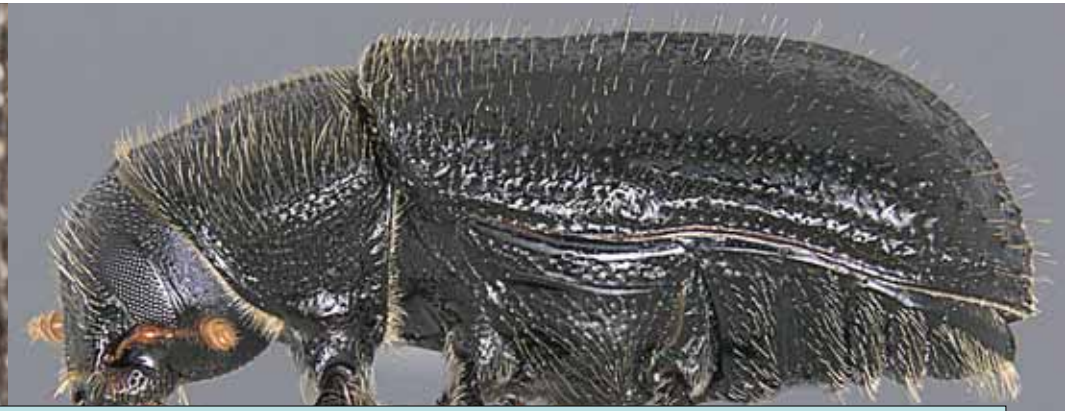
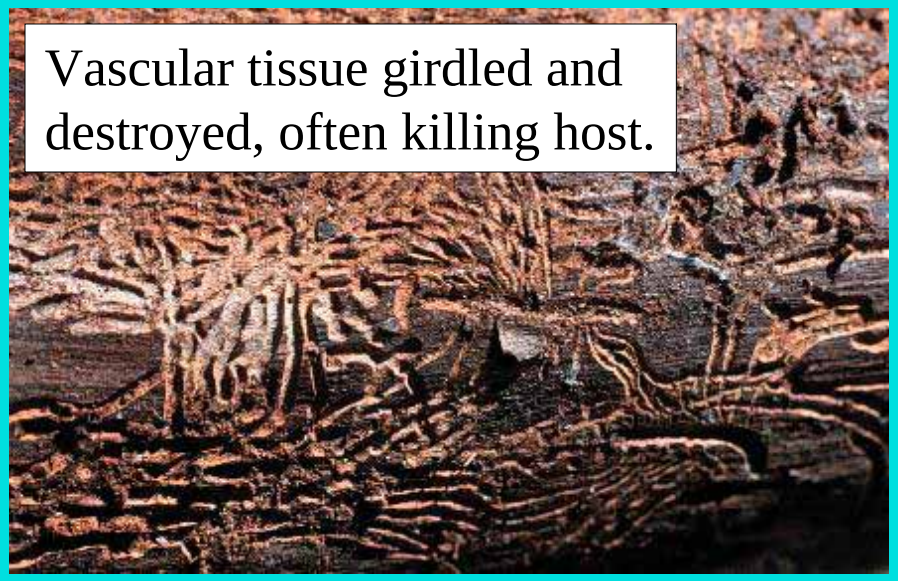


SIGNIFICANCE AND RECOGNITION OF EXOTIC INSECT PESTS IN STANDING AND HARVESTED TIMBER

JAMES R. LaBONTE

OREGON DEPARTMENT OF AGRICULTURE

Damage To Standing Timber

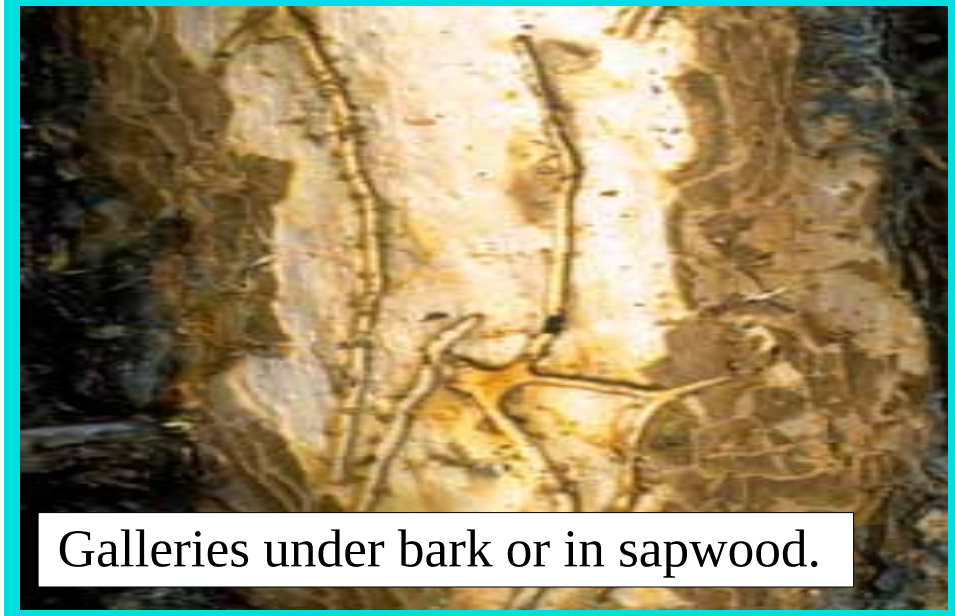


Vascular tissue girdled and destroyed, often killing host.

Galleries weaken trunk and branches, causing lodging and breakage.

Disease introduced by pest or allowed entrance by wounds.

Damage To Harvested Timber

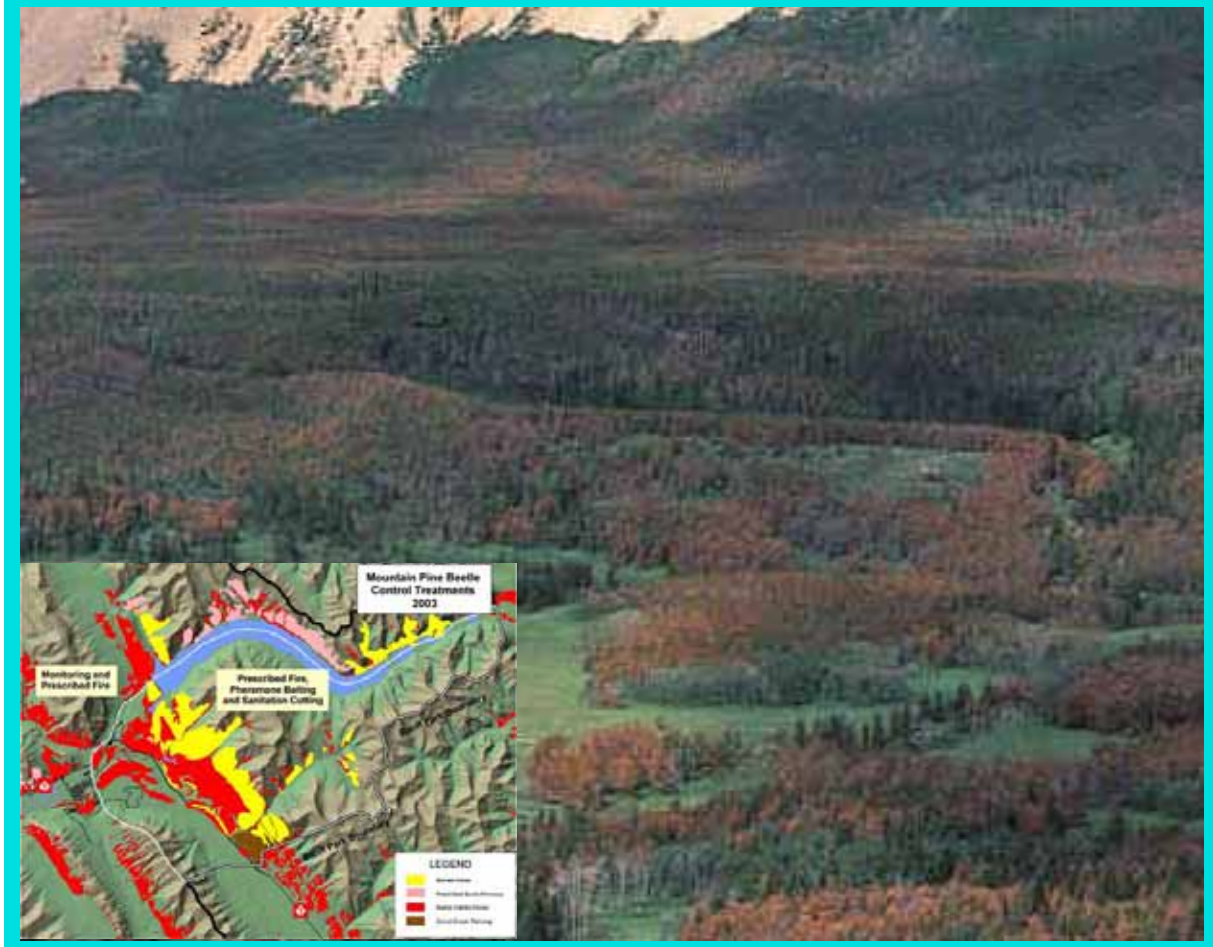


Galleries under bark or in sapwood.

