



Invasive Ambrosia Beetle Conference

The Situation in California

August 12 - 14, 2012

Meeting sponsored by:

The Hofshi Foundation

University of California, Riverside

UC Center for Invasive Pest Research

The Huntington Botanical Gardens

The Los Angeles Arboretum

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Session 2
Systematics

Ambrosia Beetle Systematics

Non-Natives in the US

Robert Rabaglia, Forest Health Protection, USDA Forest Service

APHIS Pest Interception Network

- 1985-2000: 600,000 pest interceptions**
- Coleoptera 4th most common order**
- Most commonly intercepted beetle family:
Scolytidae**
- 68,000 scolytids intercepted in 49 genera**

Solid Wood Packing Material Intercepted Scolytidae (Coleoptera) at U.S. ports of entry: 1985–2000

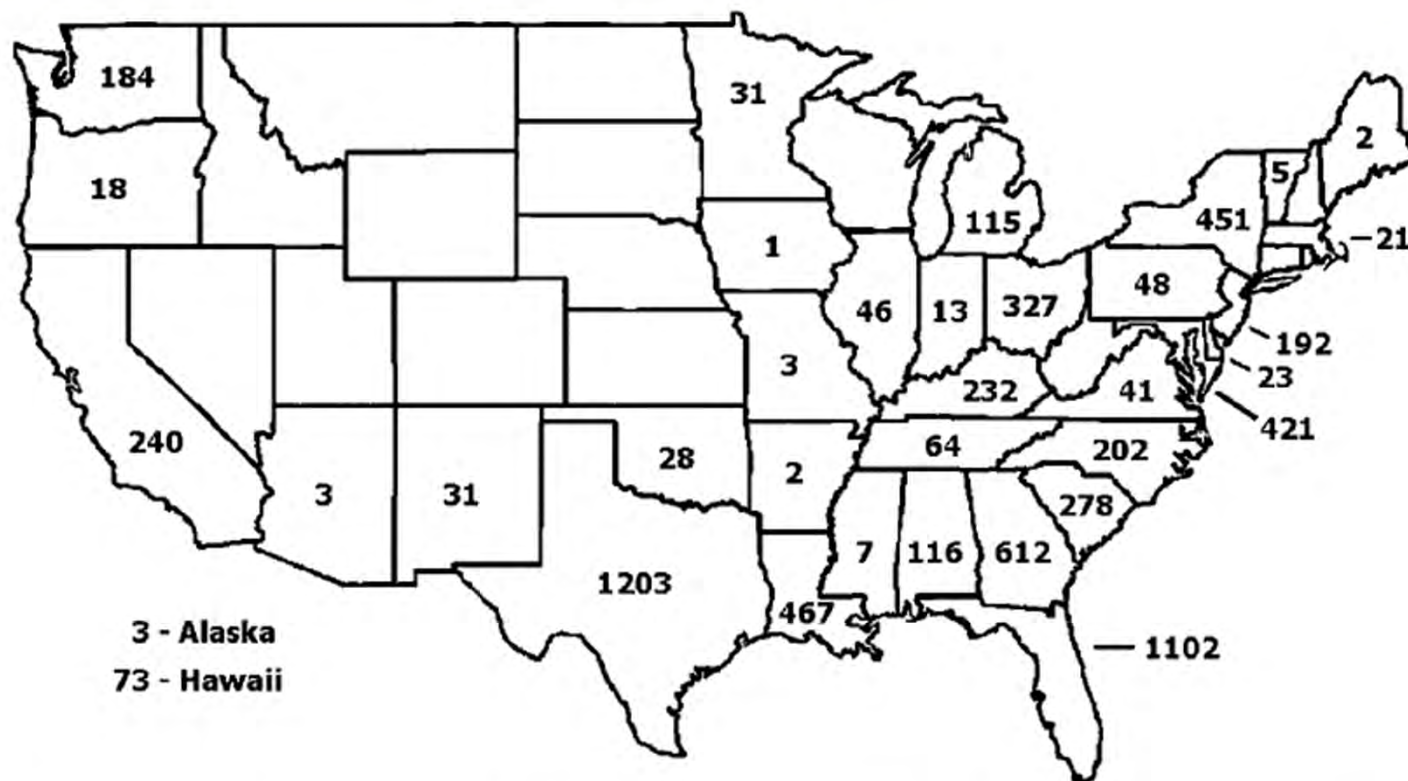


Figure 1. Number of scolytid interceptions made at U.S. ports of entry during 1985–2000 that were entered into the USDA APHIS Port Information Network (PIN) database by state.

