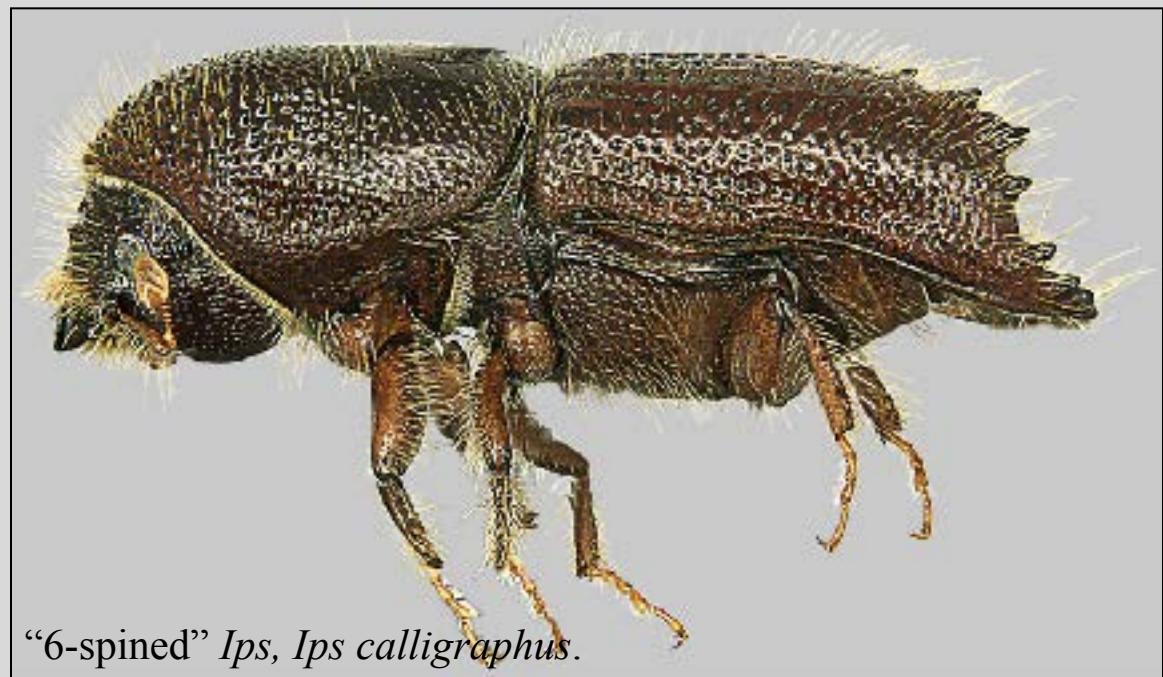
Ips



“4-spined” *Ips*, *Ips pini*.



“5-spined” *Ips*, *Ips paraconfusus*.



“6-spined” *Ips*, *Ips calligraphus*.

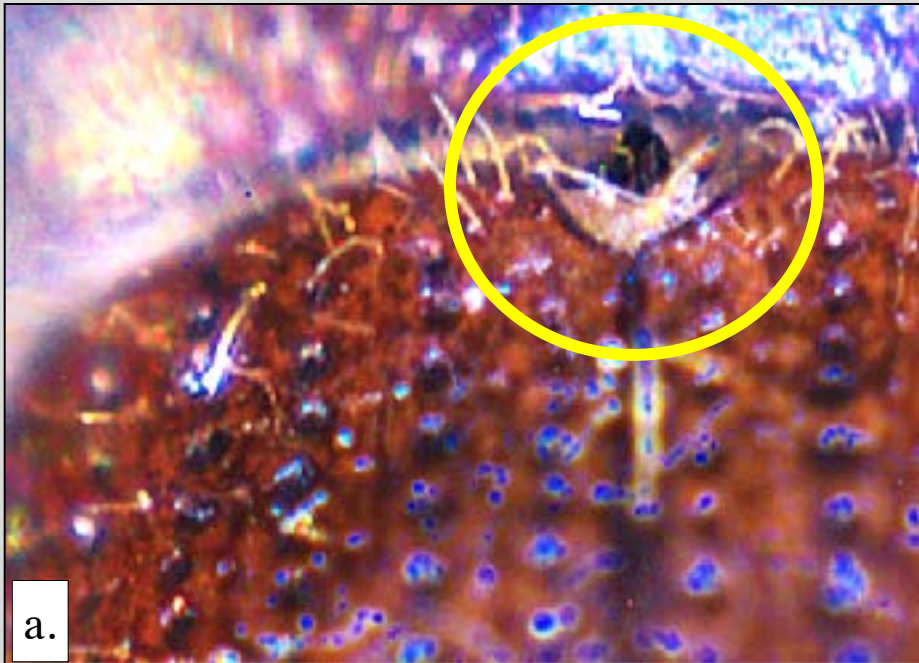
Pseudips



70 (65) ■

Scutellum conical and set within a setiferous pit at the anterior of the elytral suture (a)*Xyleborinus* 😞

Scutellum variable but not as above (most often a flat plate in the same plane as the elytra) (b).....71



