A guide to Florida's common bark and ambrosia beetles

UF | IFAS Extension
UNIVERSITY of FLORIDA

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Images: J. Hulcr, T. Atkinson, C. Bateman, Z. Nolen, or ForestryImages.org

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This guide provides an introduction to the biology and identification of Florida's bark and ambrosia beetles.

Contents (click to jump):

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What are bark and ambrosia beetles?

Bark and ambrosia beetles are a highly diverse group of forest insects. Most live peaceful lives inside dead or dying trees. The beetles help fungi reach normally inaccessible nutrients by burrowing into newly dead trees and together they begin the process of decay in the tree.

Why do bark beetles matter?

A few species of bark beetles, or fungi they carry, can contribute to major diseases in trees. These diseases can cause major disruptions to forest ecosystems, and the loss of valuable wood and tree products.

Where can I find the beetles?

- Bark or ambrosia beetles are found in every forest on earth.
- Trees containing bark beetles often have sawdust or sap on the outside:

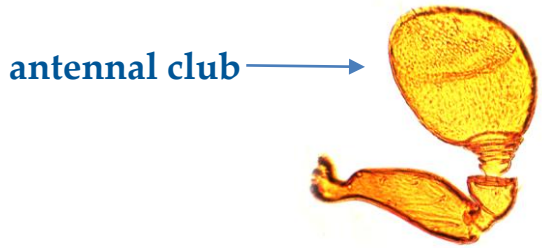
- Ambrosia beetles push compact noodles of sawdust outside the tree:

You can trap beetles in a forest near you. Find out more from the Backyard Bark Beetles project.

How to use this document

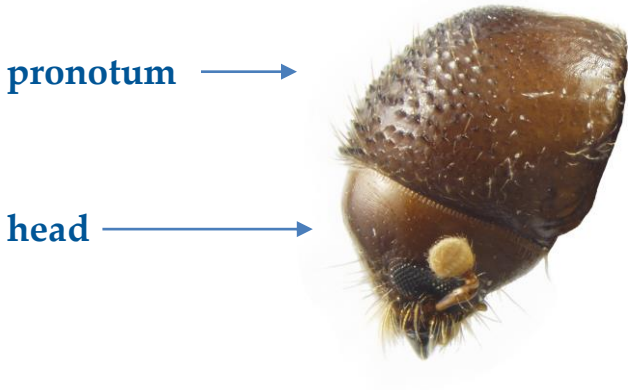
First, make sure you have either a bark or ambrosia beetle:

All have elbowed (bent) antennae with a large round club at the end:



xyleborini.myspecies.info

All have a large, round head, often partly hidden inside their pronotum:



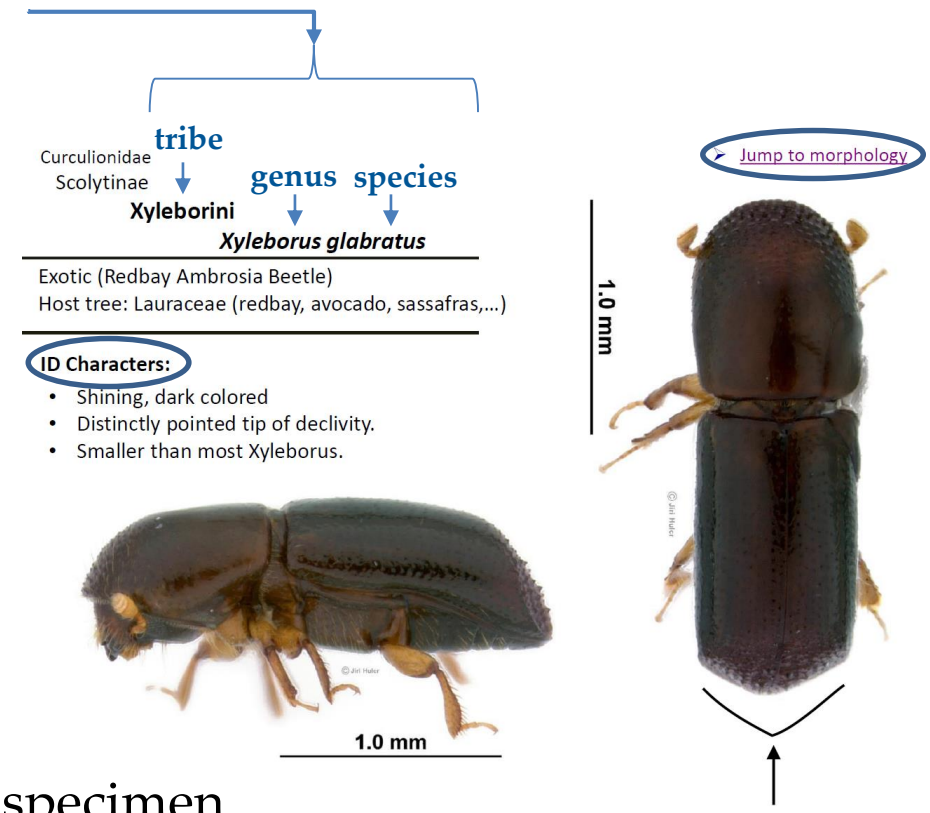
How to use this document

Next, simply scroll through the slides to see what looks right.

If there is a page for identifying a tribe or genus containing a species, use that first.

If there's a word you don't know, check the morphology page by clicking the link in the upper right corner.

If you think you have a match, check the ID characters using a microscope.



That's it! Now you can compare your specimen to the following slides and see what you find.

Species descriptions of Florida's common bark and ambrosia beetles:

bark beetles

Subfamily SCOLYTINAE

Hylastini
- *Hylastes* spp.

Hylurgini
- *Dendroctonus terebrans*
- *Dendroctonus frontalis*

Ipini
- *Ips avulsus*
- *Ips grandicollis*
- *Ips calligraphus*
- *Orthotomicus caelatus*

Pityophthorini
- *Pityophthorus* spp.

Cryphalini
- *Hypothenemus* spp.

Corthylini
- *Monarthrum mali*
- *Gnathotrichus materiarius*

Xyleborini
- *Ambrosiodmus* spp.
- *Cnestus mutilatus*
- *Euwallacea* spp.
- *Xyleborinus saxesenii*
- *Xyleborus affinis*
- *Xyleborus ferrugineus*
- *Xyleborus pubescens*
- *Xyleborus glabratus*
- *Xylosandrus amputatus*
- *Xylosandrus crassiusculus*
- *Xylosandrus compactus*

Subfamily PLATYPODINAE
- *Myoplatypus flavicornis*
- *Euplatypus compositus*

ambrosia beetles

Curculionidae

Scolytinae

Hylurgini & Hylesinini

➢ Jump to morphology

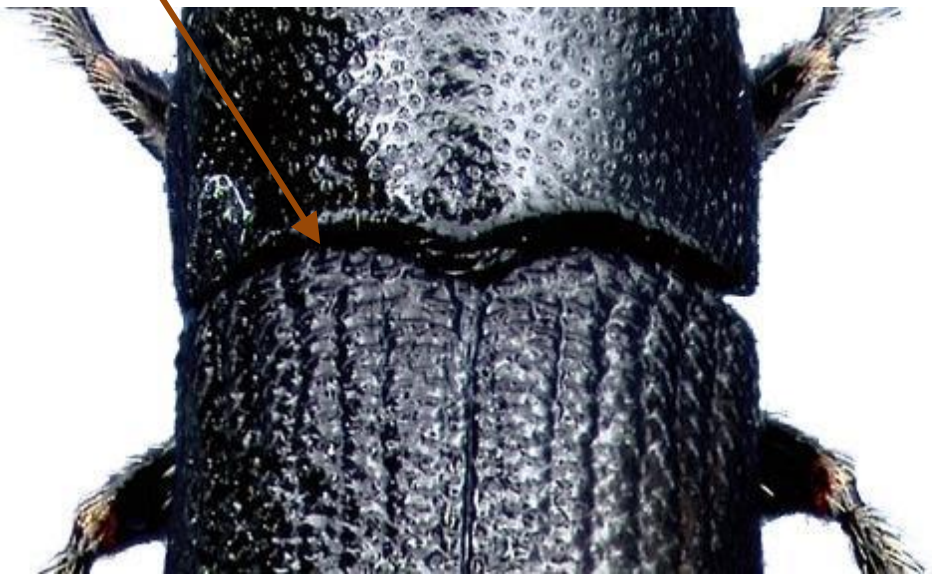
Native

Host tree: conifers

ID Characters:

- Top of pronotum flat.[1]
- Front edge of elytra curved and with rounded bumps/teeth.