Galleries within heartwood.

Fungal staining.

Indirect Damage - $$$$

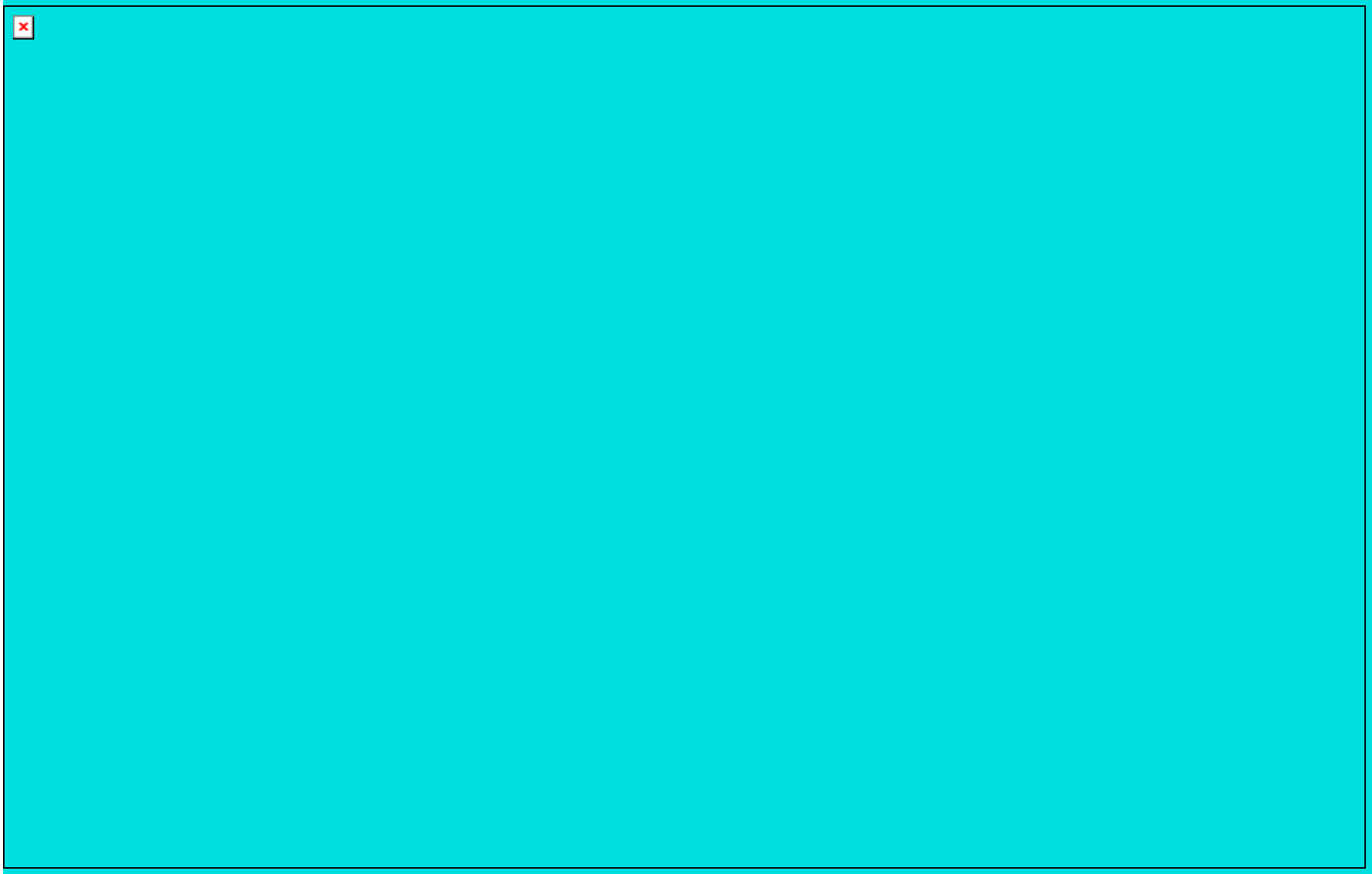


Established exotic species may cause treatment of standing timber.

Recently introduced exotic pests may require eradication.

Apparently infested shipments may be delayed, require treatment, or be refused. Quarantines may close markets.

Increased Global Trade



Pathways of Exotic Timber Pests

#1: Solid Wood Packing Material

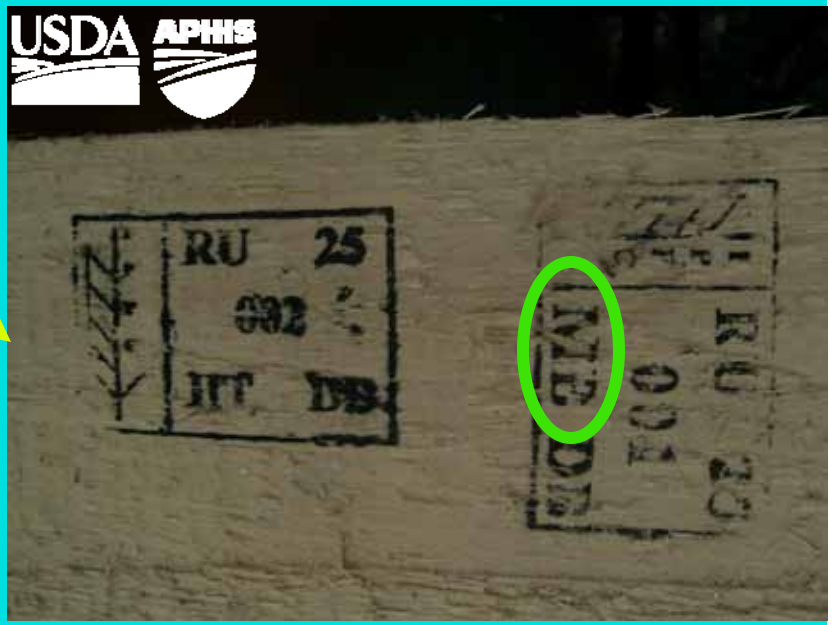
Raw wood packing material

Spools for wire from China

Dunnage offloaded from a single Russian ship at Terminal 6, Port of Portland, 2006.