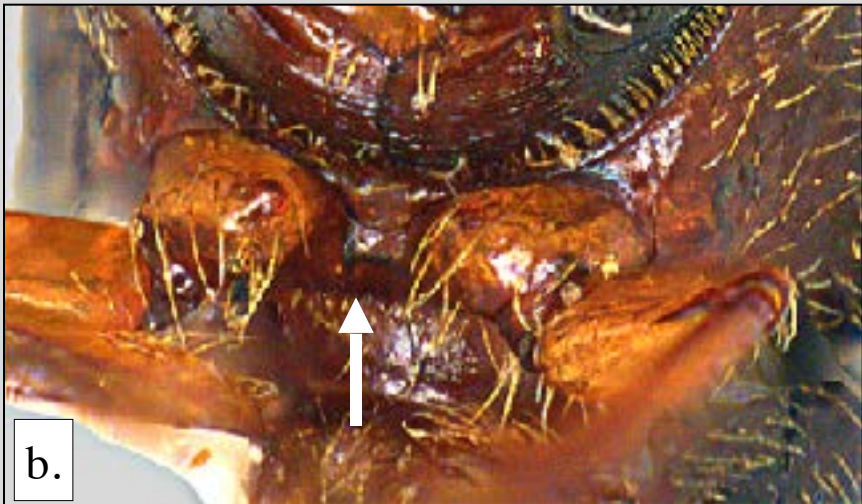
Xyleborinus 😞



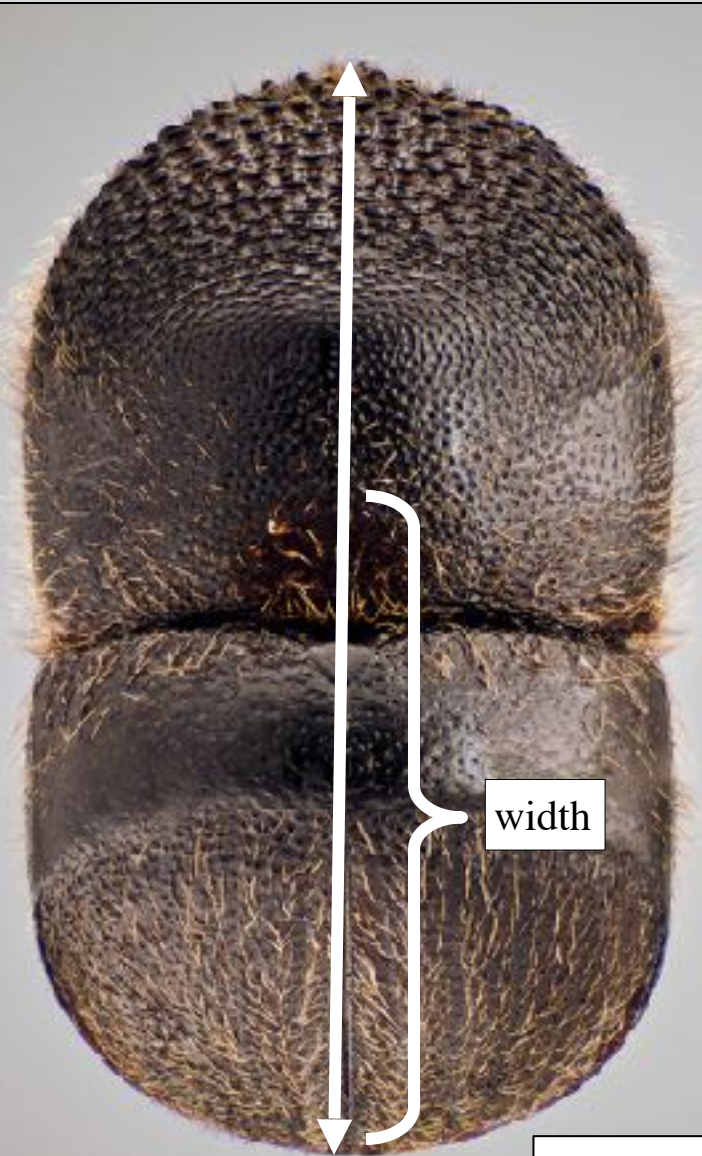
71 (70): Part I

Procoxae narrowly (a) or widely (b) separated; body always stout (d-e)...72

Procoxae contiguous (c); body often elongate and slender (f) although some taxa are stout.....73

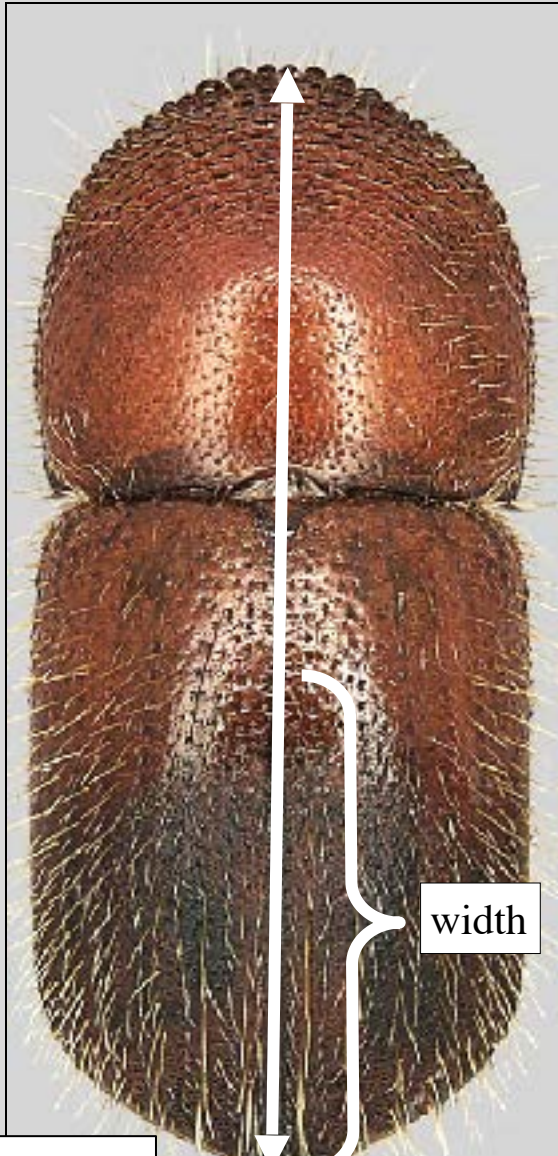


71 (70): Part II

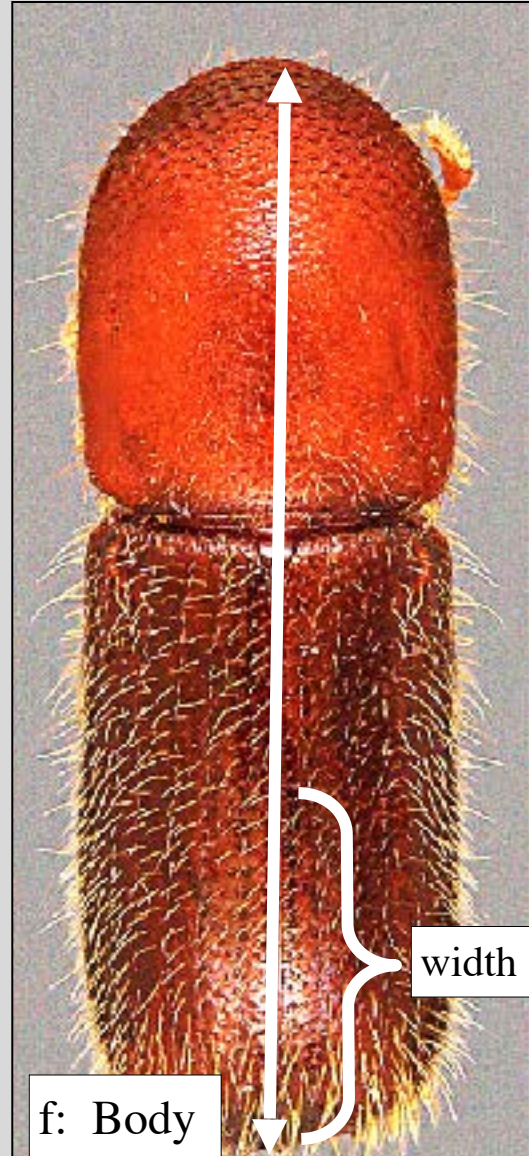


width

d-e. Body stout.