Bugguide.net



Curculionidae
Scolytinae
Hylurgini
***Dendroctonus* genus**

Native
Sometimes **pests of live pines**

➢ Jump to morphology

D. terebrans:
Black turpentine beetle
our largest bark beetle, 5-8mm.

ID Characters:

- Head always visible from above.

D. frontalis:
Southern pine beetle
tiny, 2-3mm.

Curculionidae
Scolytinae
Hylesinini
***Hylastes* genus**

Native
Primarily in pine roots

ID Characters:

- Head mostly invisible from above (compare *Dendroctonus*).

➢ Jump to morphology

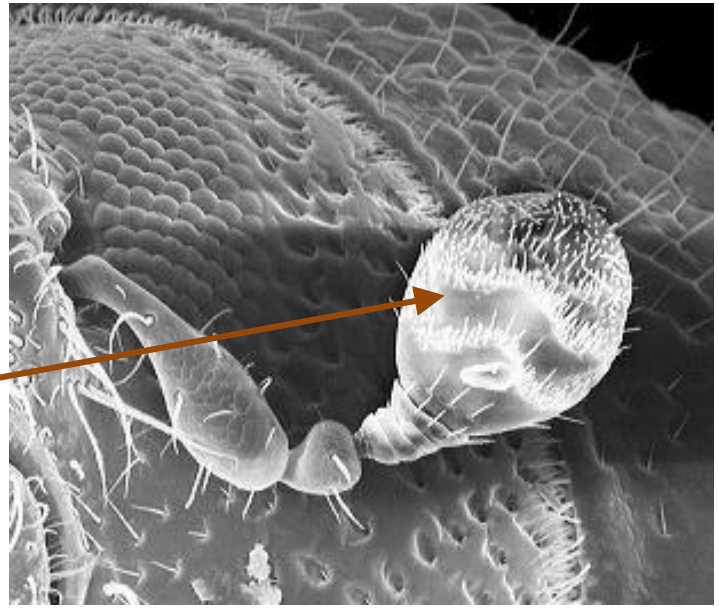
H. salebrosus
-less hair, broad

H. tenuis
-hairy, skinny

Curculionidae
Scolytinae
Ipini
***Ips* genus**

Native
Sometimes **pests of pines**

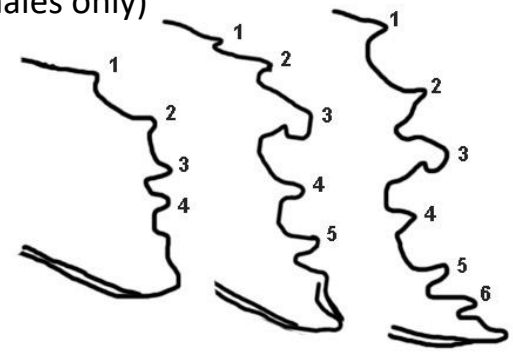
➢ Jump to morphology



ID Characters:

- Segments of antennal club wavy.
- Elytra declivity excavated and with large teeth.
- ***I. avulsus****:* 2.1-2.8 mm
- ***I. grandicollis****:* 2.9-4.6 mm
- ***I. calligraphus****:* 3.8-5.9 mm

I. avulsus, I. grandicollis, I. calligraphus
(males only)



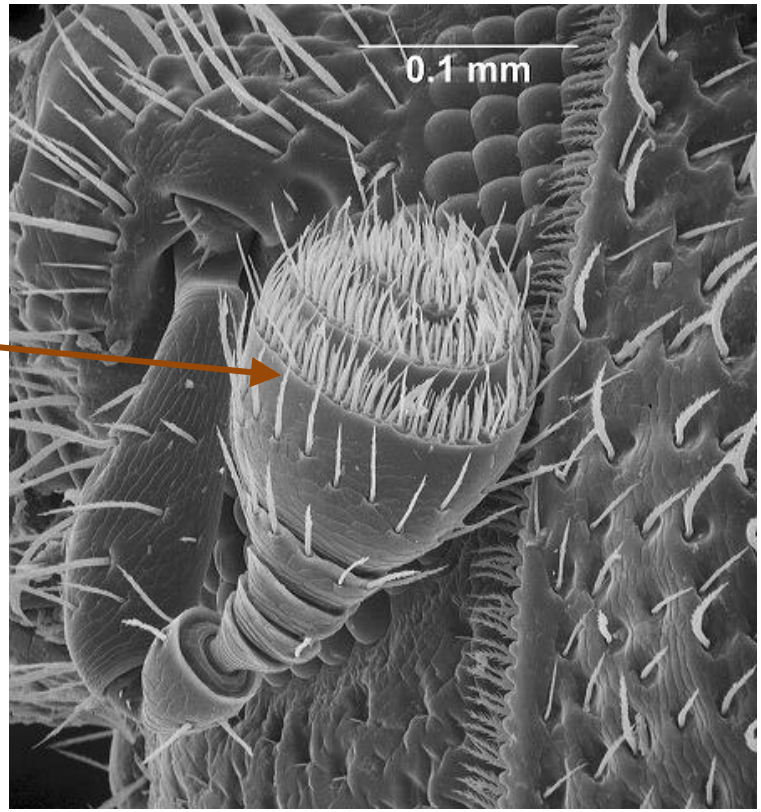
Curculionidae
Scolytinae
Ipini

Orthotomicus caelatus

Native
Host tree: pines

ID Characters:

- Antennal sutures curved inward.
- Bottom of elytra declivity flat, no ridge like in *Ips*.



➢ Jump to morphology

Curculionidae
Scolytinae

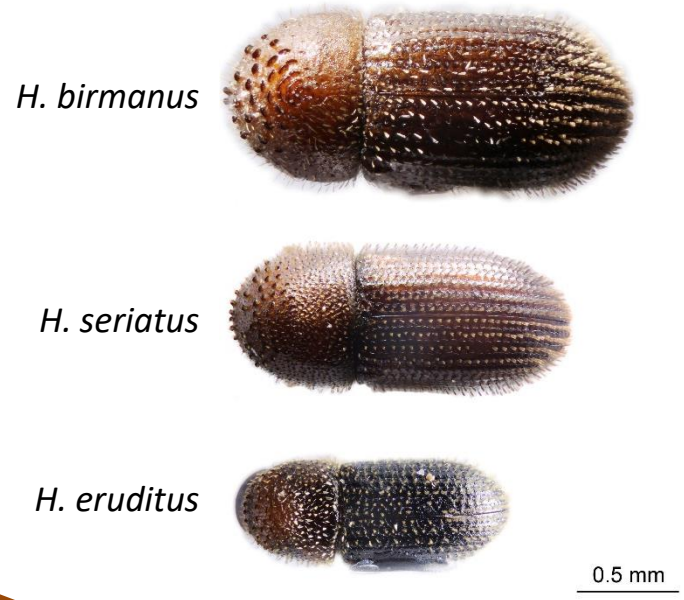
Cryphalini (pygmy borers)
Hypothenemus genus

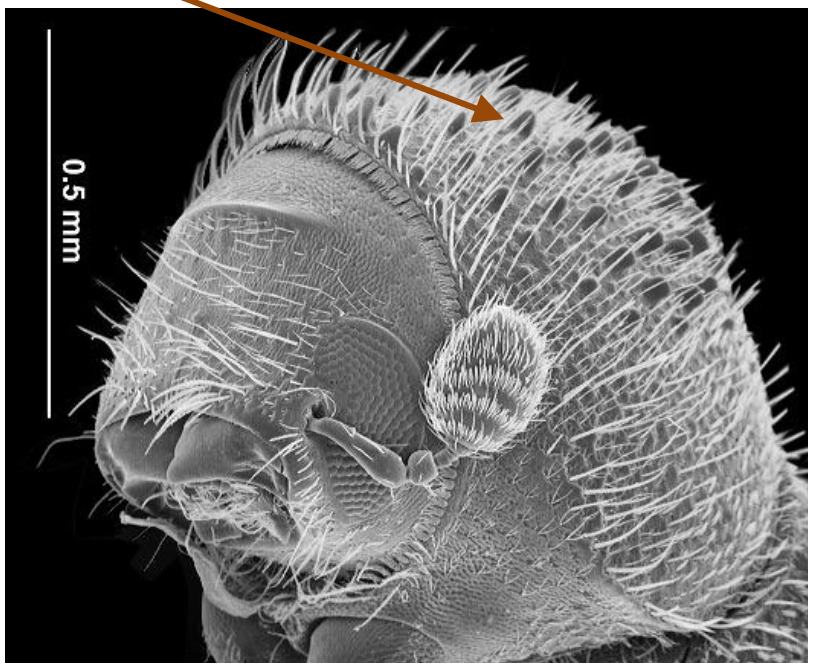
➢ Jump to morphology

Native & exotic
Host tree: diverse

ID Characters:

- The smallest bark beetles, no longer than 1.2 mm
- Hairy or scaly.
- Very noticeable bumps or teeth on pronotum.