Scolytidae (or scolytinae):

- ~ 6,000 species worldwide
- ~560 species in US
- 62 non-native species in US

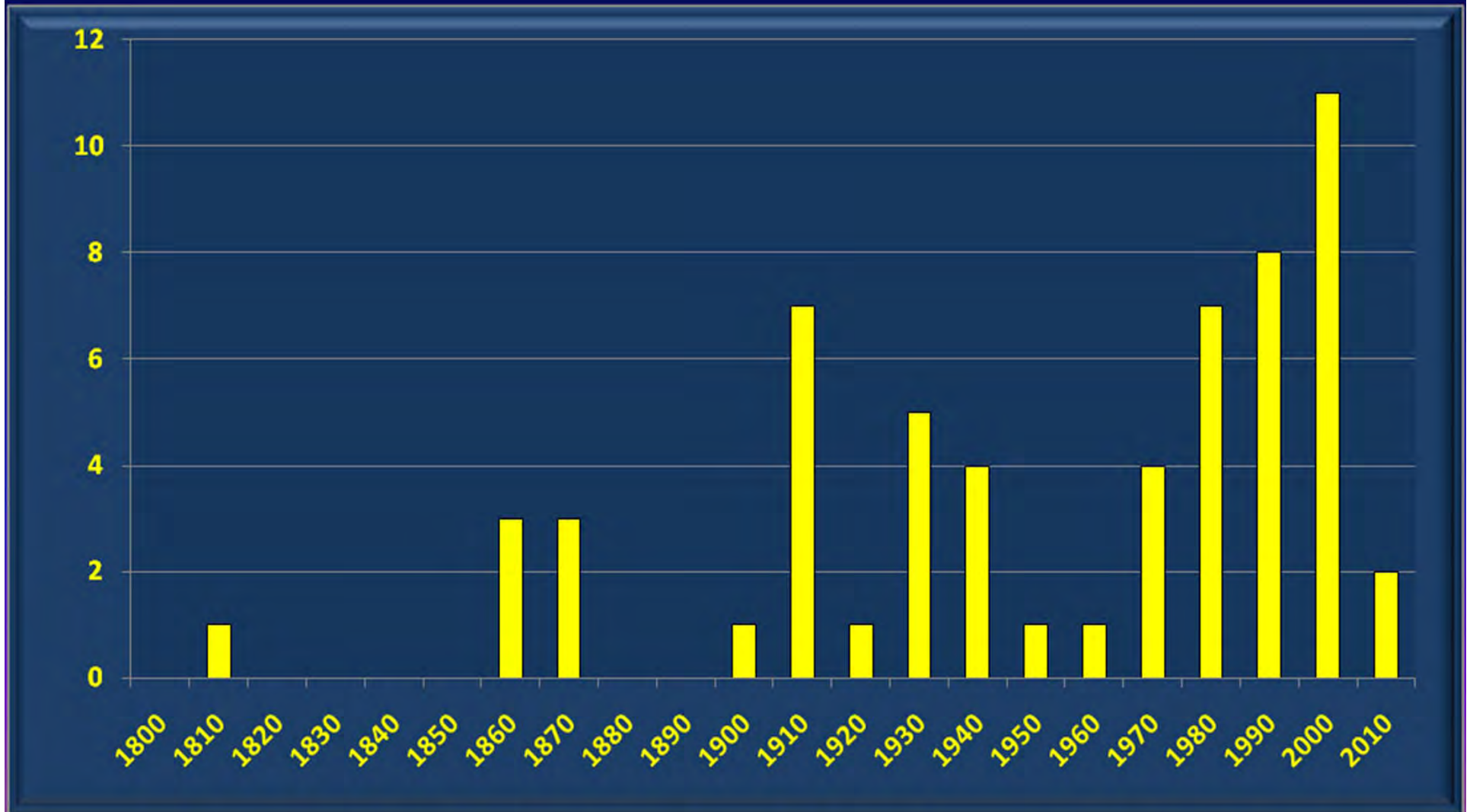
Exotic Scolytids Established in US and Canada