RU 25
001
MB DB
USDA APHIS


USDA APHIS


USDA APHIS
RU 25
002
JIT DB
MB DB

Portland, September 2006


IPPC
CN-003
DBMB-

Live pupa of Horn-tail Wasp, Siricidae, *Tremex satanus*

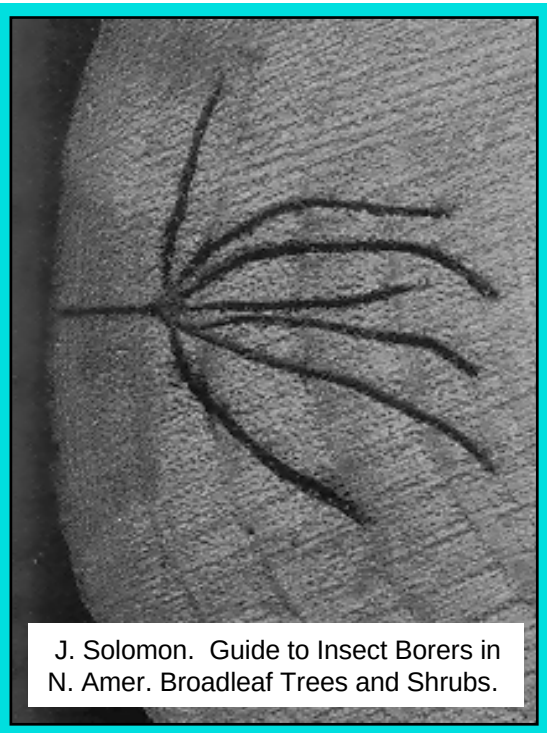
Live larva of Clear-wing Moth, Sessiidae

Raw Wood Products

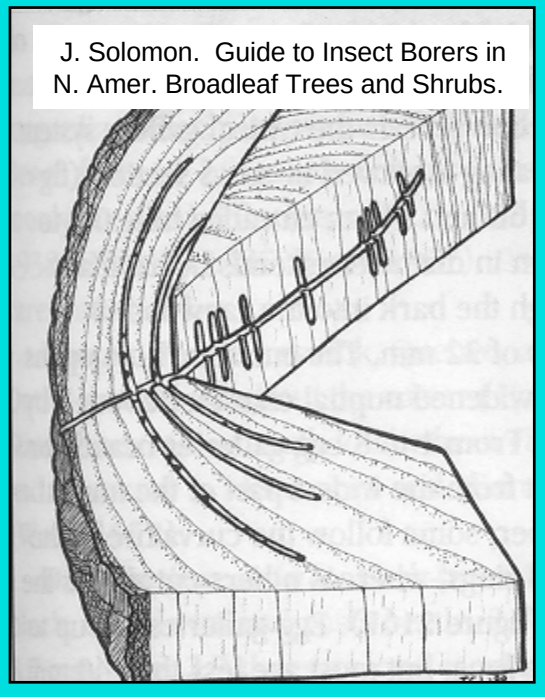
"Shothole" ambrosia beetle gallery entrance in drying raw hardwood railroad tie.


Raw hardwood railroad tie with evidence of recent ambrosia beetle attack.

Ambrosia beetle galleries in cross (top) and radial (bottom) section.



J. Solomon. Guide to Insect Borers in N. Amer. Broadleaf Trees and Shrubs.



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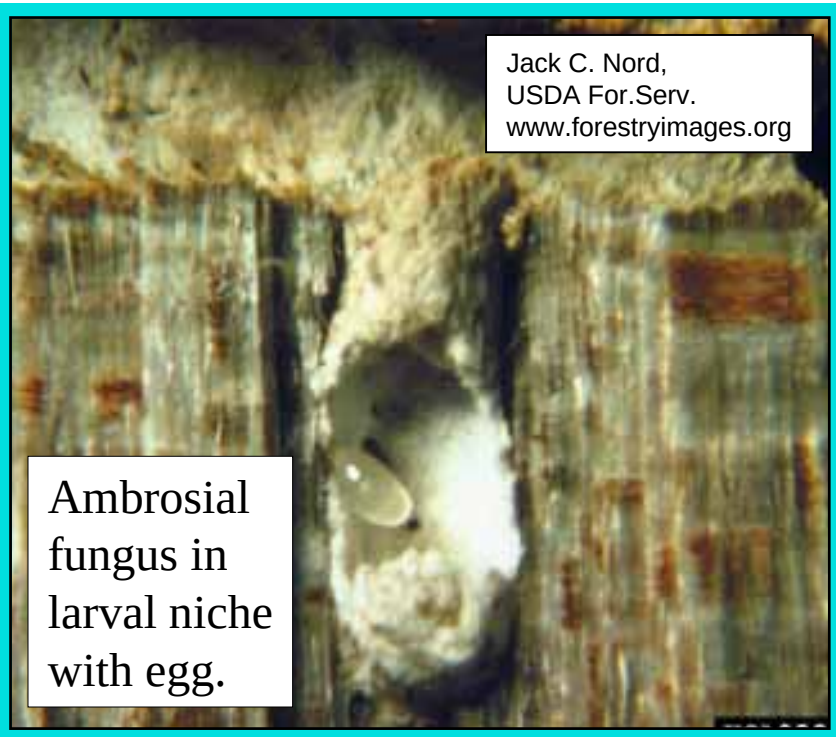


Jack C. Nord, USDA For.Serv. www.forestryimages.org

Ambrosial fungus in larval niche with egg.

Ambrosia beetle larval niches with dead fungus.

J. Solomon. Guide to Insect Borers in N. Amer. Broadleaf Trees and Shrubs.

Nursery Stock

Faux Christmas Trees from China

Smaller Japanese Cedar Longhorned Beetles
(Callidiellum rufipenne and C. villosulum)

Bark Beetles in Bamboo Stakes from China

Courtesy Mark Hitchcox, USDA

Courtesy Mark Hitchcox, USDA

Hypothenemus n. sp.