Curculionidae
Scolytinae

Pityophthorini

***Pityophthorus* genus**

Native
Host tree: diverse

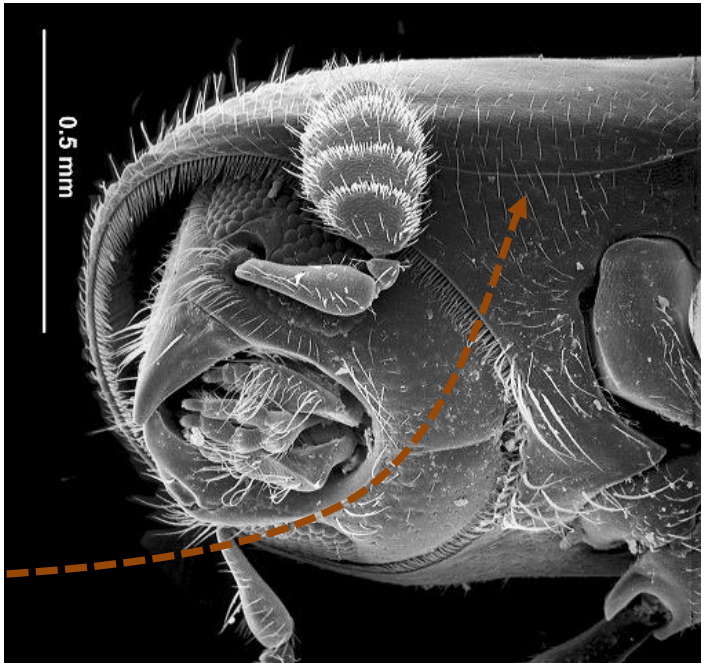
ID Characters:

- All small.
- Often hairy on frons.
- Antennal club small, flat, sutures curved.
- Layered curves on pronotum.

➢ Jump to morphology

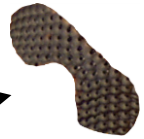
Curculionidae
Scolytinae
Corthylini

➢ Jump to morphology



Native
Host tree: diverse

ID Characters:



- Eye deeply notched, ie:
- Elongate, especially the pronotum.
- Sides of pronotum with a fine raised line.
- Antennal club large, flat, with three clear sutures.

Curculionidae
Scolytinae

Corthylini

Monathrum mali

➢ Jump to morphology

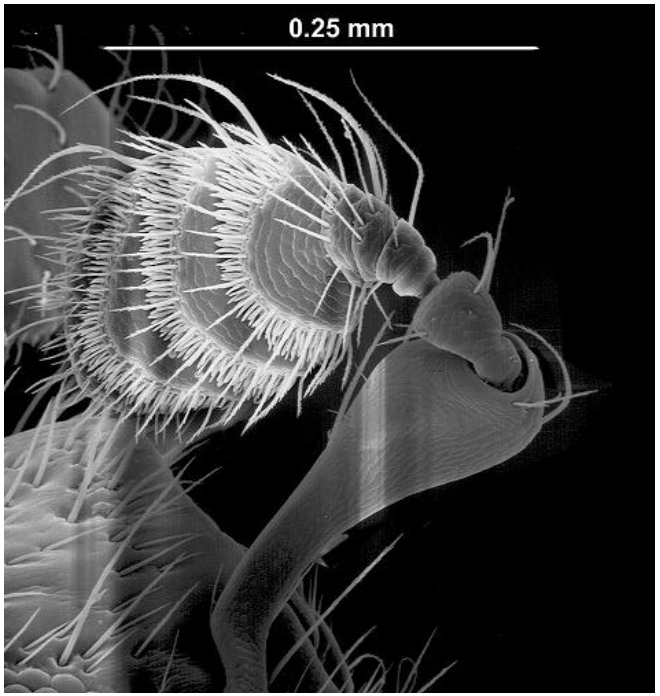
Native
Host tree: broadleaf

ID Characters:

- Elongate, especially the pronotum.
- Elytra shallowly impressed along the middle, deeply at declivity.

Curculionidae
Scolytinae
Corthylini
Gnathotrichus materiarius

➢ Jump to morphology



Native
Host tree: conifers

ID Characters:

- Shining, no hair.
- Elytral declivity rounded and pointed at the end.
- Sutures of antennal curved outward.
- Fine raised line on the top of pronotum.

Curculionidae
Scolytinae
Xyleborini

➢ Jump to morphology

ID Characters:

- Eye notched.
- Antennal club mostly type 1 and 2, sutures curved inward.
- Protibia wide and flat, and armed with teeth.
- Most of the ambrosia beetles!

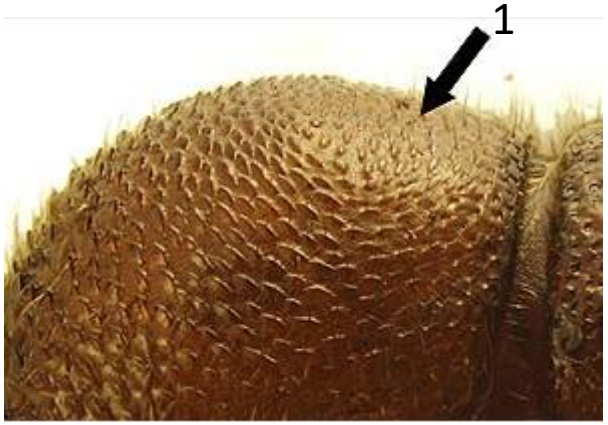
Curculionidae
Scolytinae

Xyleborini

***Ambrosiodmus* genus**

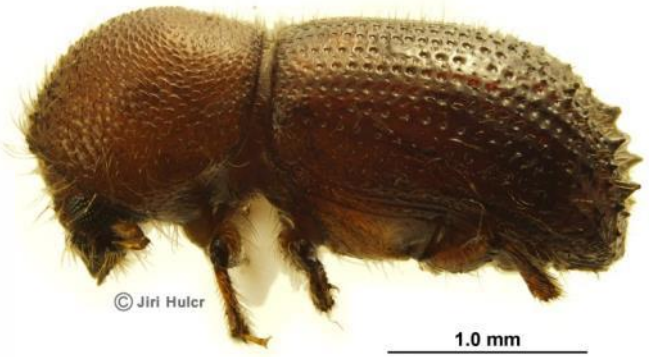
Exotic & native
Host tree: many, diverse

➢ Jump to morphology



ID Characters:

- Wide, pointed scales covering entire pronotum.[1]
- Steep elytral declivity.



Curculionidae
Scolytinae
Xyleborini
***Euwallacea* genus**

Exotic
Host tree: many, diverse

ID Characters:

- Bulky, dark.
- Declivity gently sloped.