Year of First Report/Detection

<u>YEAR</u>	<u>TOTAL</u>
<1980	30
1980's	7
1990's	9
2000's	10
2010's	6
	62

Exotic Scolytids Established in US & Canada

Decade of First Report/Detection



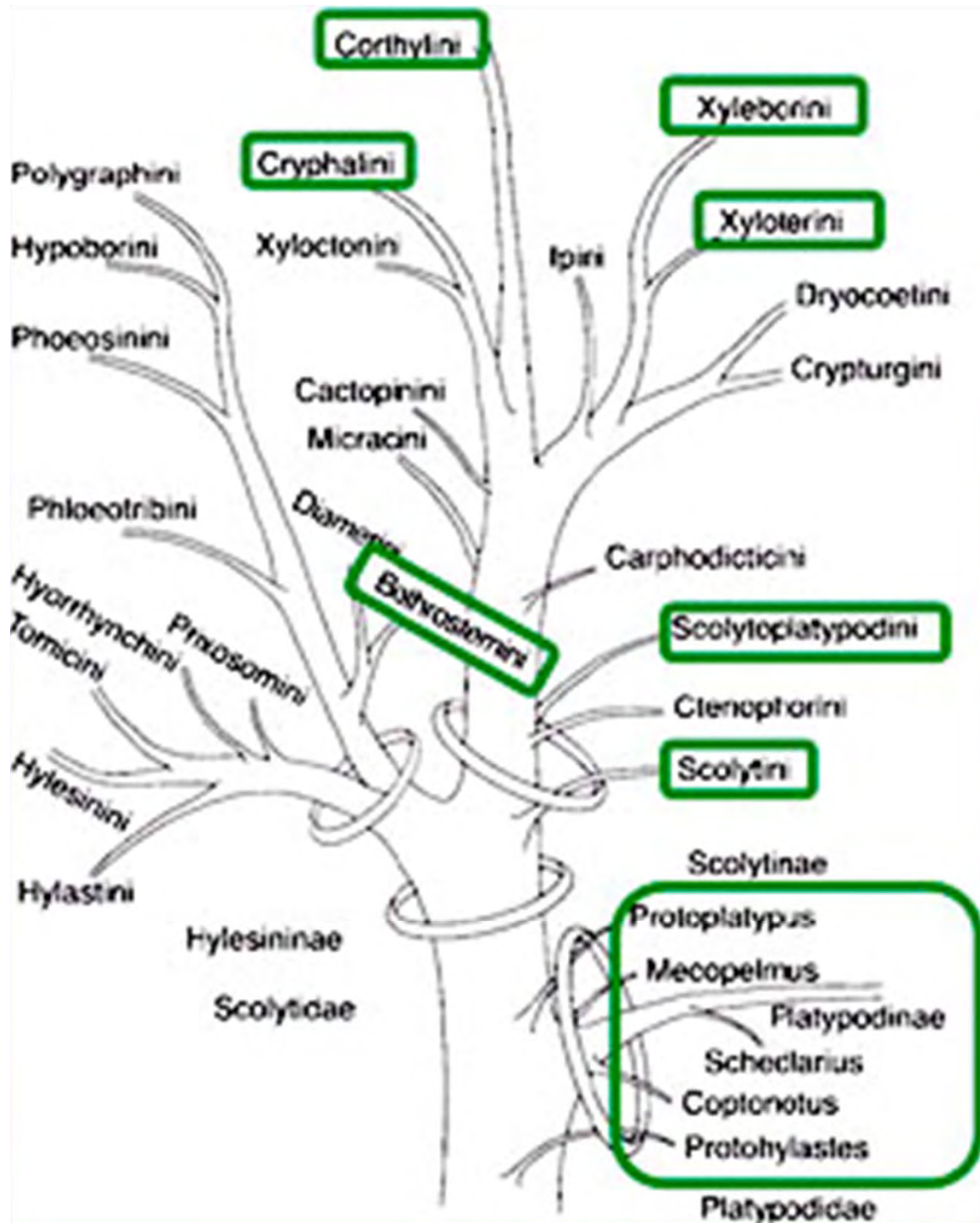
- *Coccotrypes advena*
- *Hylastes opacus*
- *Ambrosiophilus atratus*
- *Coccotrypes vulgaris*
- *Ambrosiodmus lewisi*
- *Tomicus piniperda*
- *Xyleborus pfeili*
- *Hypothenemus setosus*
- *Tyrpodendron domestictum*
- *Hylurgops palliatus*
- *Xyleborus glabratus*
- *Wallacellus similis*
- *Euwallacea fornicatus*
- *Scolytus schevyrewi*
- *Xylosandrus amputatus*
- *Phloeosinus armatus*
- *Euwallacea validus*
- *Cyclorhipidion pelliculosum*
- *Dryoxylon onoharaensum*
- *Pityogenes bidentatus*
- *Coccotrypes rutshurensis*
- *Hylurgus ligniperda*
- *Xyleborinus alni*
- *Cnestus mutilatus*
- *Orthotomicus erosus*
- *Xyleborus seriatus*
- *Anisandrus maiche*
- *Xyleborinus octiesdenatus*
- *Xyleborinus andrewesi*
- *Dactylotrypes longicollis*