width



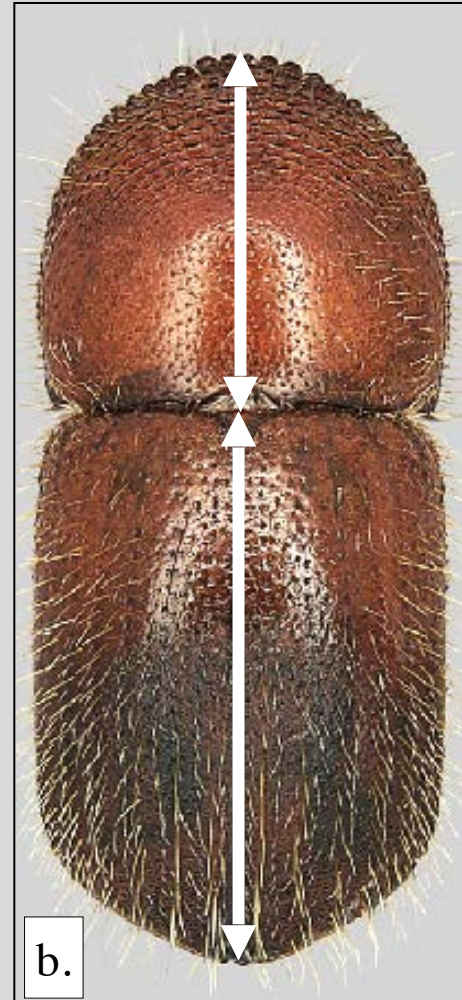
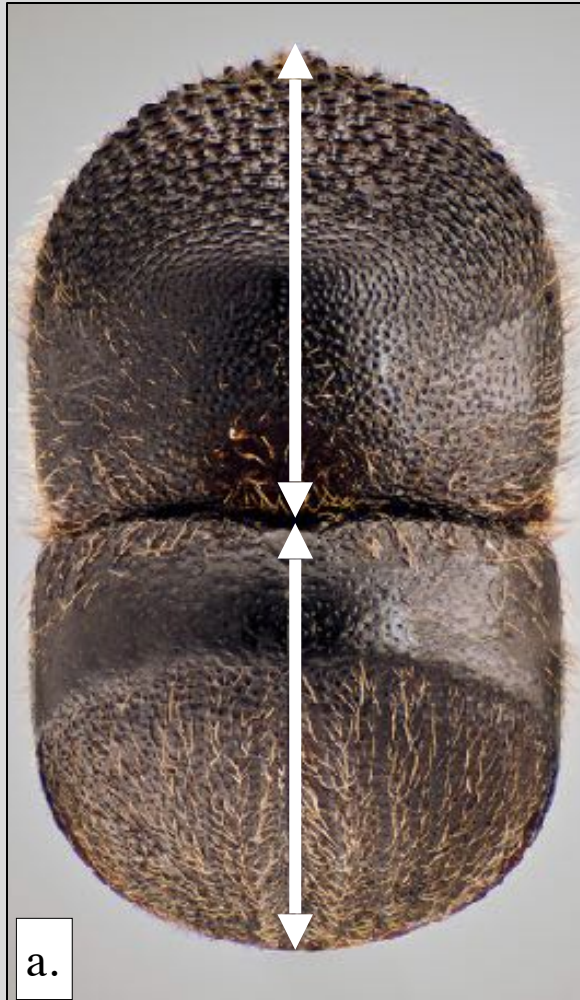
width

f: Body slender.

72 (71)

Elytra shorter than or about the same length as the pronotum (a); ~3.5-4.0 mm in length (east of the Rocky Mountains).....*Cnestus* 😞

Elytra longer than pronotum (b); 3.0 mm or less in length.....*Xylosandrus* 😞



Cnestus



Xylosandrus 🙄



Xylosandrus crassiusculus

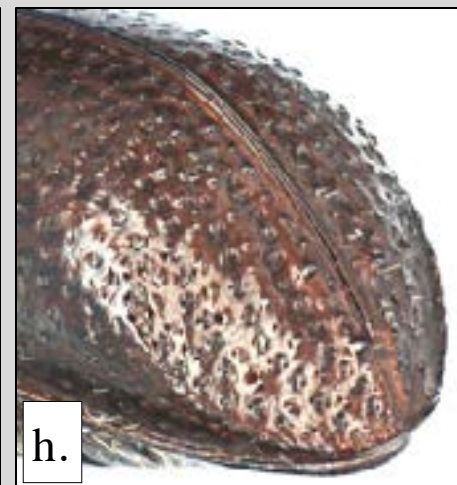
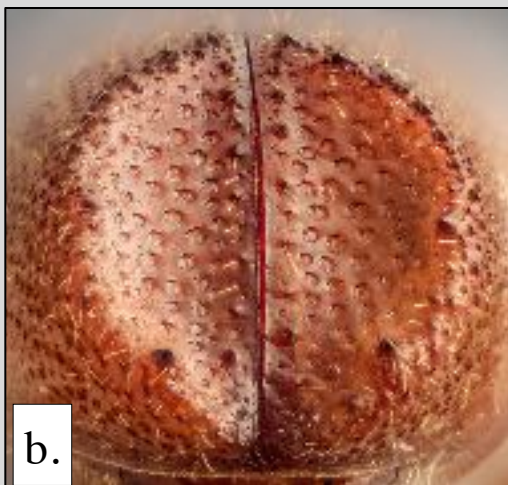


Xylosandrus germanus

73 (71)

Elytral declivity obliquely truncate (**profile image**) and broadly, shallowly depressed (**a**), with a very distinct marginal carina on the dorsal half of the declivity of each elytron (**b**) (Florida, Mexico).....*Premnobius*

Elytral declivity otherwise, without a dorsal semi-circular carina (**c-h**)...74