Longhorned Beetles in Potpourri from India


Courtesy USDA

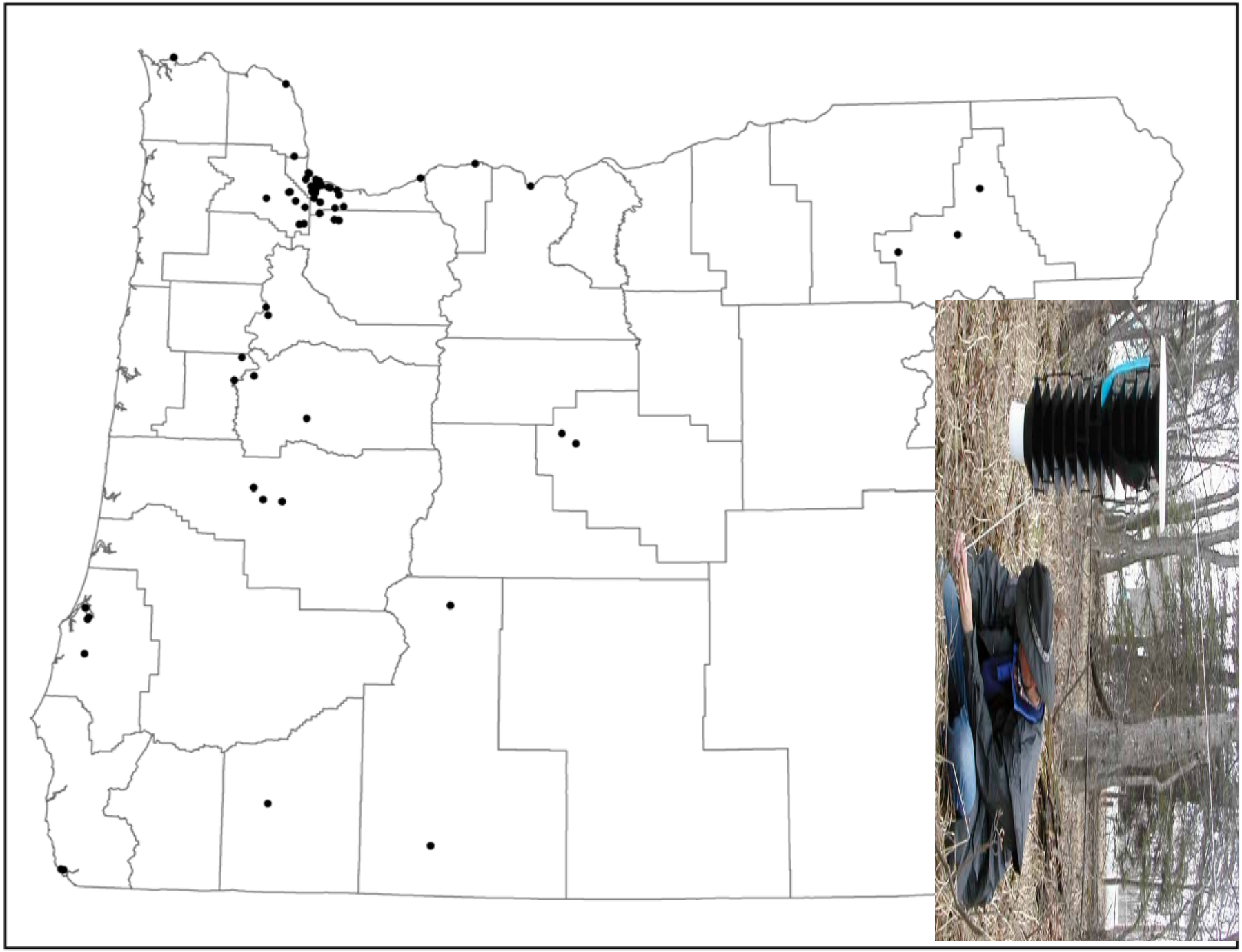

Courtesy USDA


Courtesy USDA

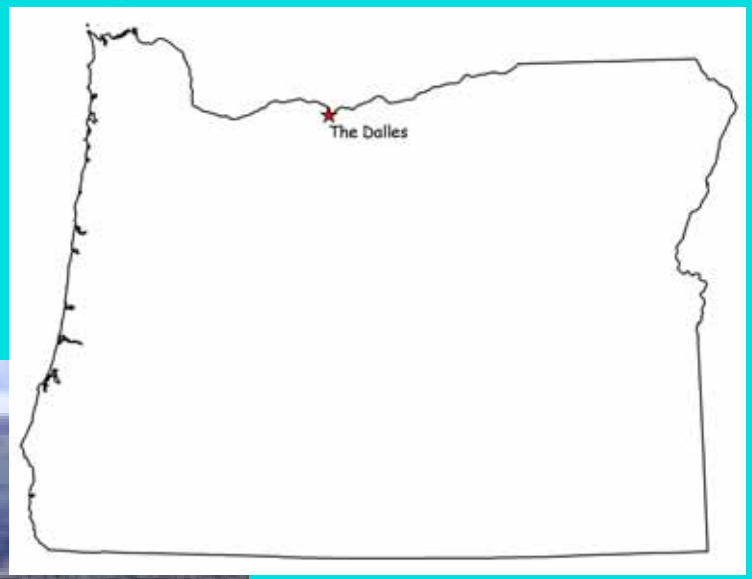

Chlorophorus strobilicola

Beer Casks from Europe

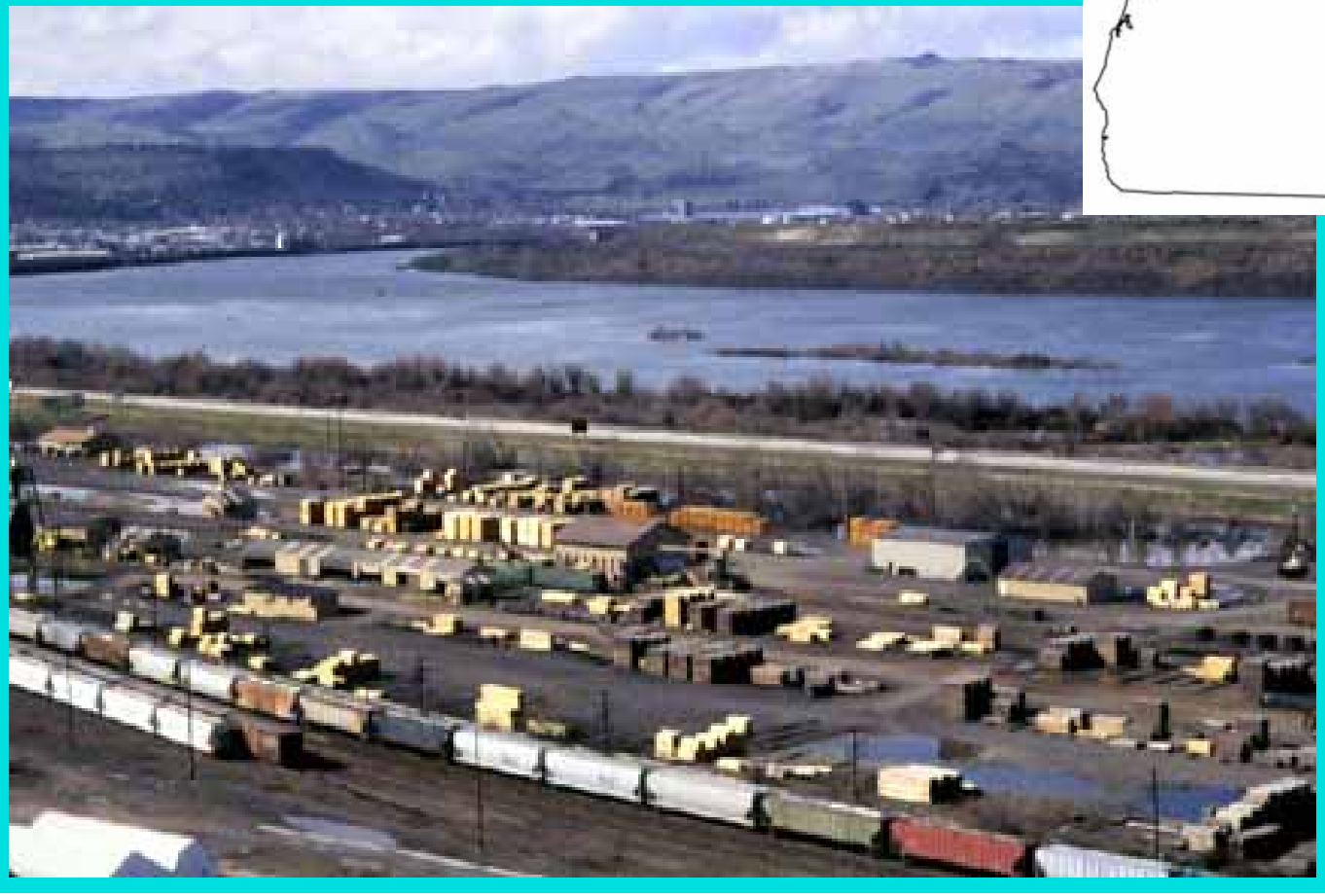
Lesser Shot-hole Borer
Xyleborinus saxesenii



Railroad Tie Creosoting Plant at The Dalles, OR



- Receives raw railroad ties from U.S. (AK & S.E.) and B.C.



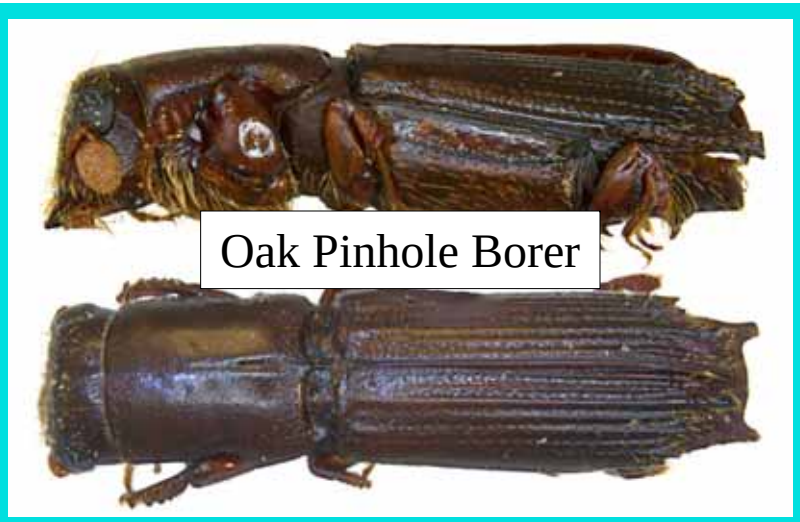
- Surveyed by ODA since 1998


ICE

Drying raw oak railroad ties from the southeastern U.S.