Exotic Scolytids Established in the US and Canada

	Bark Beetles	Ambrosia Beetles	Seed & twig Beetles
Total	14	28	20

Ambrosia Beetles





Xyleborini:

~1200 species
worldwide

Many in the tropics

Exotic Scolytids Established in the US and Canada

Xyleborine Ambrosia Beetles

<u>Genus</u>	<u>Species</u>	<u>Exotic Species</u>
Ambrosiophilus	1	1
Ambrosiodmus	8	3
Cnestus	1	1
Cycloriphidion	2	2
Euwallacea	3	3
Xyleborus	14	5
Xylosandrus	5	4
Xyleborinus	6	5
Dryocoetoides	1	0
Coptoborus	1	0
Anisandrus	4	2
Total	46	26

Exotic Scolytids Established in the US and Canada

Xyleborine Ambrosia Beetles

Easily transported and established:

- **Skewed sex ratio**
- **Sib-mating**

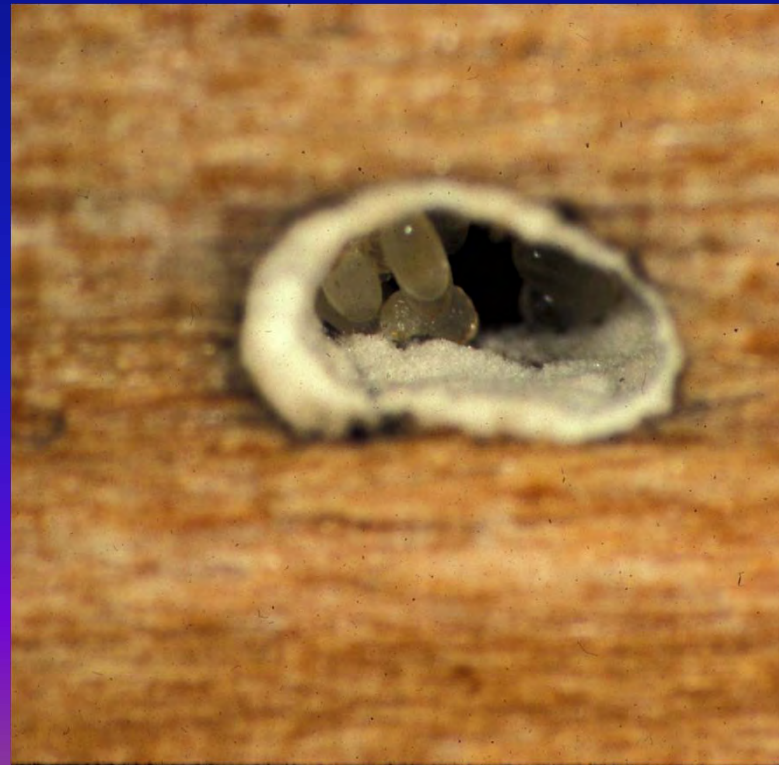


Exotic Scolytids Established in the US and Canada

Xyleborine Ambrosia Beetles

Easily transported and established:

- **Skewed sex ratio**
- **Sib-mating**
- **Broad host range**