Premnobi



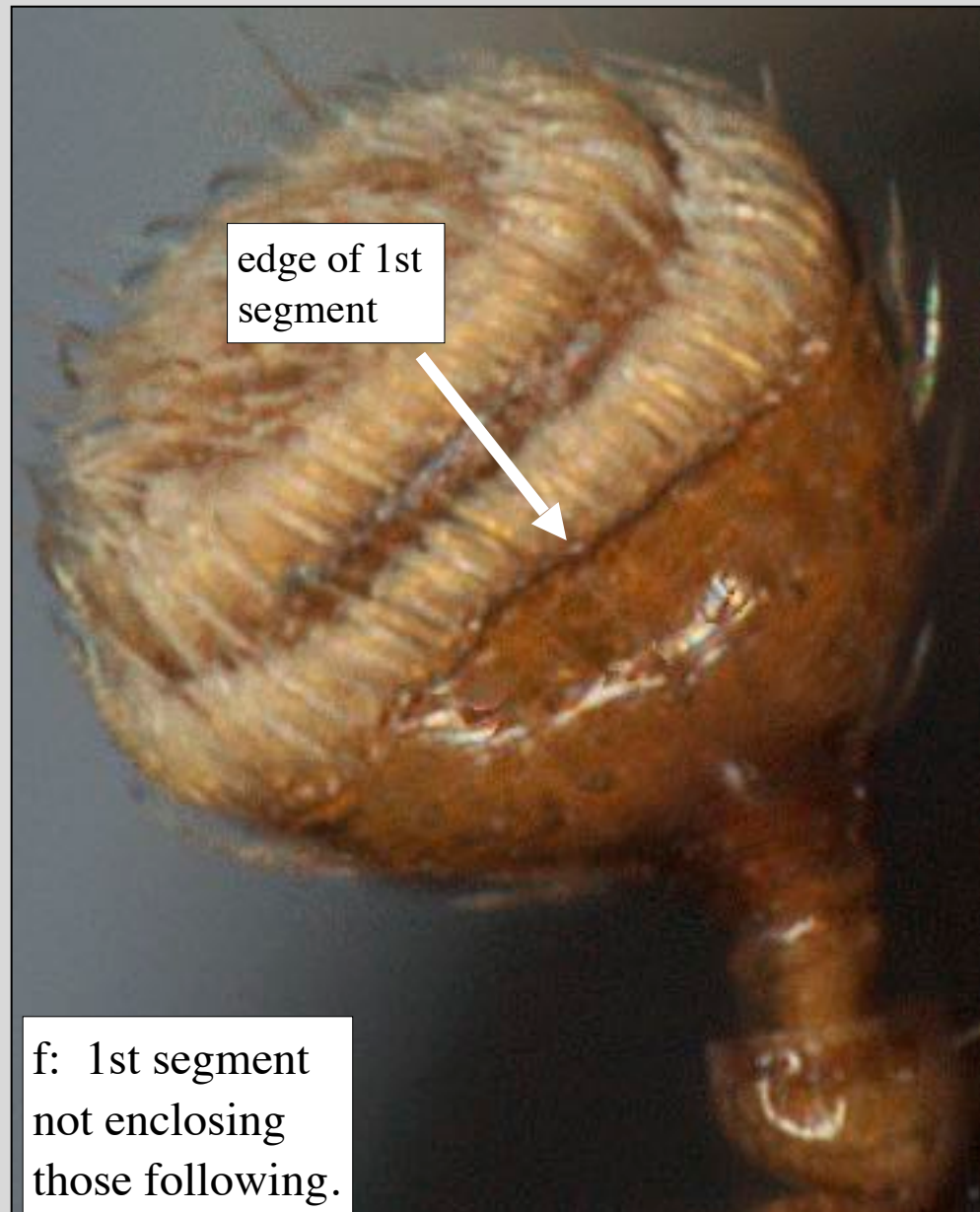
74 (73): Part I

No antennal club segments visible beyond apex of basal corneous segment in lateral (a) or posterior (c) view, basal corneous segment completely cupping subsequent club segments (e).....75

Antennal club with at least one segment visible beyond apex of basal corneous segment in lateral (b) and posterior (d) view, basal corneous segment not completely cupping subsequent club segments (f).....77