Granulate Ambrosia Beetle

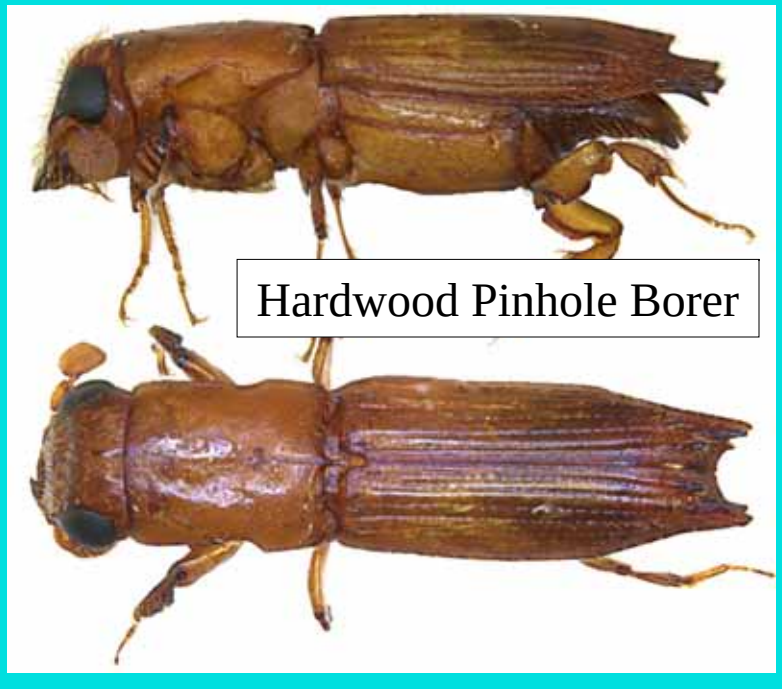
Xylosandrus crassiusculus


Oak Pinhole Borer


Apple Wood Stainer


Yellow-banded Timber Beetle


Oak timberworm

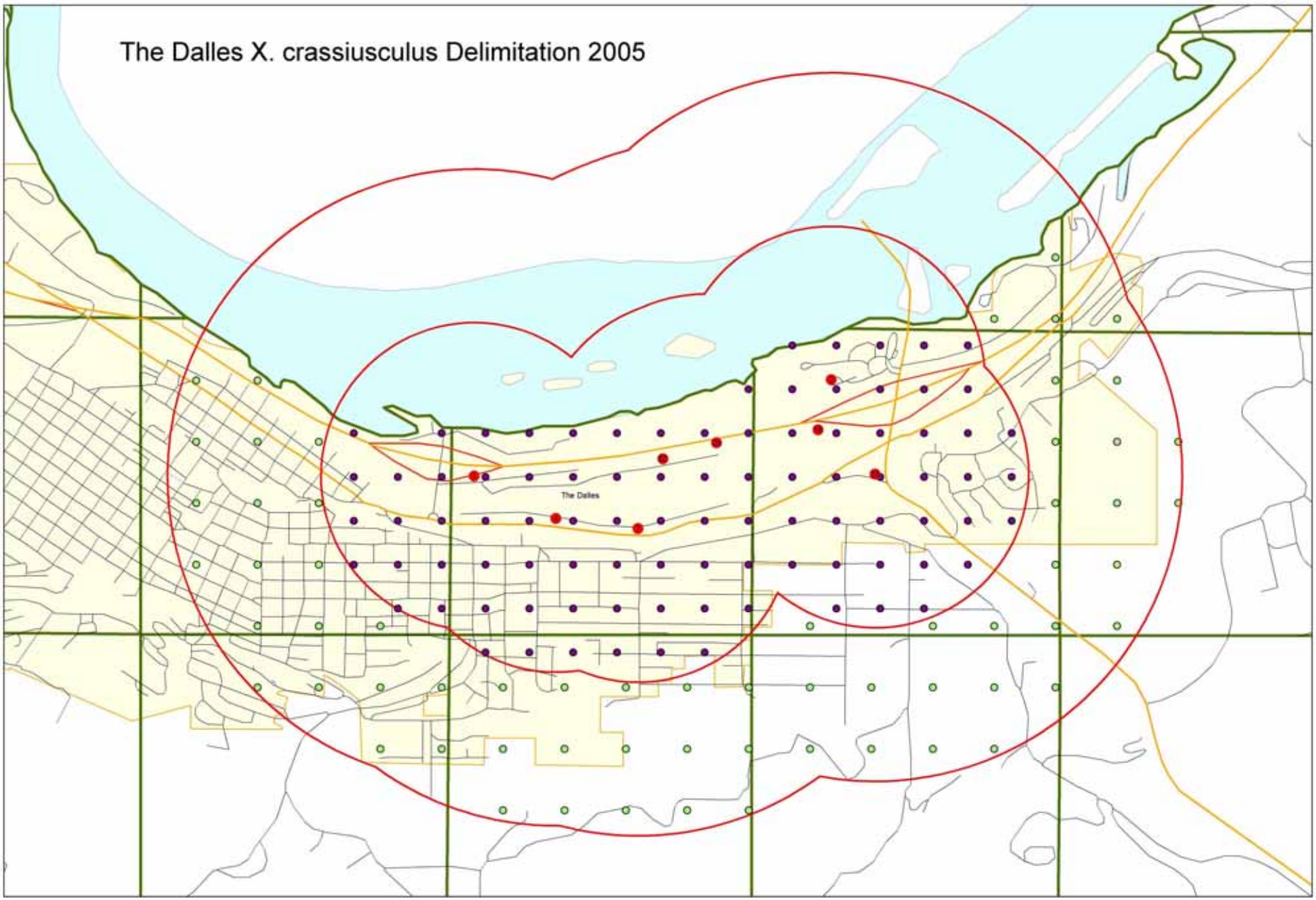

Hardwood Pinhole Borer

Gnathotrichus materiarius

Tetropium castaneum (native to Eurasia)