E. fornicatus (below) is the smallest species at 1.8 – 2.5 mm, and can range from brown to black

➢ Jump to morphology

Curculionidae
Scolytinae

Xyleborini

Cnestus mutilatus

➢ Jump to morphology

Exotic
Host tree: many, diverse

ID Characters:

- Largest ambrosia beetle in North America.
- Abdomen much shorter than pronotum.

squished-looking abdomen

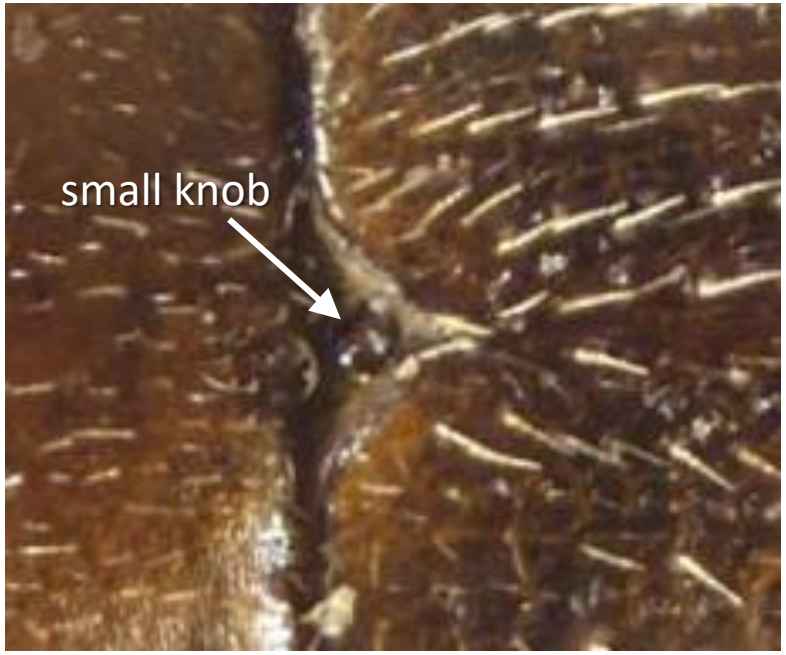
Curculionidae
Scolytinae

Xyleborini

Xyleborinus saxesenii

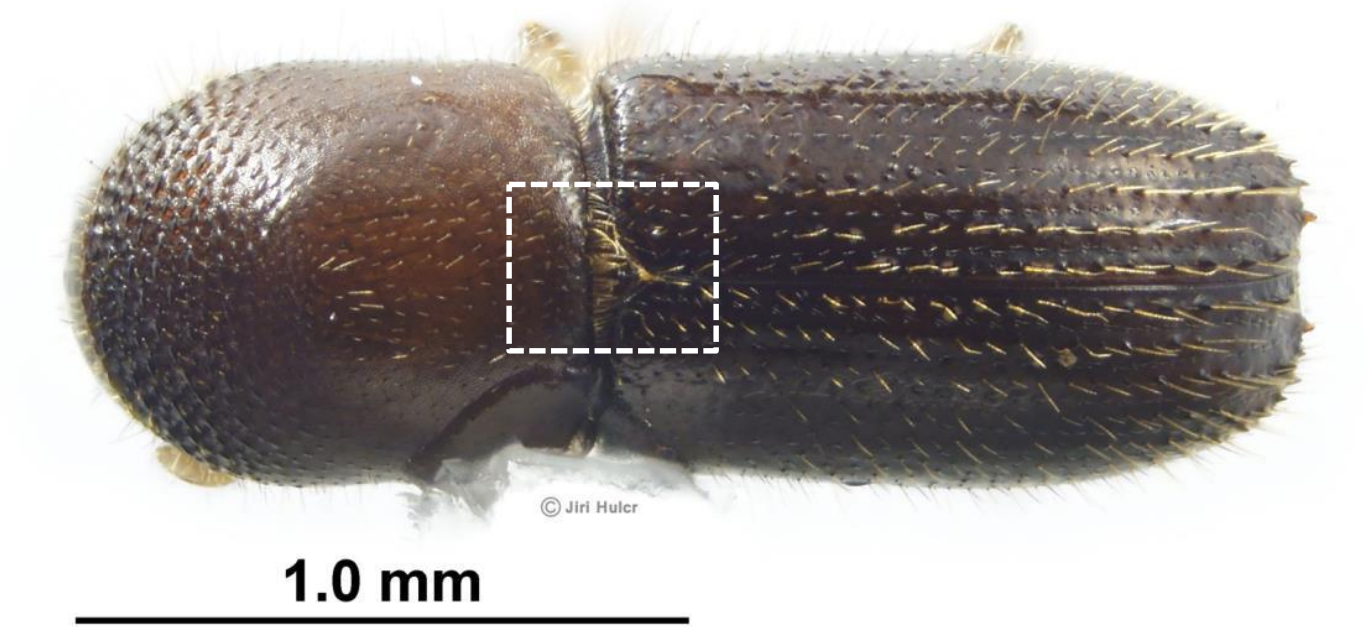
Exotic
Host tree: many, diverse

➢ Jump to morphology



ID Characters:

- Small knob surrounded by hair between pronotum and abdomen (all species of *Xyleborinus*).
- Antenna club type 1.



Curculionidae
Scolytinae

Xyleborini

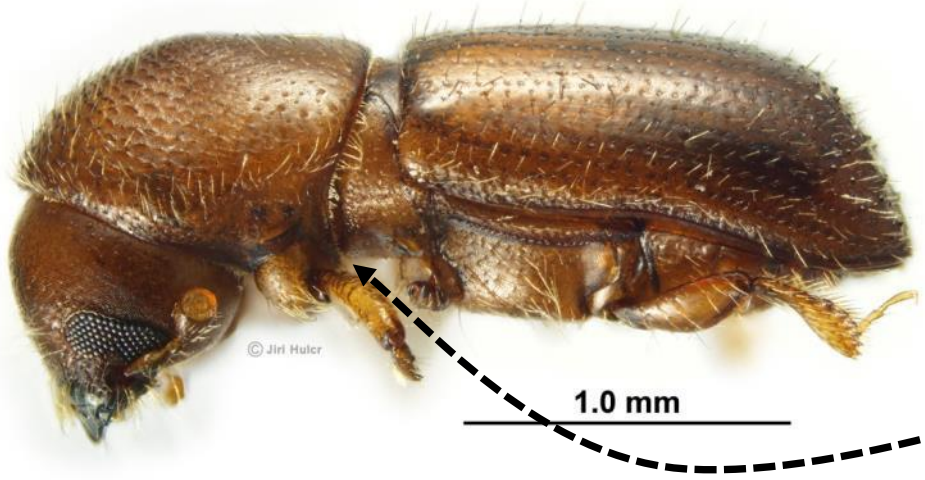
***Xyleborus* genus**

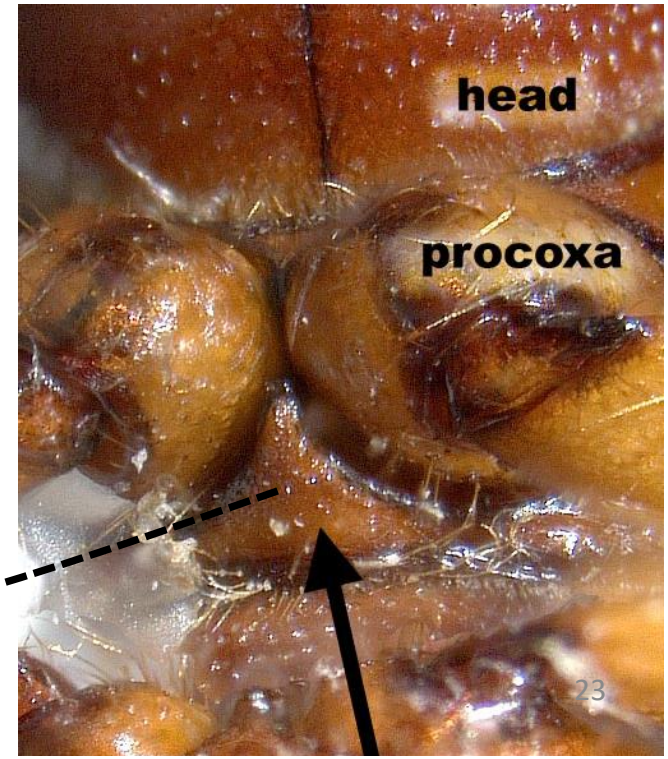
Exotic & native
Host tree: many, diverse

➢ Jump to morphology

ID Characters:

- Elongate, mostly light-colored.
- Antennal club type 1 or 2.
- Posterocoxal process inflated (see below).