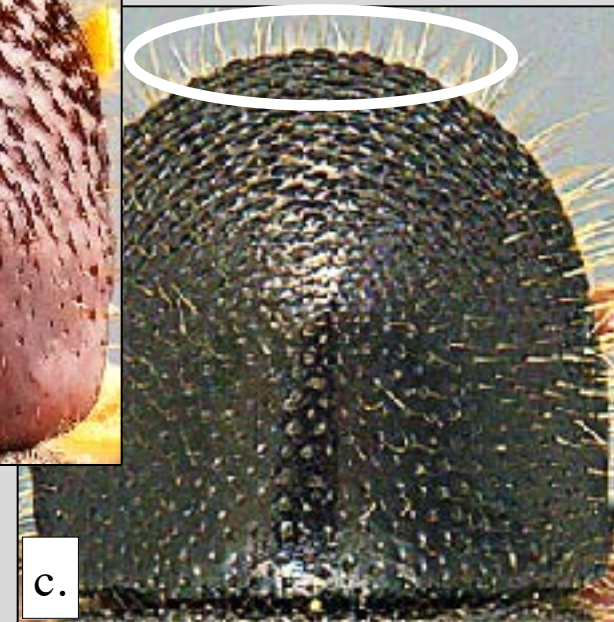
74 (73): Part II



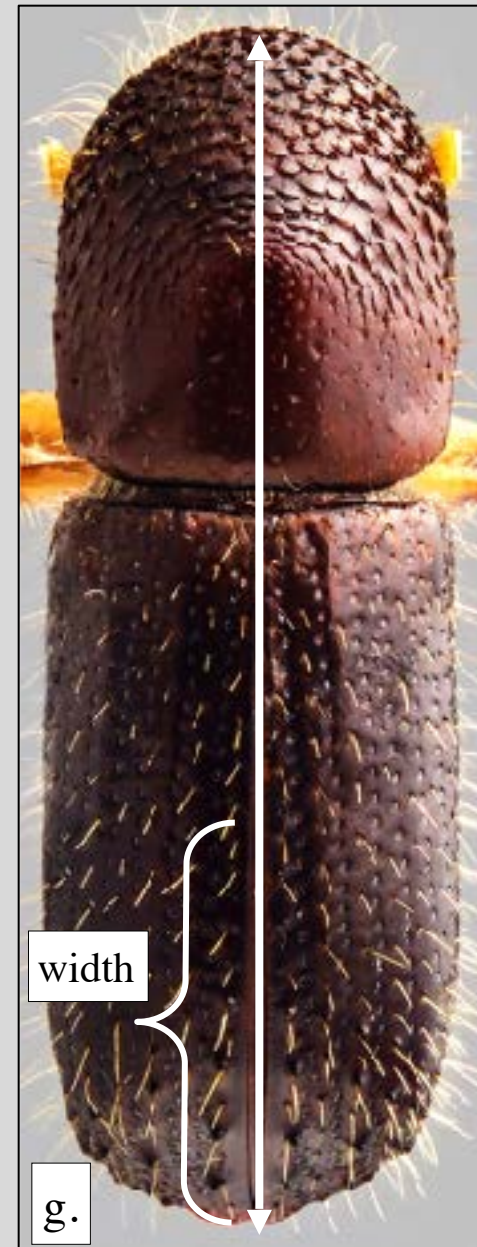
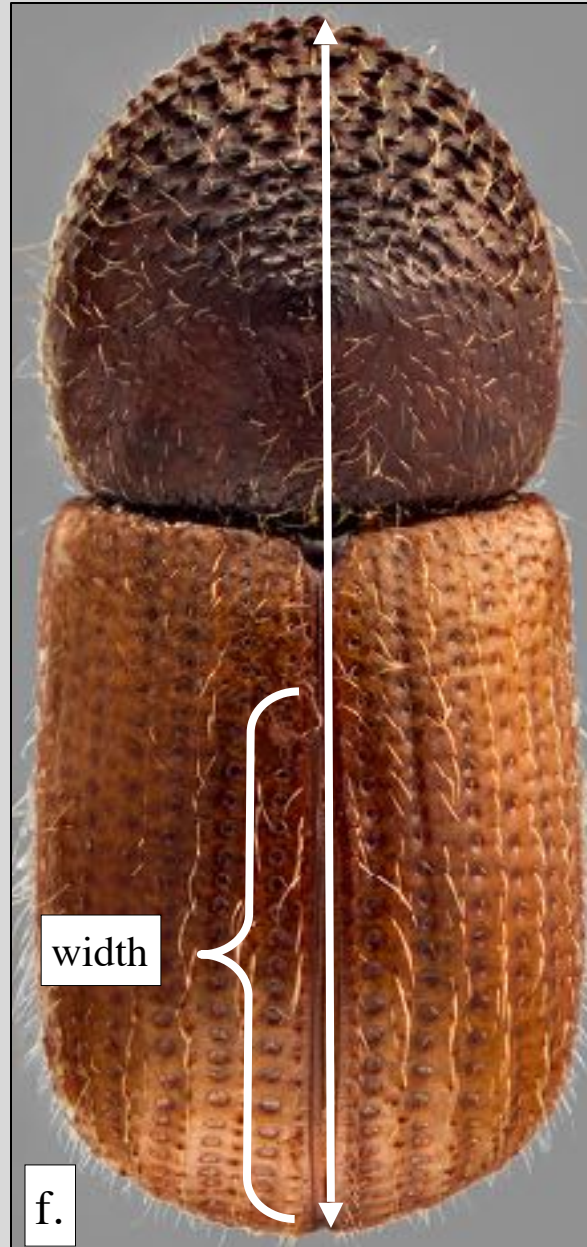
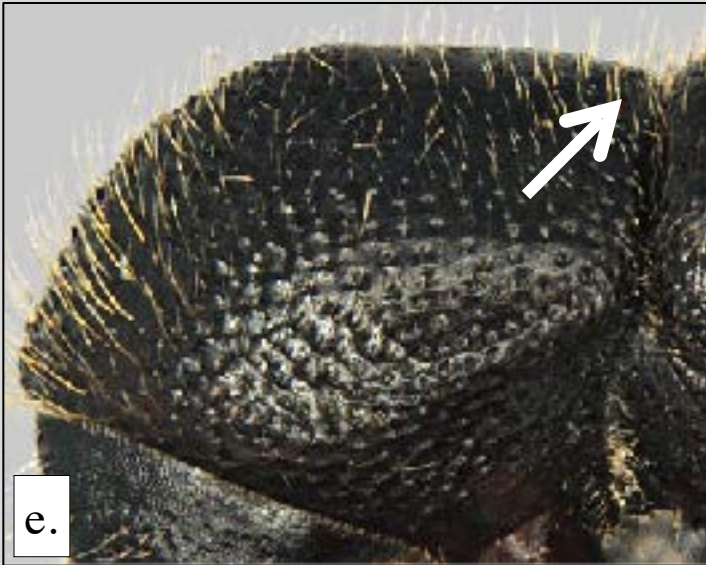
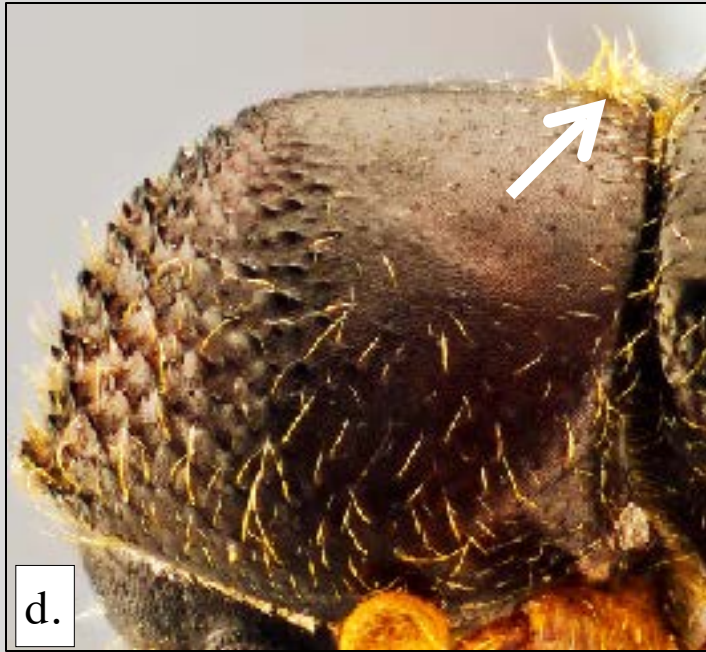
75 (74): Part I ■

Anterior margin (in dorsal view) of pronotum with coarse asperities larger than those on the anterior slope (a), median tuft of long setae at posterior margin of pronotum (d); body stout (f).....*Anisandrus* 😞

Anterior margin of pronotum without asperities (b) or with fine asperities no larger than those on the anterior slope (c), no median tuft of long setae at posterior margin of pronotum (although non-clumped setae may be present) (e); body of most species is slender (g).....76 ■



