FIELD GUIDE TO AMBROSIA BEETLES

of Agricultural Importance in the Eastern and Southern United States

UNIVERSITY OF GEORGIA
EXTENSION

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(PDIL) Pest and Diseases Image Library, *Bugwood.org*
(CR) Chris Ranger

IDENTIFICATION AND ANATOMY OF AMBROSIA BEETLES

What you need for beetle identification

◀ Microscope with adjustable light source

◀ Petri dish

◀ Thin paint brush

◀ Miniscale

◀ Forceps

Anatomy of the ambrosia beetle

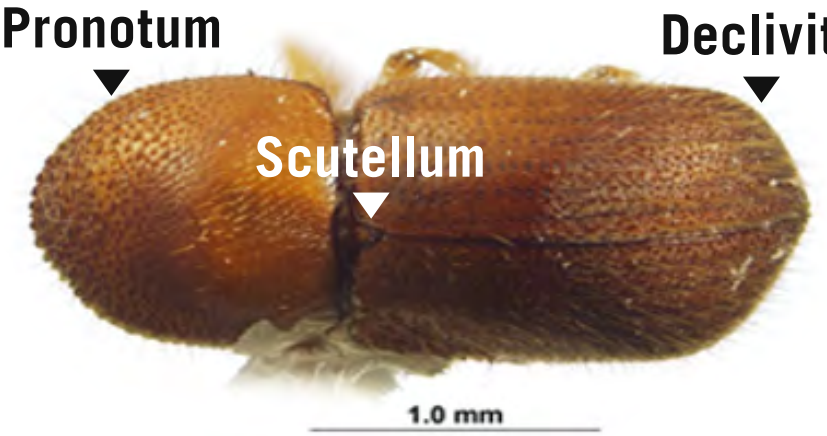


Photo: JH

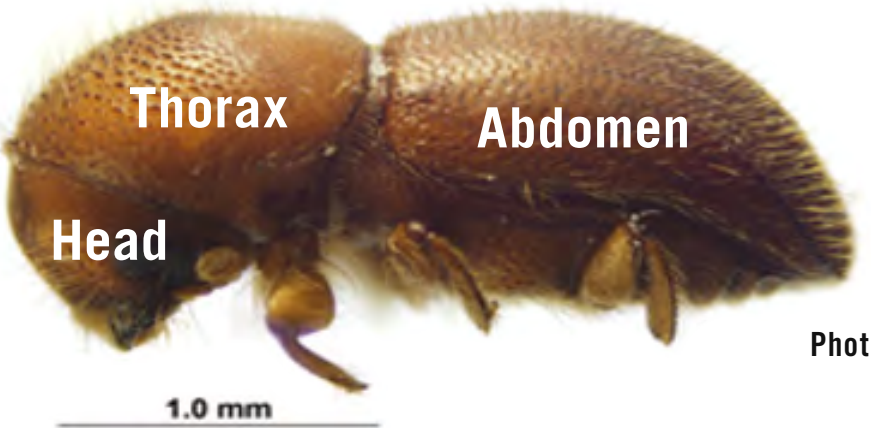


Photo: JH

Photo: PDIL

Procoxae