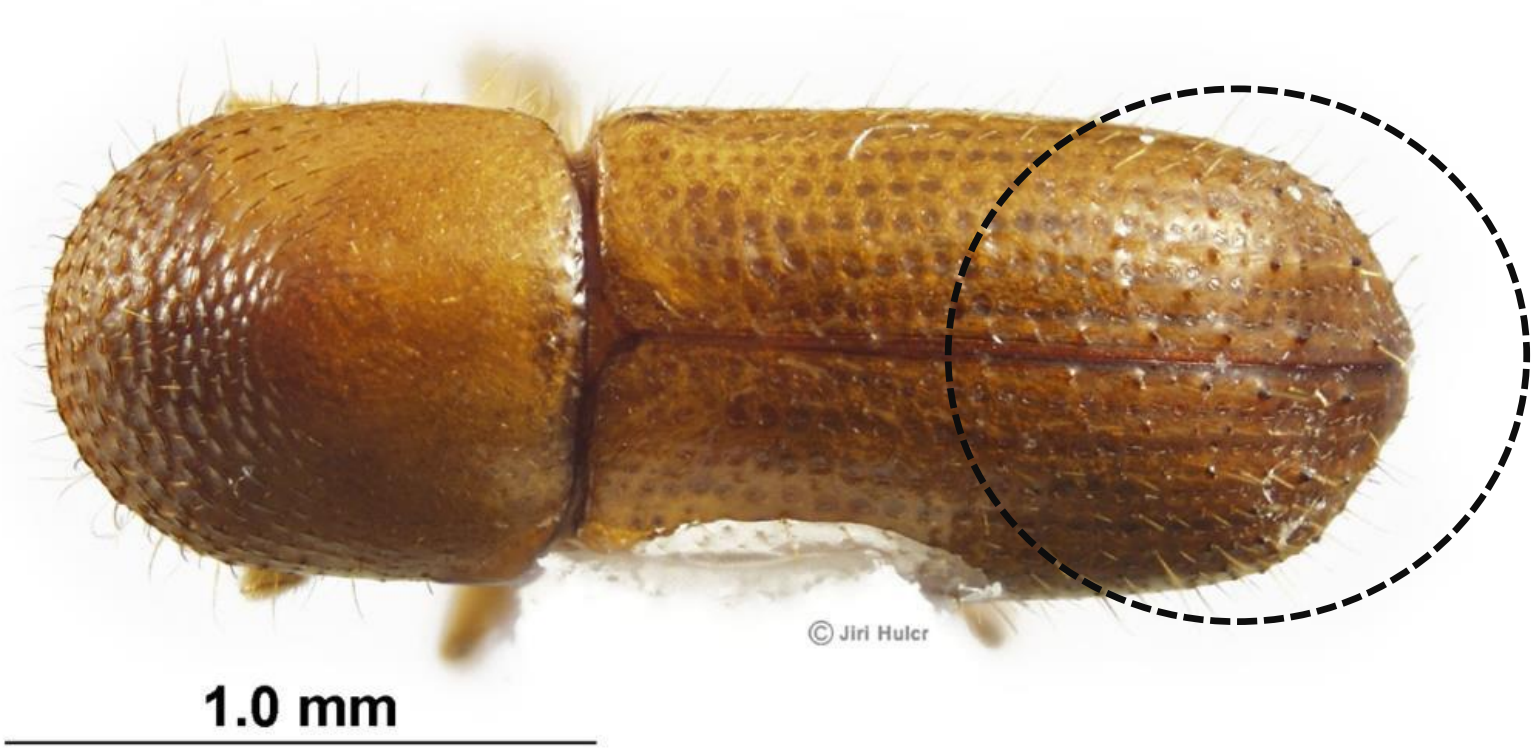
Curculionidae
Scolytinae
Xyleborini
Xyleborus affinis

➢ Jump to morphology

Native
Host tree: many, diverse

ID Characters:

- Dull, opaque (not shiny) elytral declivity **when dry**, with small bumps.



Curculionidae
Scolytinae

Xyleborini

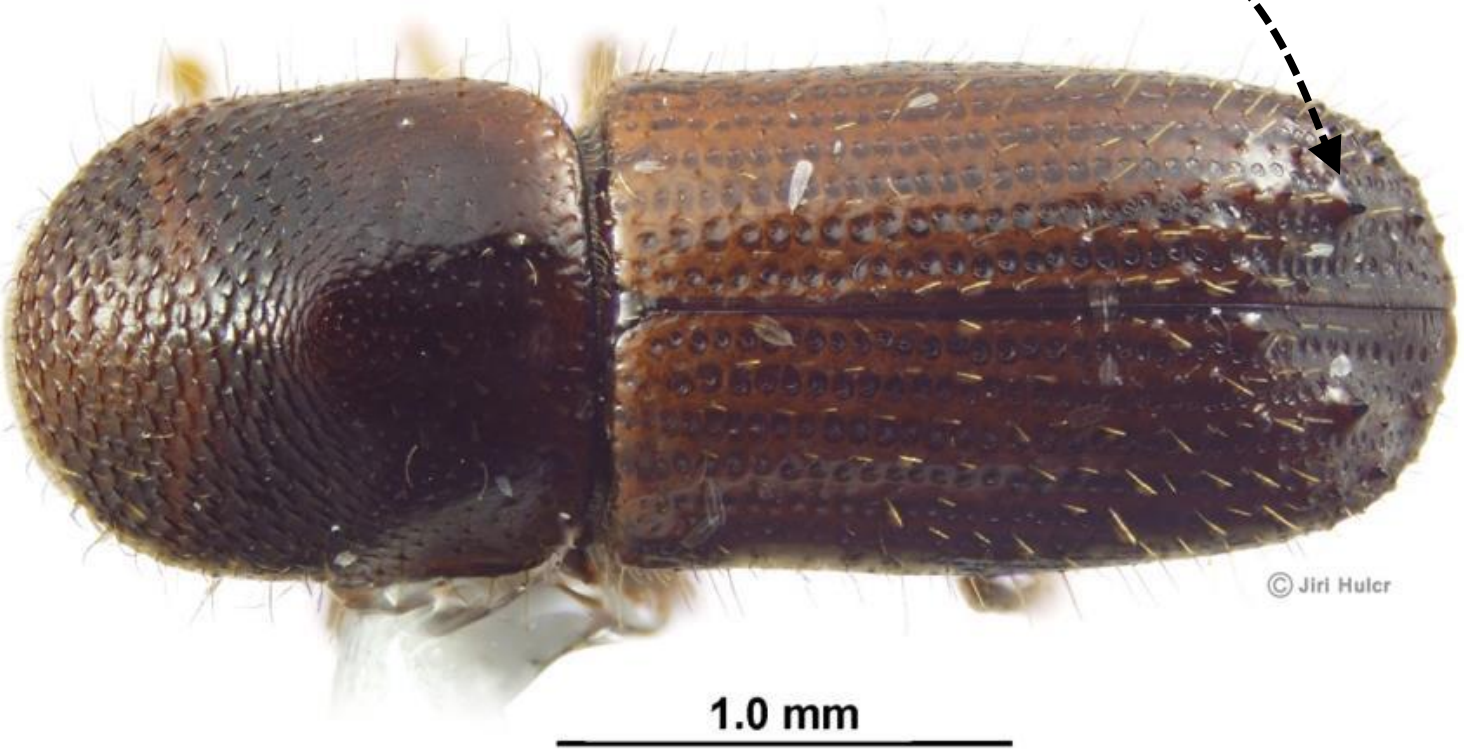
Xyleborus ferrugineus

➢ Jump to morphology

Native
Host tree: diverse, often in pines

ID Characters:

- A pair of large projections on elytral declivity.
- Usually dark red/brown.



Curculionidae
Scolytinae
Xyleborini
Xyleborus pubescens

Native
Host tree: many, but primarily pine

➢ Jump to morphology

ID Characters:

- Very similar to *X. affinis*, but declivity **shining**, steeper, and more rounded.

Curculionidae
Scolytinae

Xyleborini

Xyleborus glabratus

Exotic (Redbay Ambrosia Beetle)
Host tree: Lauraceae (redbay, avocado, sassafras,…)

ID Characters:

- Shining, dark colored.
- Distinctly pointed tip of declivity.
- Smaller than most Xyleborus.