Carolina sawyer

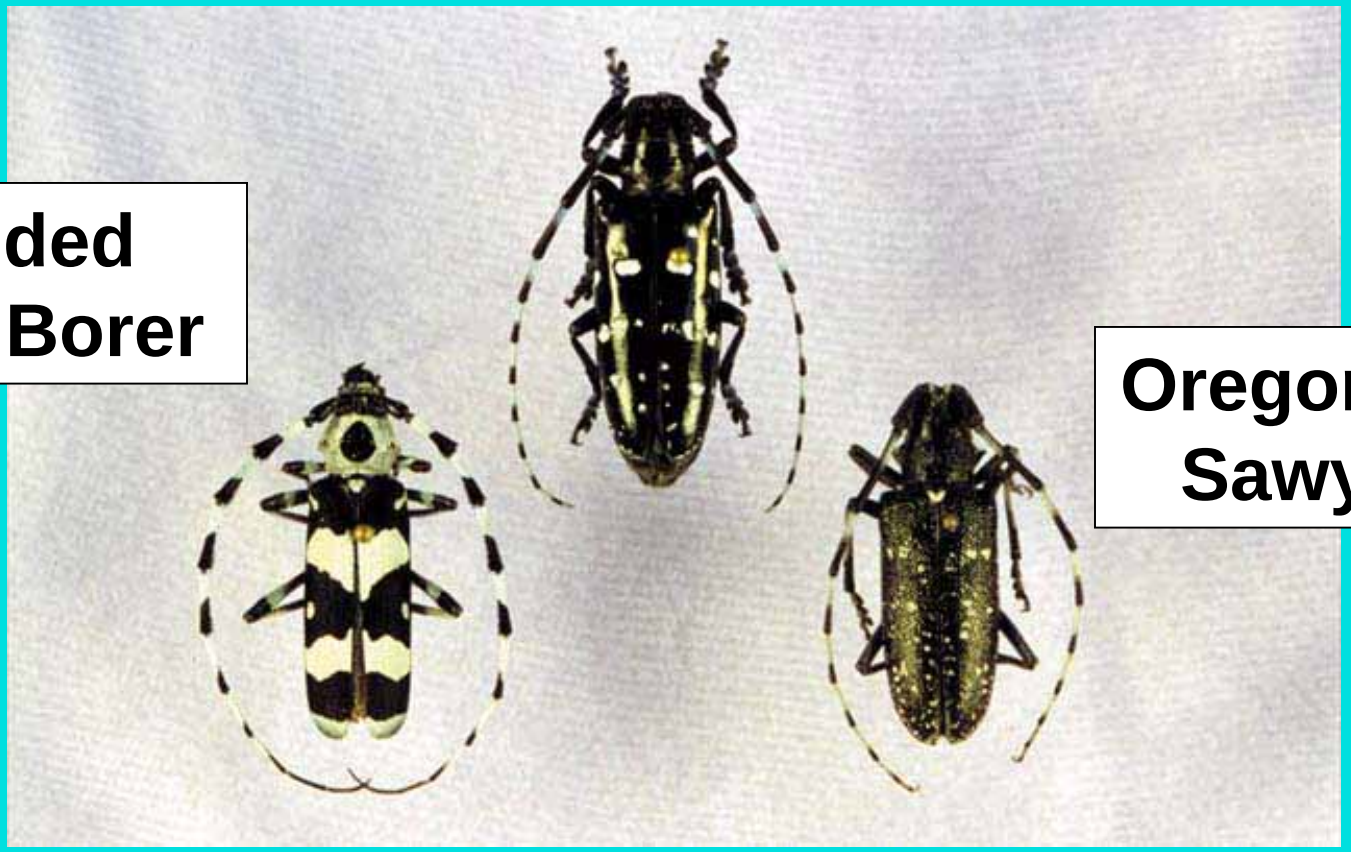
Xylotrechus sagittatus


The Dalles X. crassiusculus Delimitation 2005
The Dalles

Excluding ODA Staff Costs, almost $98,000


City of CHICAGO

Asian Longhorned Beetle
Anoplophora glabripennis



Banded Alder Borer

Oregon Fir Sawyer

Similar Species

Emerald Ash Borer
Agrilus planipennis

European Wood Wasp
Sirex noctilio

European Spruce Bark Beetle

Ips typographus

Exotic Ambrosia Beetles







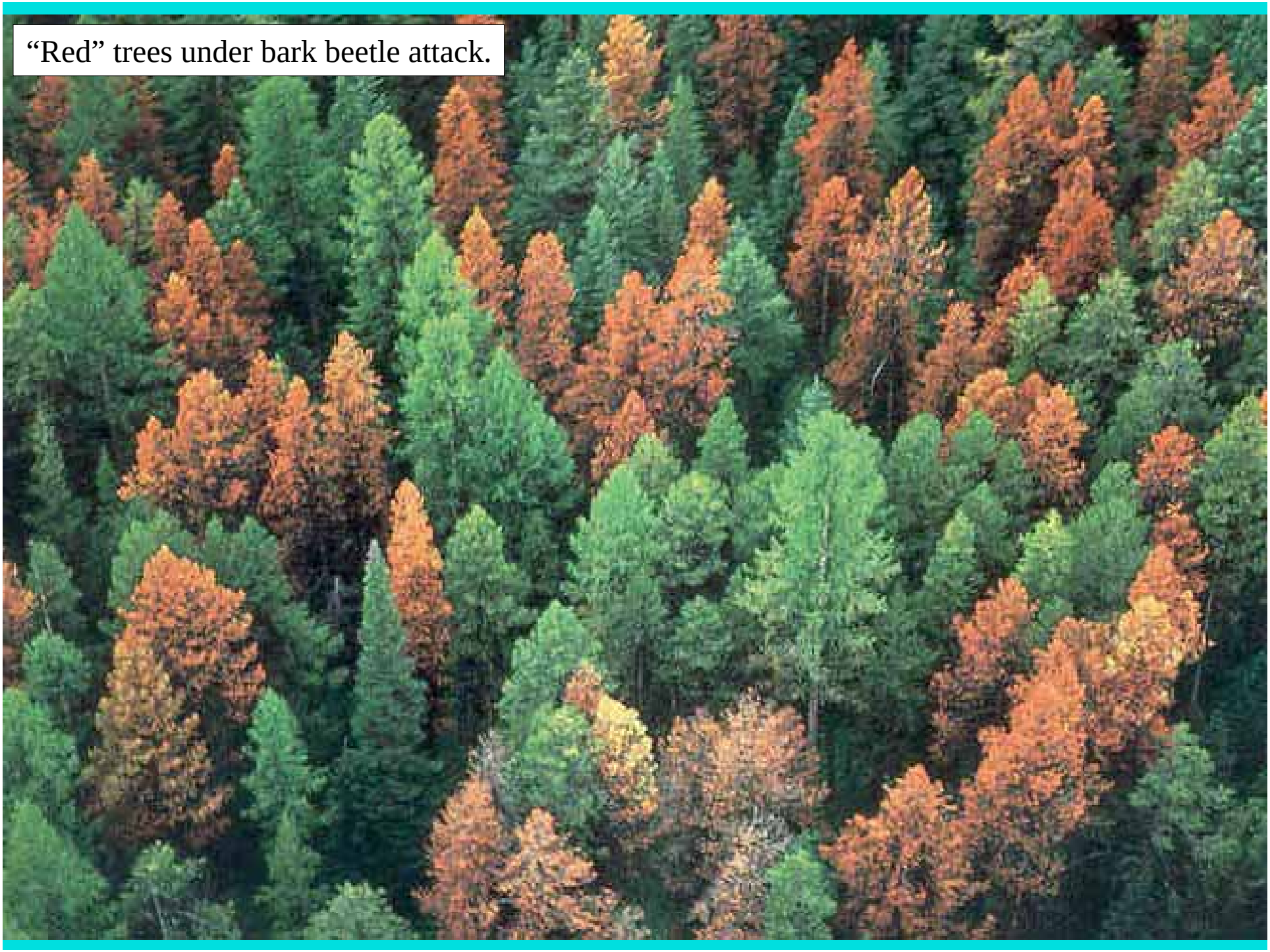


Larvae


Buprestidae
UGA0007014


Cerambycidae
UGA0007013


Scolytidae
UGA0007010


“Red” trees under bark beetle attack.

Crown thinning of tree infested with Asian longhorned beetle.

Symptoms of Infestation by Emerald Ash Borer

Epicormic shoots at the margin of live and dead tissue on the trunk.

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

As tree dies, root sprouting often occurs.

Stand thinning from *Sirex noctilio* infestation.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

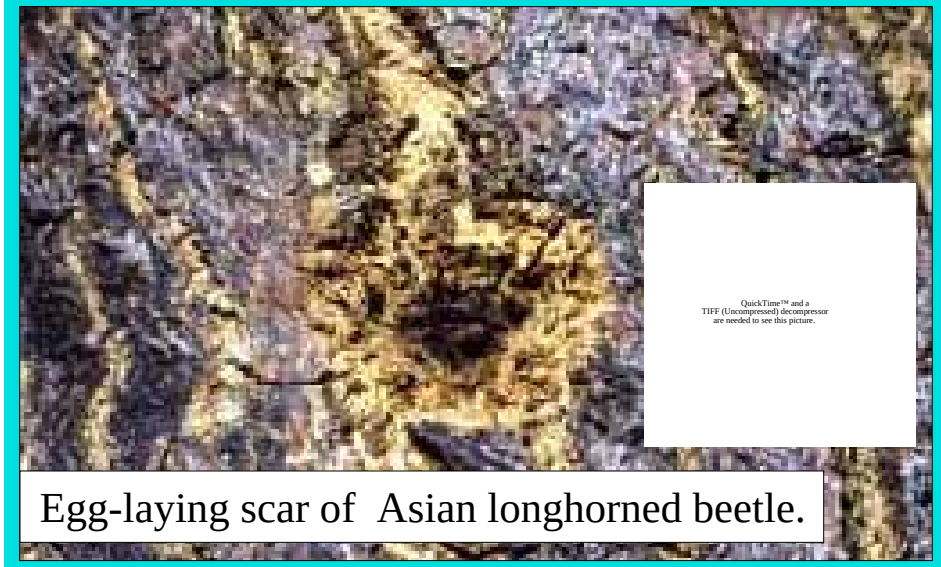
Needles yellowing from *Sirex noctilio* infestation.

Galleries of Asian longhorned beetle.

Photo courtesy of James Appleby, Univ. of Illinois

Galleries of emerald ash borer.