75 (74): Part II



Anisandrus 😞

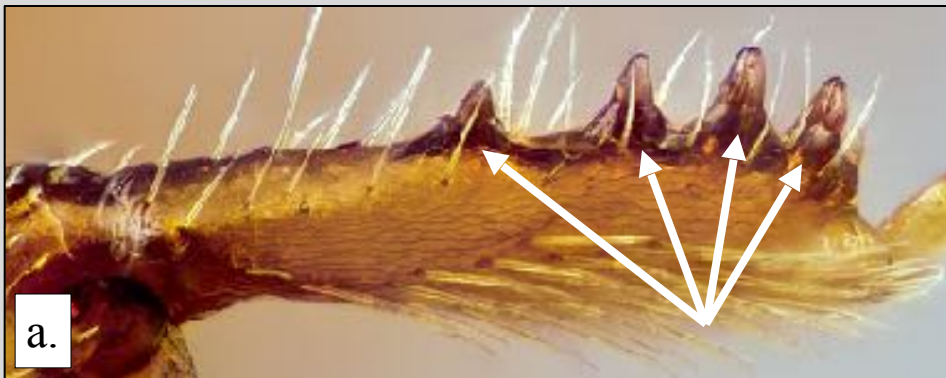


76 (75): Part I ■

Protibiae narrow and with only a few large teeth on apical half of outer lateral margin (a); elytral apical declivity without tubercles or spines and densely broadly setose (c) (SE U.S.).....*Dryoxylon* 😞

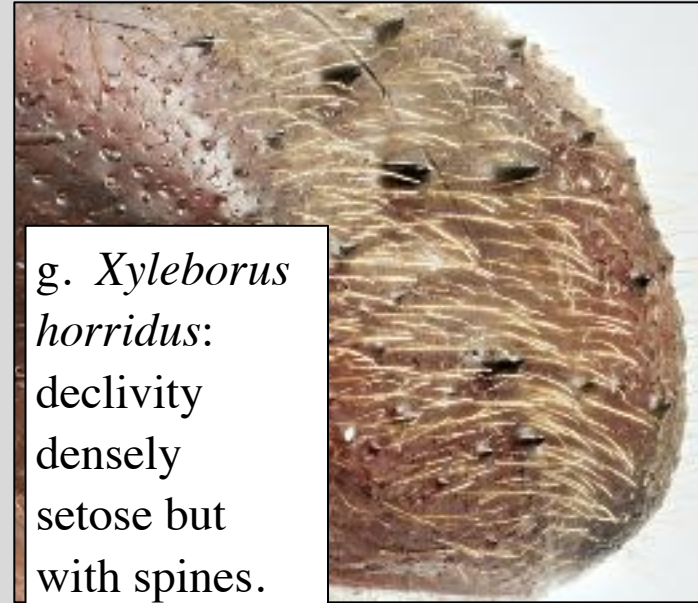
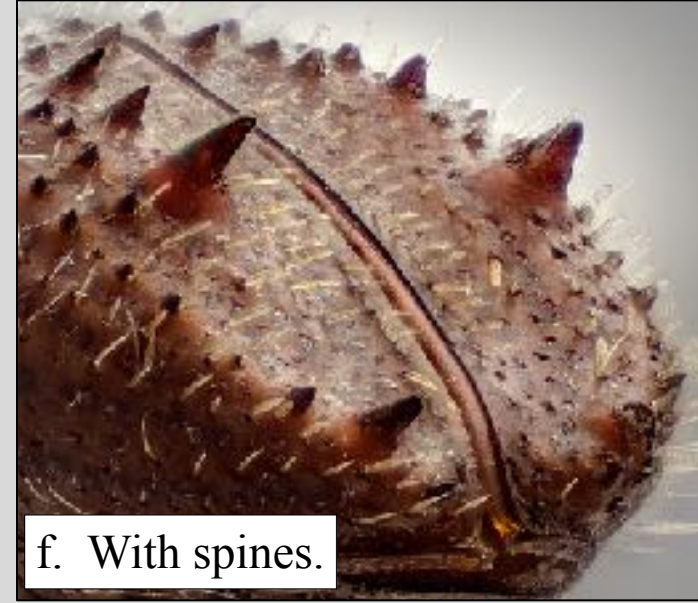
Protibiae broad and with many small teeth along most of the outer lateral margin (b); elytral apical declivity with at least tubercles (d) and most often with small (e) or large (f) spines and generally sparsely setose (d-f) (*X. horridus*, much larger and stouter than *Dryoxolon*, is an exception (g)) (many exotic and indigenous species)

.....*Xyleborus* 😞



76 (75): Part II

c. Without tubercles,
densely setose.



Dryoxylon 🙄



Xyleborus



Xyleborus intrusus: Indigeneous



Xyleborus pfeili: Exotic

77 (74) ■

Elytral apex in dorsal view very narrow (**a**) (FL, MX).....*Coptoborus*

Elytral apex in dorsal view truncate (**b**) or broadly rounded (**c**).....78



Coptoborus



Note: the head capsule has swollen out of the pronotum, presenting an abnormal appearance.

78 (77)

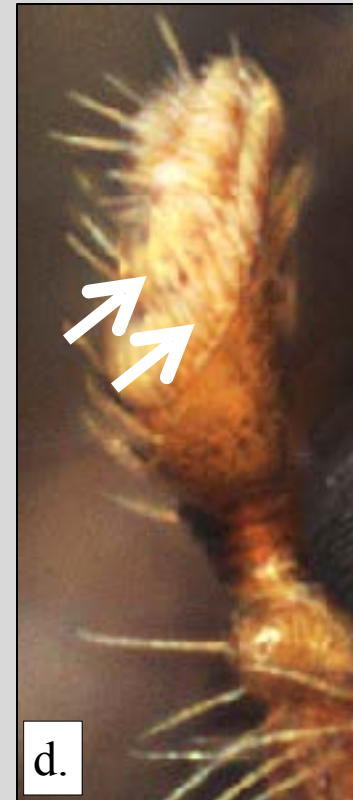
Basal corneous segment of antenna in posterior view is $\sim 1/3$ length of entire antennal club (a), 3 large segments easily seen in lateral (c) or posterior (a) view beyond apex of basal corneous segment (FL, MX).....*Theoborus*

Basal corneous segment of antenna in posterior view is much more than half the length of the entire antennal club (b); at most, only 2 large segments easily seen in lateral or posterior view beyond apex of basal corneous segments (d)....79

a. No image currently available.



c. No image currently available.