➢ Jump to morphology

Curculionidae
Scolytinae

Xyleborini

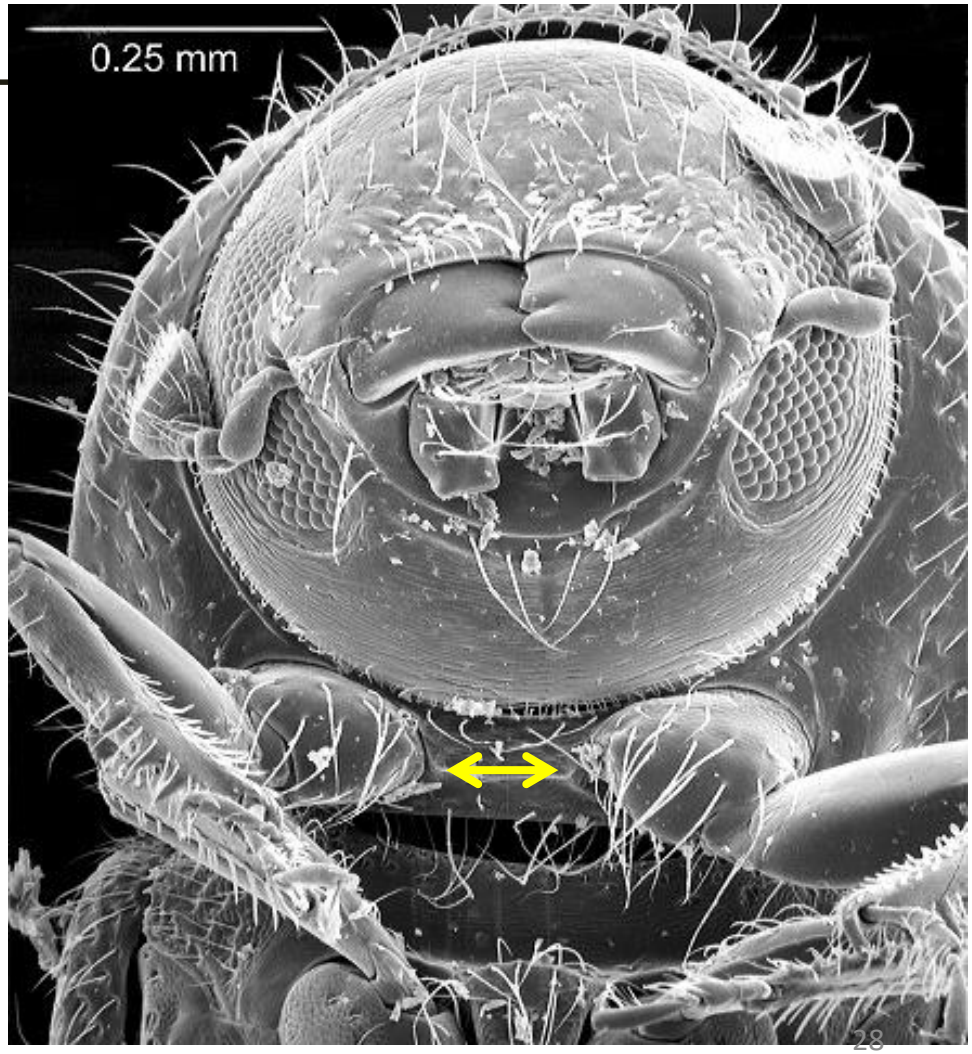
Xylosandrus

➢ Jump to morphology

All exotic

ID Characters:

- Bulky species.
- Antennal club flat, truncated.
- Procoxae separated (see yellow arrows).



Curculionidae
Scolytinae

Xyleborini

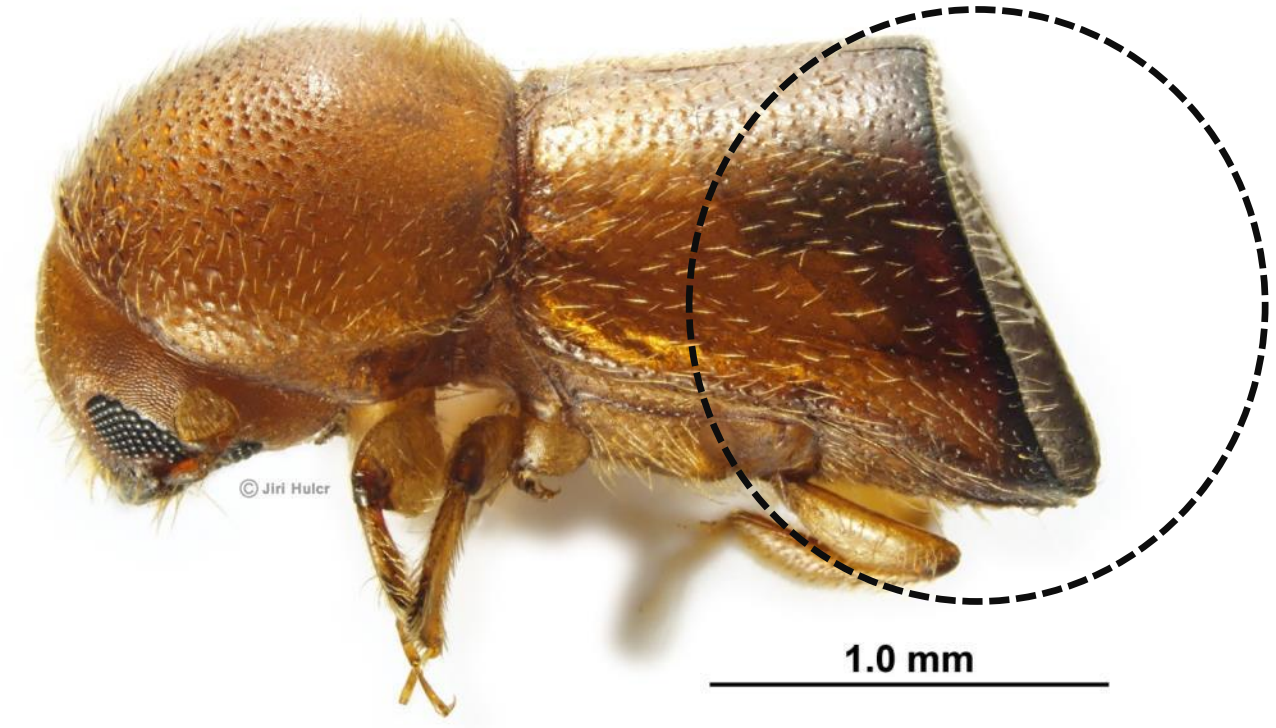
Xylosandrus amputatus

➢ Jump to morphology

Exotic
Host tree: broadleaf, but mostly unknown

ID Characters:

- Truncated elytral declivity.



