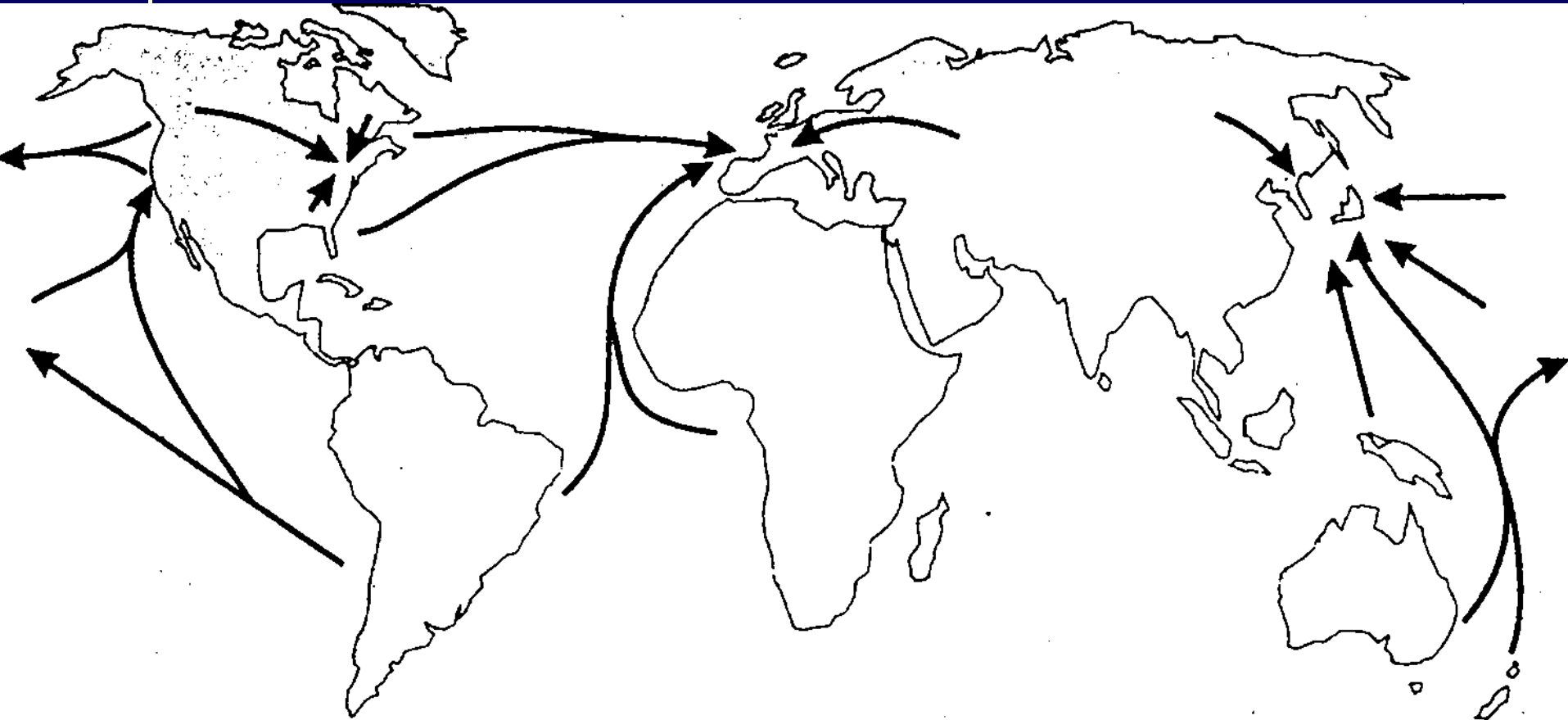




Non-Native Bark and Ambrosia Beetles

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Major flows of **forest products** in international trade (Liebhold et. al 1995).





Exotic Scolytids in North America

APHIS Pest Interception Network

- 1985-2000: 600,000 pest interceptions
- Coleoptera 4th most common order
- Most commonly intercepted beetle family:
Scolytidae

Scolytidae (or Scolytinae):

- > 5,000 species worldwide
- Bark beetles and ambrosia beetles
 - Also twig and seed infesting species
- Herbiphagy, spermophagy, phloeophagy, xylophagy, xylomycetophagy.
- Monogamy, heterosanguineous polygyny, consanguineous polygyny (arrhenotokic parthenogenesis), gynogenetic polygyny.
- Polyphagy, monophagy...pheromones...

Exotic Scolytids in North America

Year of First Report/Detection

<u>YEAR</u>	<u>TOTAL</u>
<1980	29
1980's	8
1990's	10
2000's	8
	55

- *Coccotrypes advena*
- *Hylastes opacus*
- *Xyleborus atratus*
- *Coccotrypes vulgaris*
- *Ambrosiodmus lewisi*
- *Tomicus piniperda*
- *Xyleborus pfeili*
- *Hypothenemus setosus*
- *Tyrpodendron domesticum*
- *Hylurgops palliatus*
- *Xyleborus glabratus*
- *Xyleborus similis*
- *Euwallacea fornicatus*
- *Scolytus schevyrewi*
- Phloeosinus armatus*
- Euwallacea validus*
- Xyleborus pelliculosus*
- Dryoxylon onoharaensum*
- Pityogenes bidentatus*
- Coccotrypes rutshurensis*
- Hylurgus ligniperda*
- Xyleborinus alni*
- Xylosandrus mutilatus*
- Orthotomicus erosus*
- Xyleborus seriatus*
- Xyleborus maiche*

Exotic Scolytids in North America

Area of Origin

<u>CONTINENT</u>	<u>TOTAL</u>
Europe	4
Eurasia	12
Asia	27
Africa	11
S. America	1
	55

Exotic Scolytids in North America

Habits and Area of Origin

	Bark Beetles	Ambrosia Beetles	Seed & twig Beetles
Europe	4		
Eurasia	8	4	
Asia	1	17	9
Africa		1	10
S. Amer			1

Exotic Scolytids in North America

Xyleborine Ambrosia Beetles

<u>Genus</u>	<u>Species</u>	<u>Exotic Species</u>
Premnobius	1	1
Ambrosiodmus	7	2
Euwallacea	2	2
Xyleborus	20	9
Xylosandrus	5	4
Xyleborinus	3	2

Exotic Scolytids in North America

Xyleborine Ambrosia Beetles

Easily transported and established:

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





Exotic xyleborines in North America

<u>Genus</u>	<u># spp.</u>	<u>Hosts</u>	<u>Aggressive</u>
Premnobius	1	Hardwood	Low
Ambrosiodmus	2	“	Mod-?
Xyleborus	9	“	Mod-?
Euwallacea	2	“	Mod-High
Xyleborinus	2	“	Mod?
Xylosandrus	4	“	Mod-High

Xyleborus glabratus



Early Detection & Rapid Response (EDRR) Pilot Project, 2001-2006

Results

2001 – *Hylurgops palliatus* near Erie, PA

2002 – *Xyleborus similis* in Houston, TX
Xyleborus glabratus near Savannah, GA

2003 – *Scolytus schevyrewi* in CO & UT

2005 – *Xyleborus seriatus* in MA