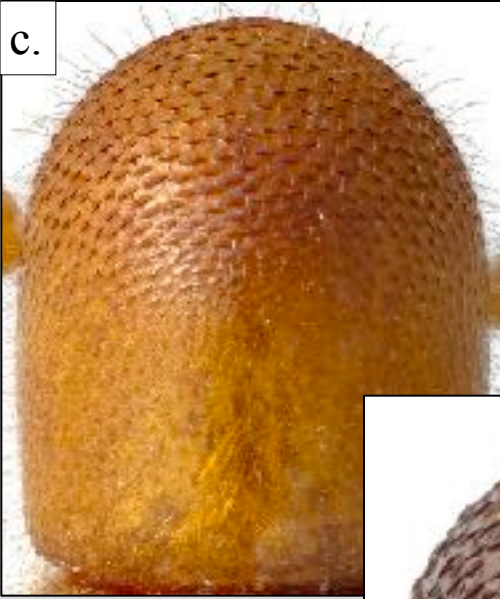
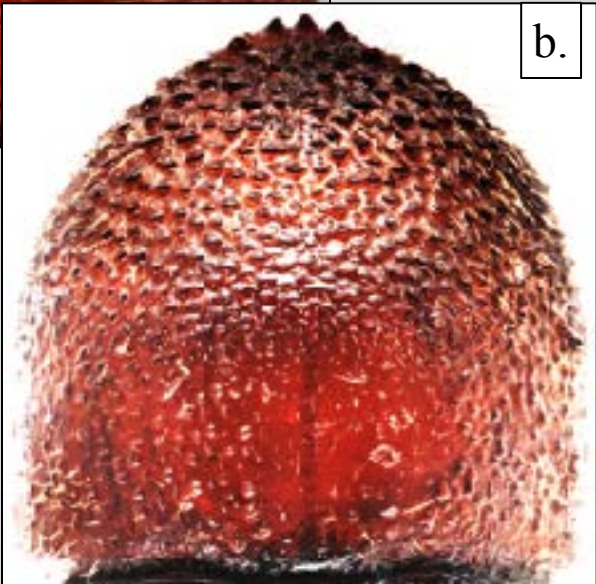
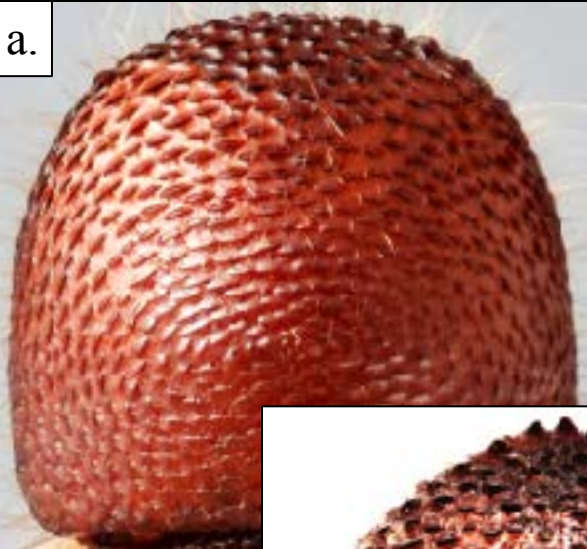
Theoborus



79 (78)

Dorsal surface of pronotum asperate throughout (**a-b**), although sometimes sparsely so posteromedially (**b**).....**80**

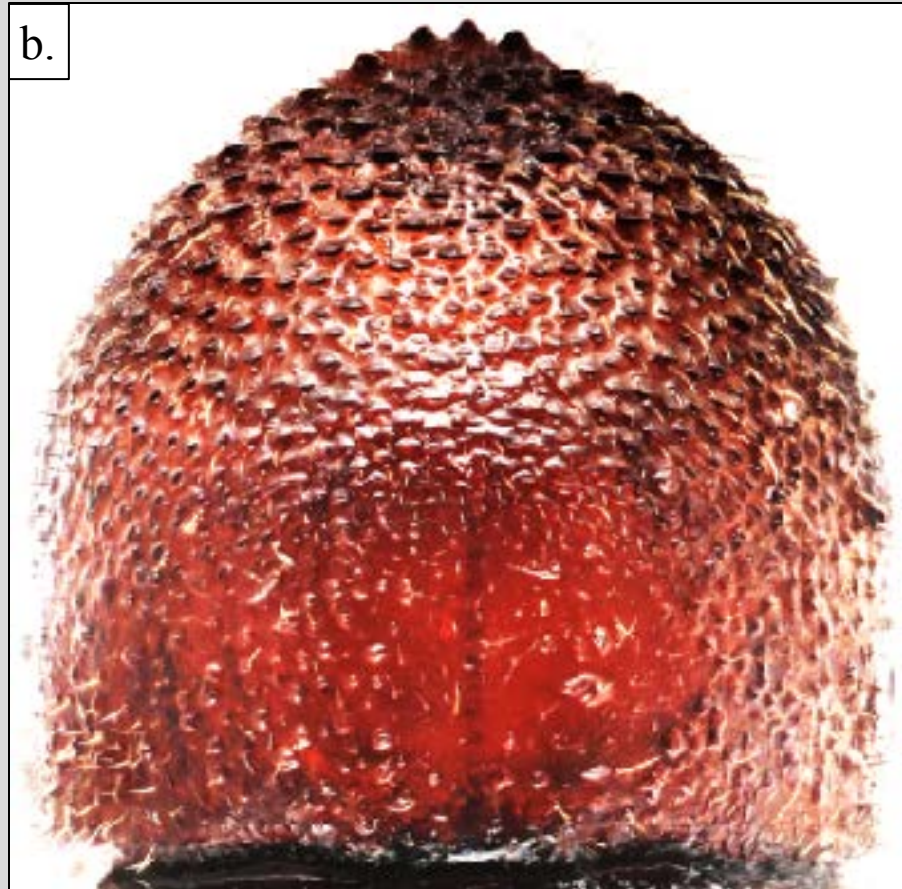
Dorsal surface of pronotum asperate only in anterior half (**c**) or two-thirds (**d**).....**81**



80 (79)

Anterior margin of pronotum broadly rounded, with median asperities rounded and no larger than the rest along the anterior margin; entire dorsal surface asperate (a)..... *Ambrosiodmus* 😞

Anterior margin of pronotum narrowly rounded, with sharp median asperities larger than the rest along the anterior margin; posteromedial area sparsely asperate (b) (FL)..... *Dryocoetoides*



Ambrosiodmus 😞



Dryocoetoides



Note: the head capsule has swollen out of the pronotum, presenting an abnormal appearance.