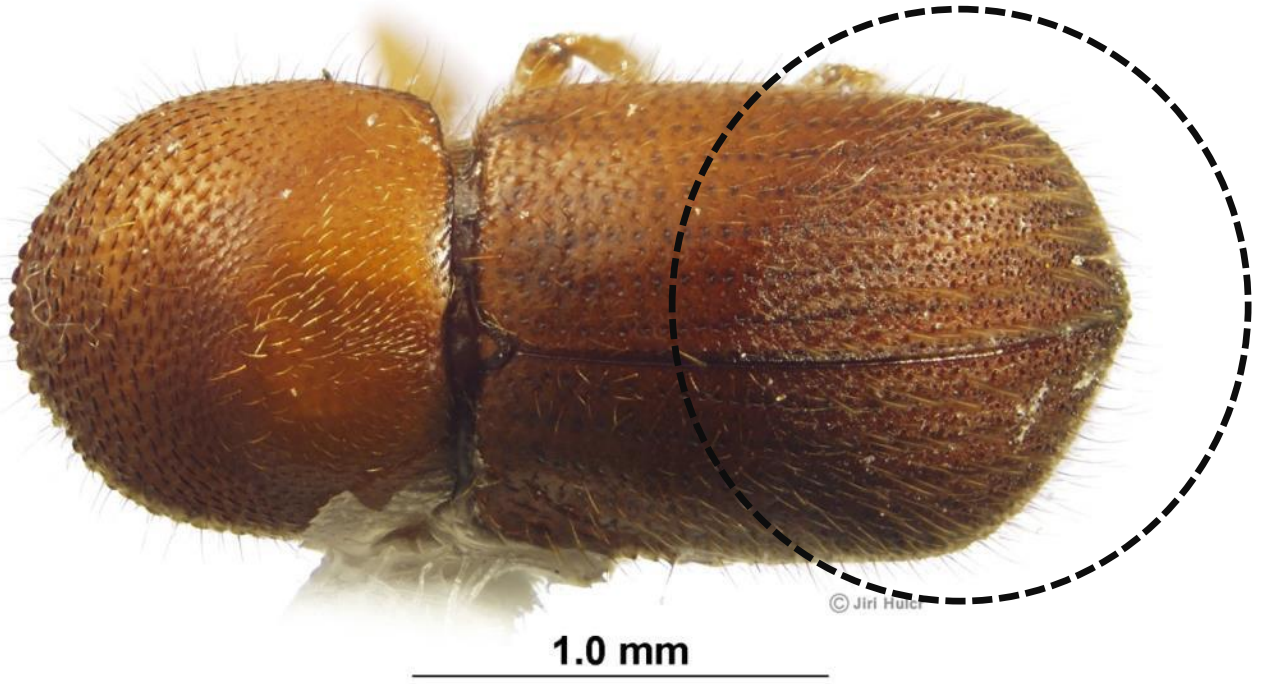
Curculionidae
Scolytinae
Xyleborini
Xylosandrus crassiusculus

➢ Jump to morphology

Exotic (Granulate Ambrosia Beetle)
Host tree: many, diverse

ID Characters:

- Dull, opaque (not shiny) elytral declivity **when dry**, and without any large bumps.



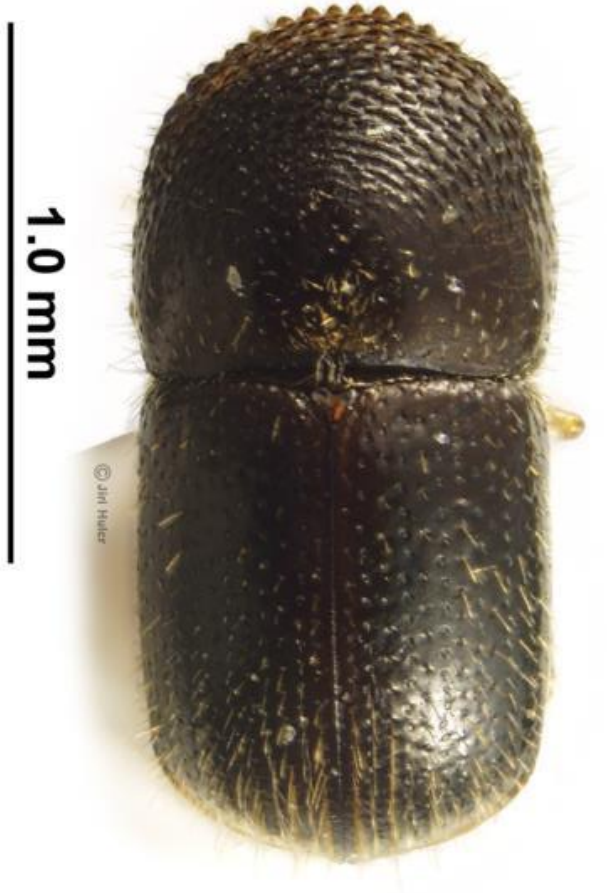
Curculionidae
Scolytinae
Xyleborini
Xylosandrus compactus

➢ Jump to morphology

Exotic (Black Twig Borer)
Host tree: twigs of most broadleaf trees

ID Characters:

- Tiny, black, with shiny declivity



Curculionidae

Platypodinae

Euplatypus compositus

➢ Jump to morphology

Native
Host tree: hardwoods

ID Characters:

- Female elytral declivity blunt.
- Male declivity with two narrow, pointed projections.
- Female & male pronotum with two small pores.
- Very long leg segments (all platypodines).

Curculionidae

Platypodinae

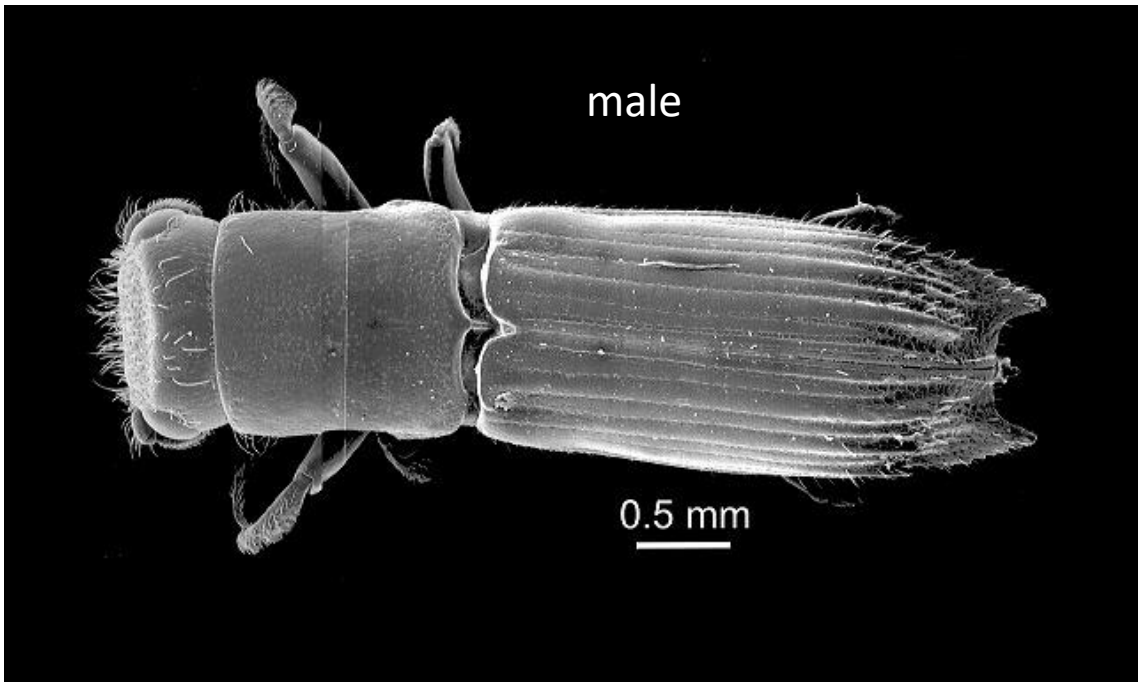
Myoplatypus flavicornis

Native

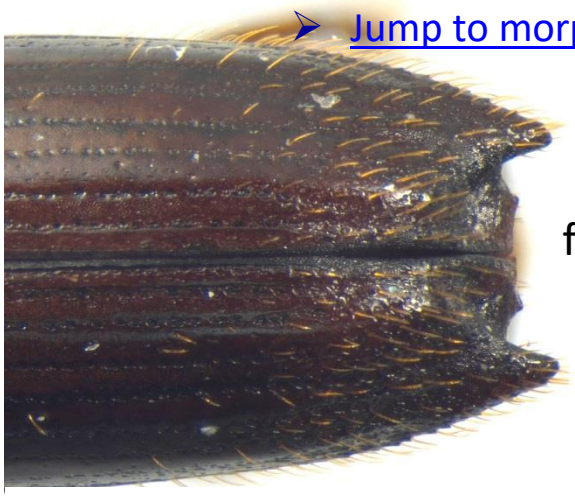
Host tree: pines

ID Characters:

- Female elytral declivity with blunt projection.
- Male declivity with a more sharply pointed projection.
- Very long leg segments (all platypodines).