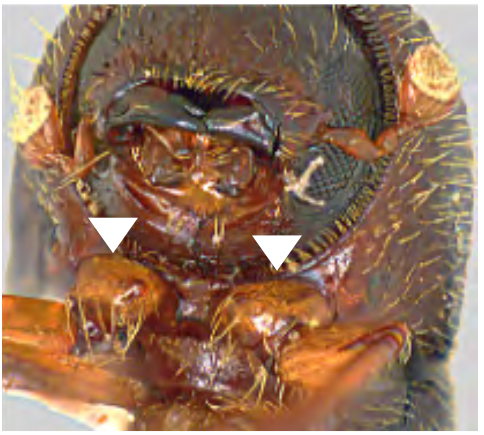


Photo: JH

Separated Procoxae

Photo: JH

Contiguous Procoxae

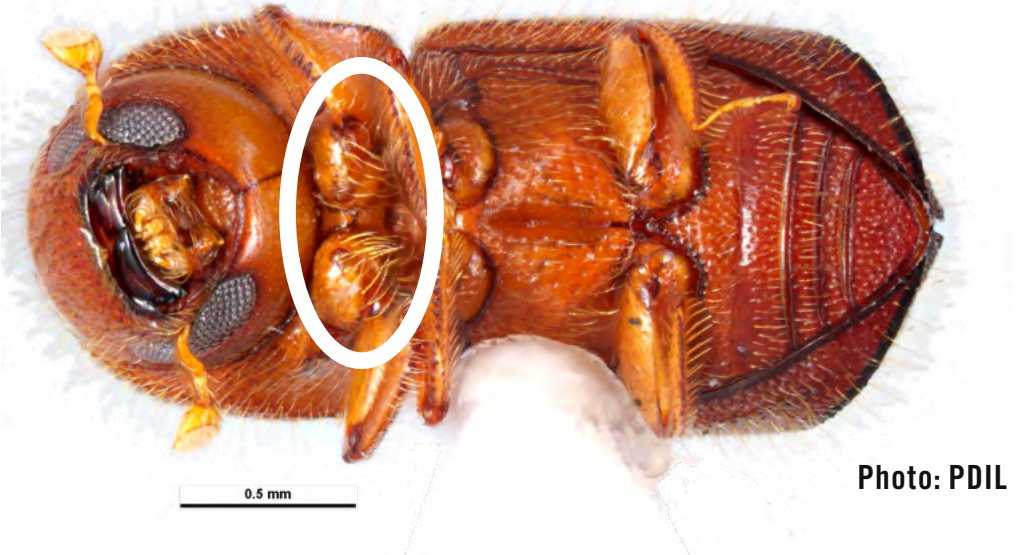


Photo: PDIL

Declivity

Spiny declivity

Smooth declivity

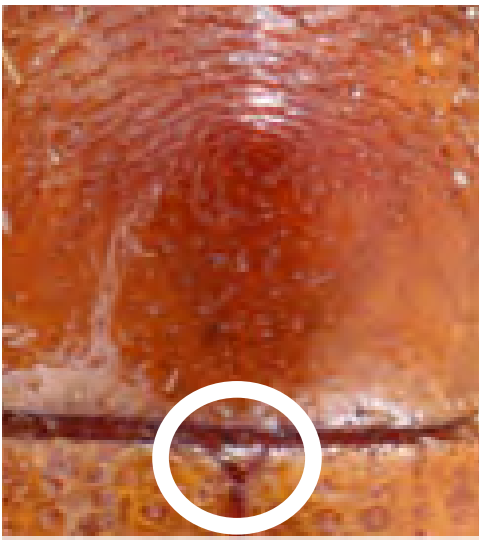
Less hairy declivity

Hairy declivity

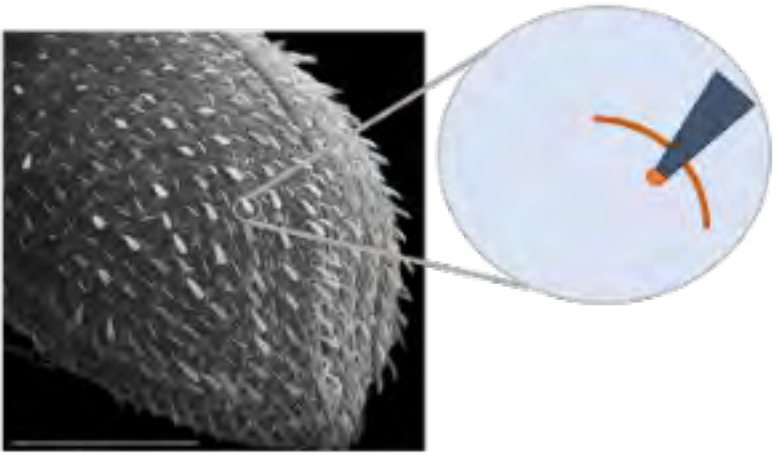
All photos: JH

Scutellum and spatulate hair

Spiny and conical scutellum



Flat scutellum



Spatulate hair

All photos: JH

THE AGRICULTURALLY IMPORTANT SPECIES OF AMBROSIA BEETLE

NOTE: ILLUSTRATIONS AND SIZES ARE BASED ON FEMALE BEETLES, WHICH COMMONLY ARE ATTRACTED TO ALCOHOL-BAITED TRAPS.