Exit Holes of Emerald Ash Borer



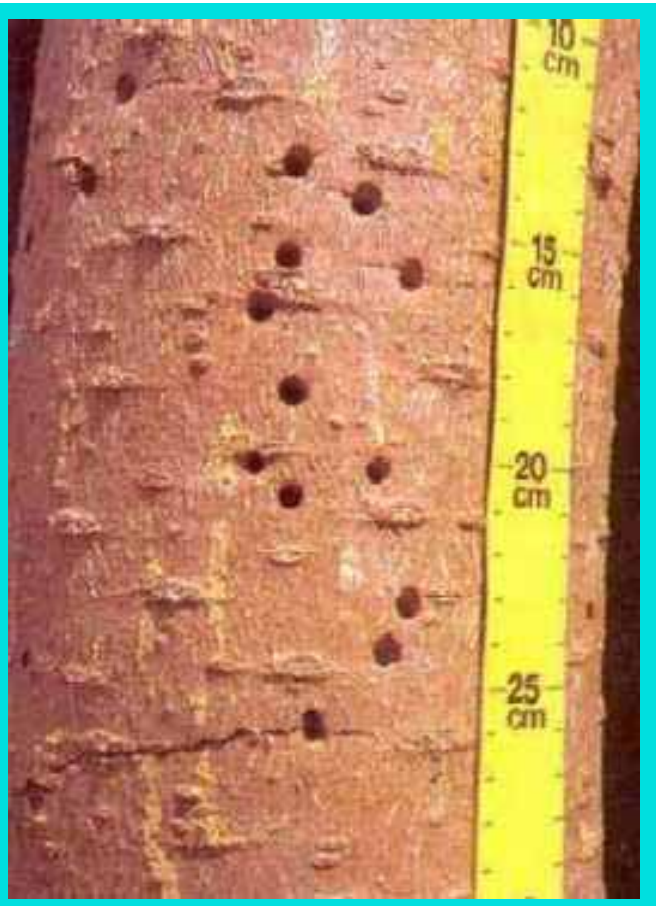
Egg-laying scar of Asian longhorned beetle.

Sap flowing from egg-laying scar of Asian longhorned beetle.

Asian longhorned beetle exit holes.

Resin flow from drills of *Sirex noctilio.*

Staining from mutual-istic fungus of *Sirex noctilio.*



Emergence holes of *Sirex noctilio.*

Photos courtesy of Jason Oliver
Tennessee State University

“Shot” holes of ambrosia beetles.

“Frass pencils” of *Xylosandrus* spp.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

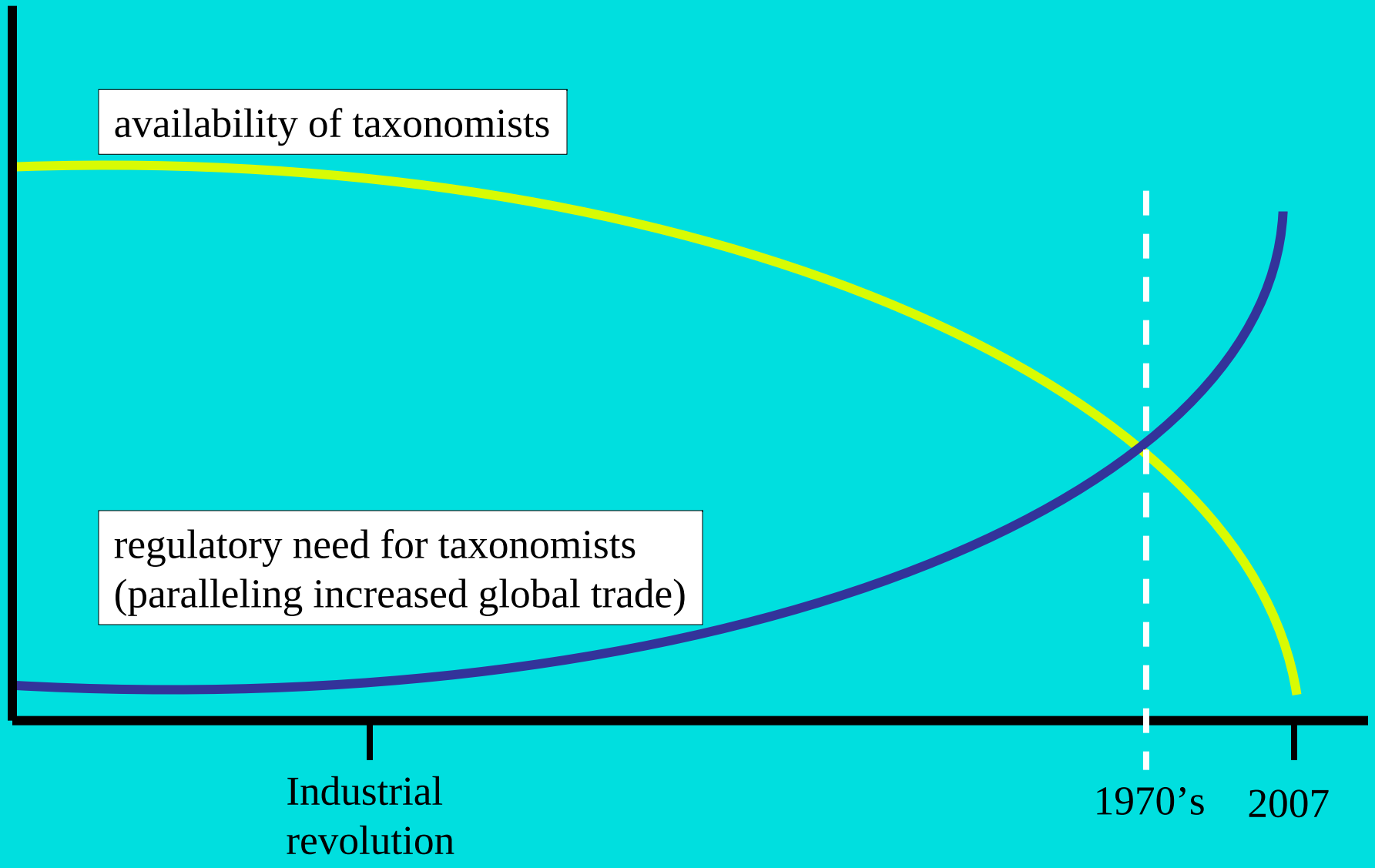
Exotic Scolytids in North America
Year of First Report/Detection

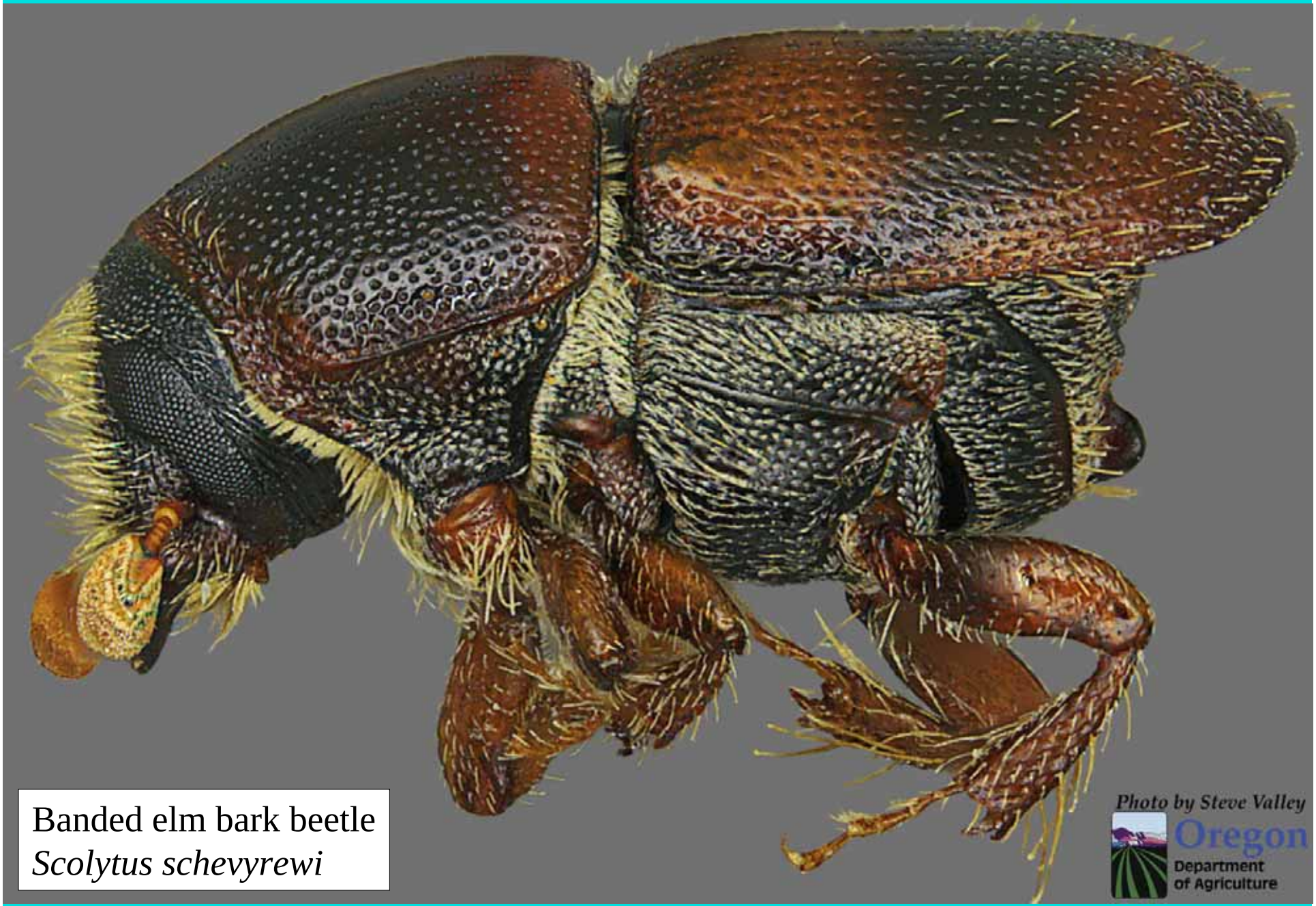
YEAR	**TOTAL**
<1980	**25**
1980's	**10**
1990's	**10**
2000's	**5**
	50