- **Warm/humid climate**



- ***Coccotrypes advena***
- ***Hylastes opacus***
- *Ambrosiophilis atratus*
- ***Coccotrypes vulgaris***
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“Important” Non-Native Scolytids in the US

- *Anisandrus dispar*
- *Xyleborinus saxesenii*
- *Scolytus multistriatus*
- *Xylosandrus compactus*
- *Xylosandrus crassiusculus*
- *Tomicus piniperda*
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Euwallacea

~ 60 species worldwide

3 species in the US:

E. validus – Eastern US

E. interjectus – Southeastern US

E. fornicatus – FL and CA



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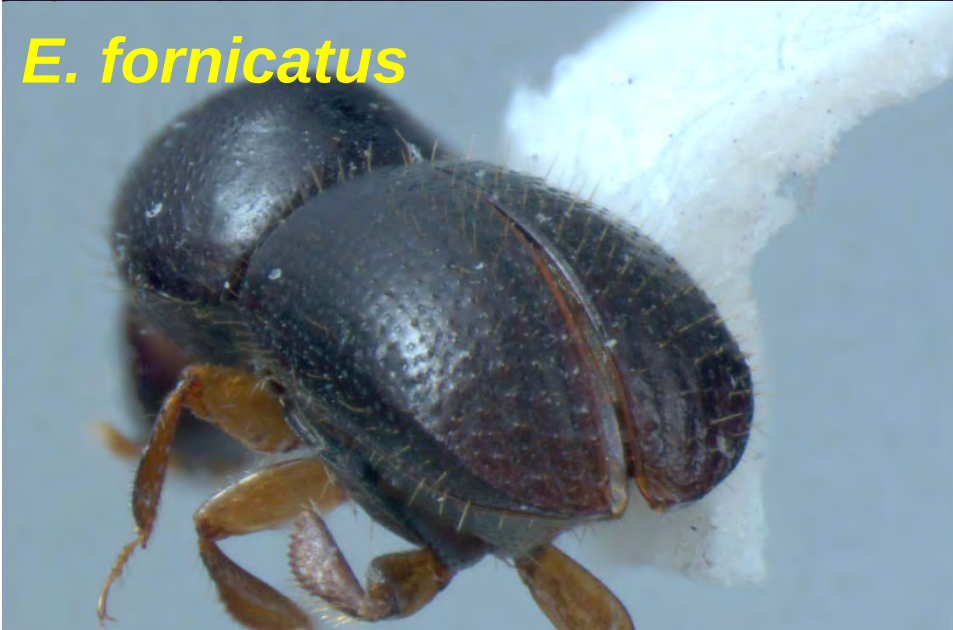
E. interjectus – Southeastern US

E. fornicatus – FL and CA (?)



Euwallacea fornicatus-like species

E. fornicatus



E. andamanensis



E. xanthopus



E. velatus



Euwallacea fornicatus-like species

Euwallacea andamanensis

Distribution:

Asia: Bangladesh, Burma, India,

Indonesia, Thailand, Vietnam, Malaysia,

New Guinea



Euwallacea fornicatus-like species

Euwallacea velatus

Distribution:

Asia: Burma, China, India, Indonesia



Euwallacea fornicatus-like species

Euwallacea xanthopus

Distribution:

Africa: Côte d'Ivoire, Kenya, Madagascar, Nigeria, South Africa, Tanzania, Uganda, Zaire

Asia: Burma, India, Indonesia, Philippines, Sri Lanka, Thailand, Malaya

Pacific Islands: Fiji



Euwallacea fornicatus-like species

Euwallacea xanthopus

Synonyms:

Euwallacea rudis, *Euwallacea semirudis*, *Euwallacea fraternus*, *Euwallacea sereinuus*, *Euwallacea dubius*, *Euwallacea hybridus*, *Euwallacea kivuensis*, *Euwallacea interruptus*, *Euwallacea neohybridus*, *Euwallacea artehybridus*, *Euwallacea longehirtus*

Euwallacea fornicatus Eichhoff, 1868

Distribution:

Asia: Bangladesh, Burma, China, India, Indonesia, Japan, Philippines, Sri Lanka, Taiwan, Thailand, Vietnam, Malaysia, New Guinea, Israel

North America: Costa Rica, Panama, US (CA and FL)

Pacific Islands: Fiji, Micronesia, Caroline Islands, New Britain, Reunion Island, Hawaii

Australia

Euwallacea fornicatus Eichhoff, 1868

Synonyms:

Euwallaceus fornicator Eggers, 1923, Sri Lanka

Euwallacea whitfordiodendrus Schedl, 1942, Malaysia

Euwallacea perbrevis Schedl, 1951, Philippines (Rizal)

Euwallacea schultzei Schedl 1951, Philippines (Luzon)

Euwallacea tapatapaoensis Schedl, 1951, Samoa

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Euwallacea fornicatus Eichhoff, 1868

Sri Lanka



Thailand

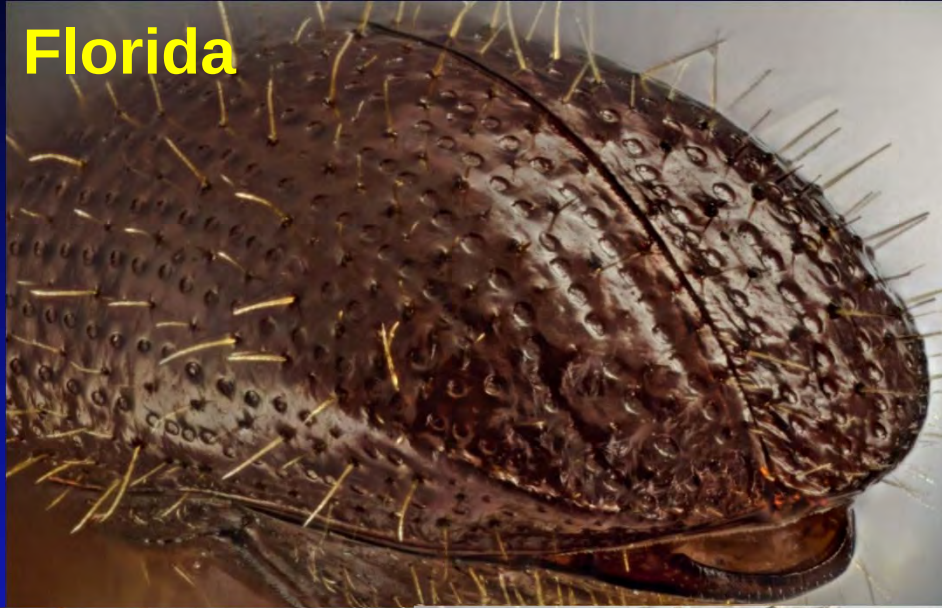


Hawaii



Euwallacea fornicatus Eichhoff, 1868

Florida



Israel



California



Thanks to:

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