Xylosandrus crassiusculus (Motschulsky)
Granulate Ambrosia Beetle

Photo: AM2

Photo: AM2

Photo: PH

Procoxae
Separated

Declivity
Hairy, dull and bumpy

Female size
Approximately 3 mm in length

Color
Reddish/orange-brown

Scutellum
Flat

Economically important hosts

apples, peaches, pecans, magnolias, and maple

Xylosandrus germanus (Blandford)
Black Stem Borer

Photo: AM2

Photo: AM2

Photo: PH

Procoxae
Separated

Declivity
Alternating hair, shiny

Female size
Smaller than *X. crassiusculus* but bigger than *X. compactus*, approx. 2 mm

Color
Black

Scutellum
Flat

Economically important hosts
apples, magnolias, pecans, pines

Xylosandrus compactus (Eichhoff)
Black Twig Borer

Photo: JH

Photo: AM2

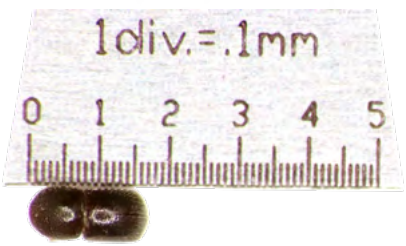


Photo: PH

Procoxae
Separated

Declivity
Hairy, striae setae present, shiny

Female size
less than 1.7 mm

Color
Black

Scutellum
Flat

Economically important hosts
apples, magnolias, maples

Xyleborinus saxesenii (Ratzeburg)
Fruit-tree pinhole borer

Photo: AM2

Photo: AM2

Photo: PH

Procoxae
Contiguous

Declivity
Small spines

Female size
1.9–2.4 mm

Color
Reddish-brown/ black

Scutellum
Conical and hairy

Economically important hosts

apples, peaches, pecans, pines, magnolias, maples

Ambrosiodmus rubricollis
(Eichhoff)

Photo: JH

Photo: JH

Photo: PH

Procoxae
Contiguous

Declivity
Hairy, less bumpy than *Xylosandrus crassiusculus*

Female size
2.4–2.7 mm

Pronotum
Entirely bumpy (more than the other species)

Color
Reddish/orange-brown

Scutellum
Flat

Economically important hosts
dogwoods, pecans

Xyleborus spp.

Photo: AM2

Photo: AM2

Photo: PH

Procoxae
Contiguous

Declivity
Has spines, hairy

Size
2.0–2.9 mm

Color
Reddish brown

Scutellum
Flat and hairless

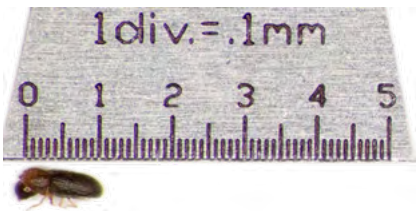
Economically important hosts

maples, pines, peaches

Hypothenemus spp.

Photo: AM2

Photo: AM2



Procoxae
Separated

Declivity
Spatulate hair

Size
1–2 mm

Color
Black

Scutellum
Flat

Economically important hosts

apples, magnolias, pecans, pines

Cnestus mutilatus (Blandford)
Camphor Shot Borer

Photo: AM2

Photo: AM2

Photo: PH

Declivity
Close to thorax because of short, compressed abdomen

Size
3.4–3.9 mm

Color
Black

Scutellum
Flat

Economically important hosts
maples, sweetgums, dogwood, cherry, elm, golden rain tree, magnolia, oak, and poplar

TRAPPING AND MONITORING

Factors that promote attack

Tree stress promotes attack. Stress may come from the following:

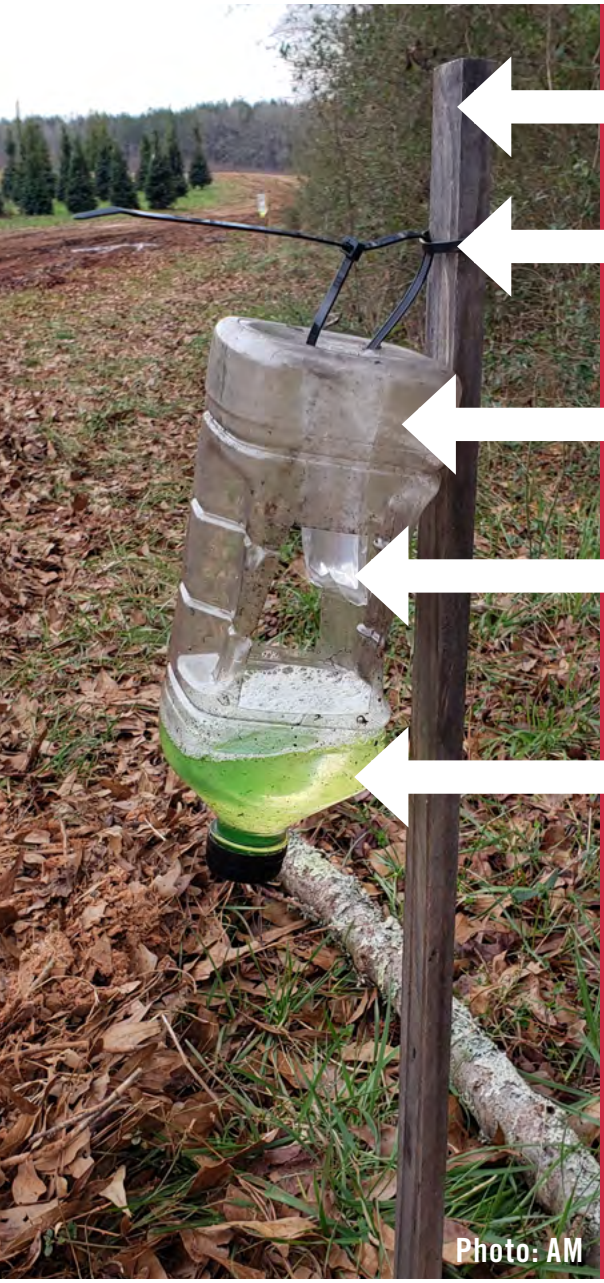
- Frost damage
- Flooding
- Poor soil drainage
- Drought
- Previous injury to tree
- Disease

Photo: CR

Bottle trap

Intended use

Insect identification, activity monitoring, and research purposes.



Stake

Zip ties

Plastic bottle

Ethanol lure

Soapy water
(add propylene glycol during cold seasons)

Trap height
Approximately 2–3 ft from the ground.

Where to deploy?

Deploy the bottle traps along the wood line as well as inside the nursery/orchard.

When to deploy?

Deploy the bottle traps before the warmer spring weather (when the temperature is approximately 68 °F).

When to check?

Check the bottle traps weekly. Replace the soapy water using a coffee filter and strainer.

Photo: CR

Bolt trap

Intended use

Monitoring attacks and ambrosia beetle activity. This trap is recommended for grower use.

Stake

Hole drilled into log and covered with a cork.
Hole should be about 4 in. deep and 1 cm wide. Fill hole with ethyl alcohol (i.e., ethanol, or drinking alcohol). Denatured ethanol also can be used.

Log (1–2 ft long, 2 in. wide)

Trap height
Approximately 1–2 ft from the ground.

Where to deploy?

Deploy the bolt traps along the wood line as well as inside the nursery/orchard.

When to deploy?

Deploy the bolt traps before the warmer spring weather (when the temperature is approximately 68 °F).

What to look for?

Sawdust “toothpicks” and holes.

All photos: AAD

EXTERNAL INJURY

Sawdust “toothpicks”

All photos: AM

Holes

Photo: AM

Photo: CR

Photo: AAD

Sap production



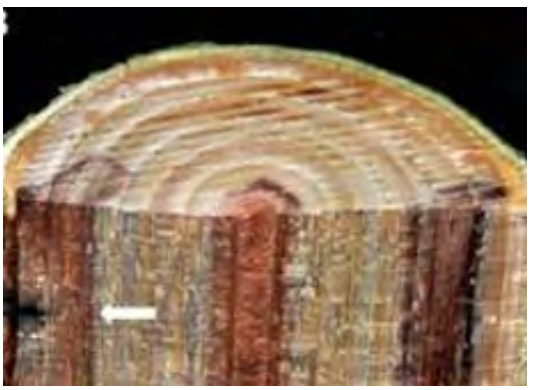



All photos: CR

INTERNAL INJURY

Tissue discoloration

Photo: AB



All photos: CR (unless noted)

Gallery formation

All photos: CR

Fungus

Different life stages of fungal cultivation can be seen in the following images.

All photos: JH

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