Exotic Scolytids in North America
Area of Origin

CONTINENT	**TOTAL**
Europe	**8**
Eurasia	**7**
Asia	**24**
Africa	**10**
S. America	**1**
	50

Conceptual Graph of the "Taxonomist Bottleneck"




Banded elm bark beetle
Scolytus schevyrewi
Photo by Steve Valley
Oregon
Department
of Agriculture

Minute Bark Beetle
Hypothenemus n. sp.














SCREENING AID FOR EASTERN SCOLYTINAE

JAMES R. LaBONTE

STEVEN A. VALLEY

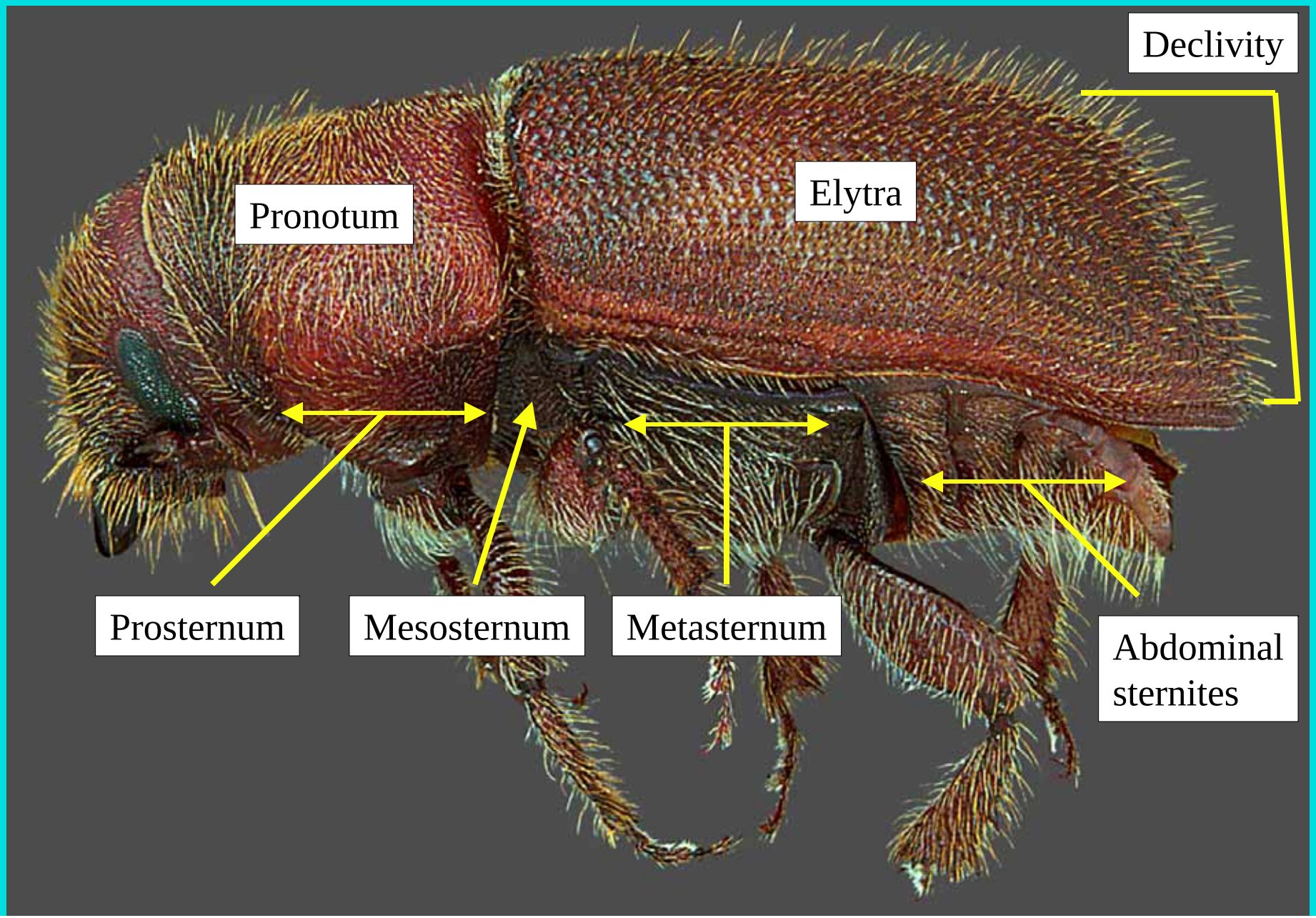
ROBERT J. RABAGLIA

E. RICHARD HOEBEKE

15. Body color reddish yellow; lateral margins of pronotum oblique in front of the evanescent basal angles; pronotum broad……16

Body color yellowish red; lateral margins of pronotum oblique or feebly subsinuate in front of the minutely prominent obtuse basal angles; pronotum narrower……..17

BASIC BODY PARTS OF SCOLYTINAE



A Few Technical Terms

Acuminate: strongly and abruptly tapered to a narrow apex
Arcuate: arched
Carina: an elevated ridge. Plural “Carinae”.
Pubescence: short, fine, closely set hair-like structures
Pubescent: covered with pubescence
Rugae: ridges or wrinkles
Rugose-punctate: with ridges and punctures
Serrate: with notched edges like the teeth of a saw
Seta: relatively long, stiff hair-like structures. Plural “Setae”.
Setose: covered with setae
Transverse: running across the longitudinal axis at right angles
Truncate: squared off
Venter: underside. “Ventral” = on venter.

26 (25)

Propleural setae slender, simple, not divided into more than 2 filaments (**a**)……..……..……27

Propleural setae broad, usually divided into 3 or more filaments (**b**)……...STOP

26a.

26b.

20 (18): Part II

Buprestis aurulenta

20b: Blue form.

20c: Inter-mediate form.

20d: Green form.

Forest Health Technology
Enterprise Team

TECHNOLOGY
TRANSFER

Siricid Guide

GUIDE TO THE SIRICID WOODWASPS OF NORTH AMERICA

NATHAN M. SCHIFF, STEVEN A. VALLEY, JAMES R. LABONTE, AND DAVID R. SMITH

USDA U.S. Department of Agriculture
Forest Service
Forest Health Technology Enterprise Team—Morgantown
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