Jump to morphology



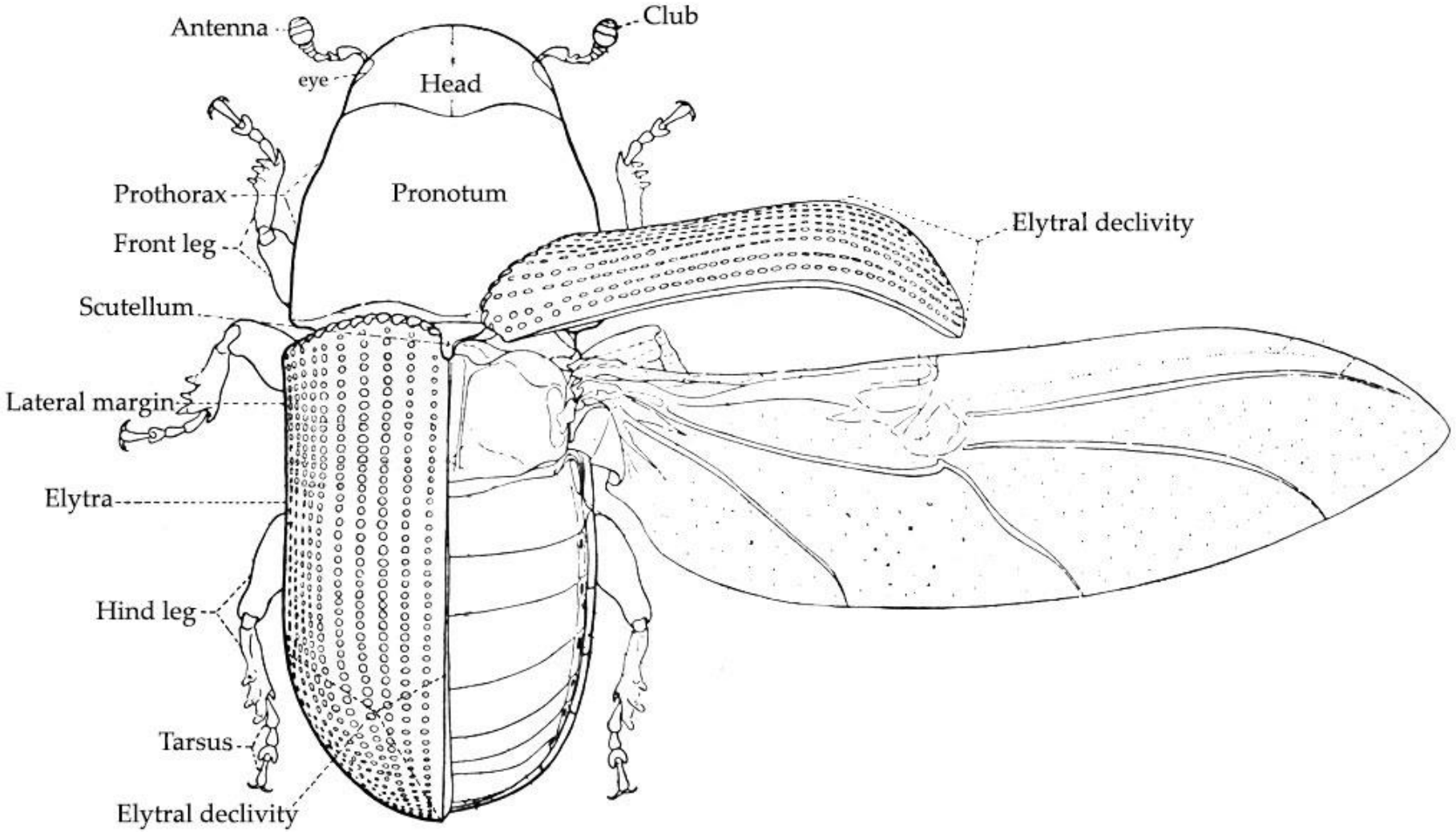
female

male

male

Important beetle morphology

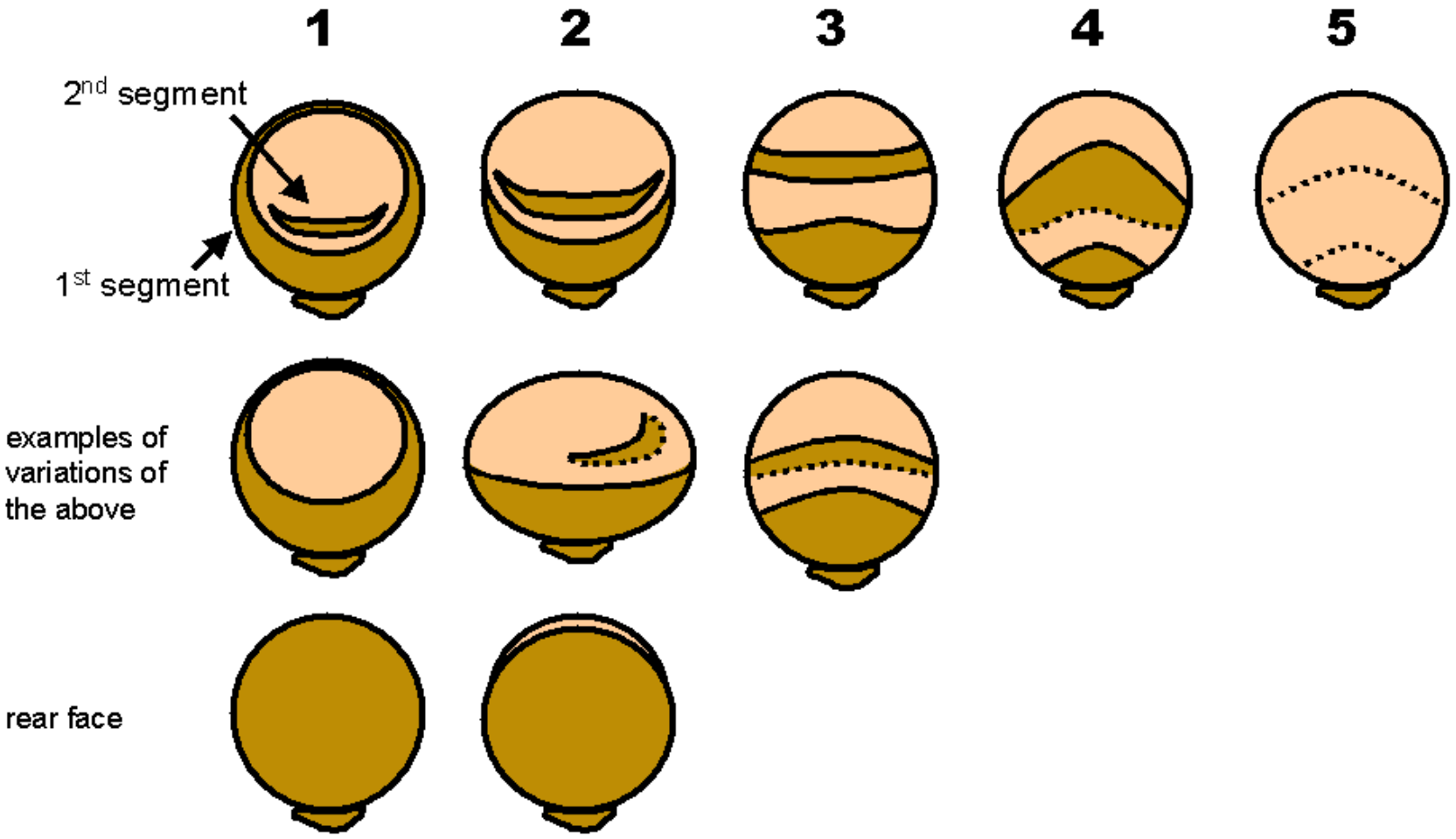
➢ Last slide viewed



Modified after Hopkins 1909. Contributions toward a monograph of the scolytid beetles.

Antennal clubs

➢ Last slide viewed



Additional resources

Online Keys

- Bark beetle genera of the US
- Bark beetles of Louisiana
- Key to Xyleborini of North America
- Key to Xyleborini genera
- S. Bambara's bark beetles of SE USA

Beetle Resources

- Backyard bark beetles: Trap beetles and contribute to a citizen science program!
- Interactive tool for identifying Damage by the Redbay ambrosia beetle
- Tom Atkinson's bark beetles of Southeast USA
- World's bark beetle pictures
- The Xyleborini taxonomy database
- xyleborini.myspecies.info: A collaborative ambrosia beetle database - you can join!