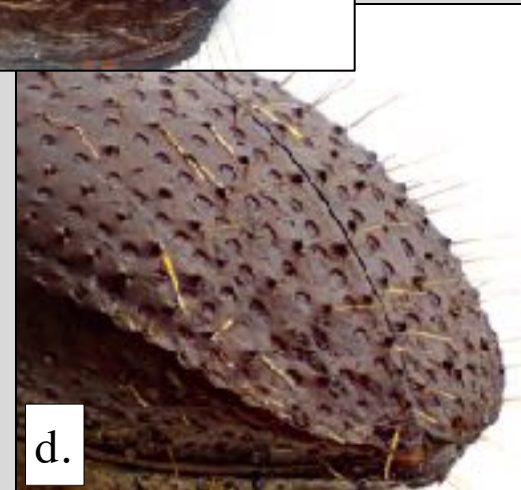
81 (79)

Elytral interstriae with several rows of setae (a), declivity densely setose (c).....

.....*Cyclorhipidion* 😞

Elytral interstriae with only a single row of setae (b), declivity sparsely setose (d)..

.....82



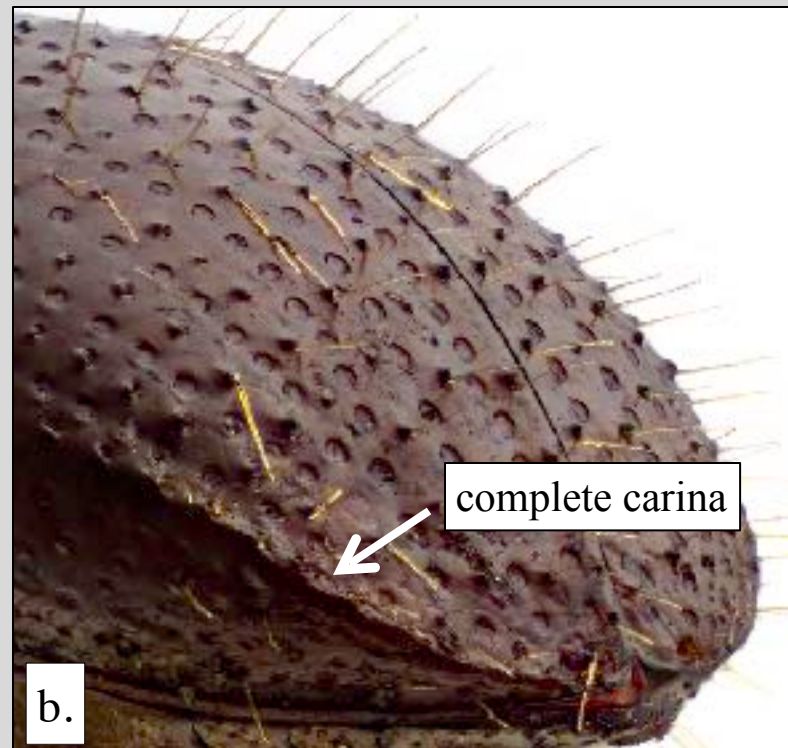
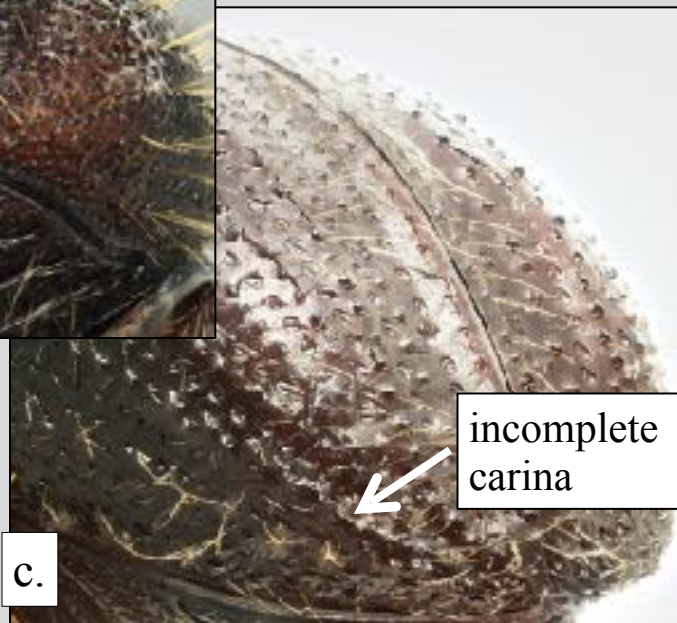
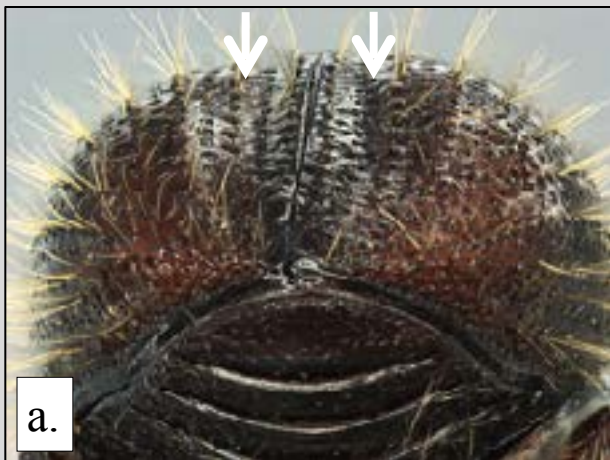
Cyclorhipidion 😞



82 (81): Part I

Elytral declivity depressed on either side of suture (a), only indistinctly and incompletely carinate after interstriae 7 and 9 join at the extreme apex of the declivity (c); frons with large punctures densely and more-or-less evenly distributed over the entire surface (d) (east of the Rocky Mountains).....*Ambrosiophilus* 😞

Surface of elytral declivity more or less evenly convex, interstria 7 sharply and completely carinate over at least the apical half of the declivity (b); frons with large punctures sparse toward posterior and dense only in anterior portion (e).....*Euwallacea* 😞



82 (81): Part II

d. Frons of *Ambrosiophilus*, with large punctures densely and more-or-less evenly distributed over entire surface.



e. Frons of *Euwallacea*, with large punctures sparse towards posterior and dense only in anterior.



Ambrosiophilus 😞



Euwallacea 😞



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