



Incidental hitchhikers

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Pathways



- Ballast water
- Boat Hulls
- Aquaculture escapes
- Intentional introduction
- Aquarium Releases
- Live food industry
- Vehicular transport
- Escaped Ornamentals
- Cross-basin connections
- Bait releases
- Illegal stockings
- Pathogens
- Pets

Examples



Burmese pythons are for sale online and over 144,000 have been imported into the United States for the exotic pet trade from 2000-2005



Over one third of species on IUCN's list of the worst aquatic invaders are ornamental and aquarium species. (Lowe et al 2000)

Nearly every species prohibited in Texas is for sale on the internet



Cato and Brown (2003)

There are over:

Over 1500 ornamental fish species sold

Almost 300 invertebrate species sold

Over 100 coral species sold



Keller and Lodge 2007

Internet used in the:

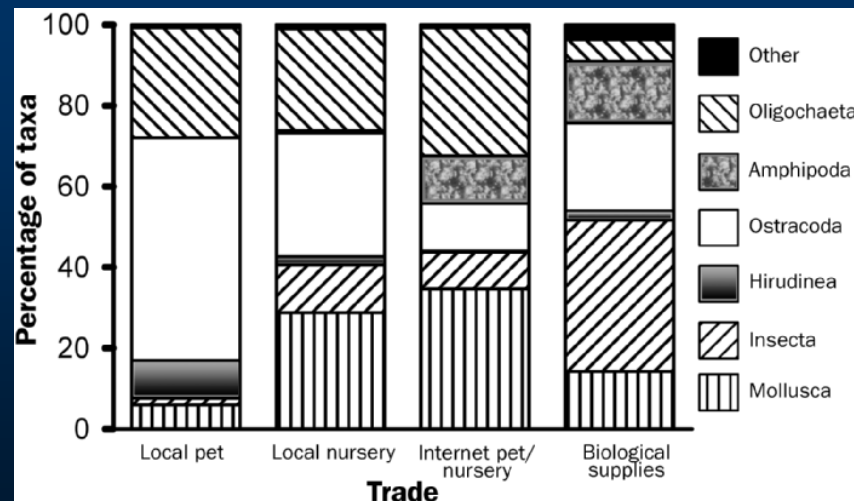
Biological supply trade

Pet trade

Nursery trade

Keller and Lodge 2007

1. 90% of 115 Plant samples contained associated live invertebrates
2. Internet sales in the pet and nursery trades typically contained about 0.5-1.0 organisms per gram
3. About 60% were oligochaetes or molluscs



Live Seafood Packaging



Felt-soled Waders



Invasive species that are transported by felt soles include:

- Zebra mussel veligers
- Didymo (Rock snot algae)
- Spiny waterfleas
- VHS disease of fish
- Whirling disease of fish
- Faucet snails
- New Zealand mud snails



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Daphnia lumholtzi



**Found in the Illinois River -
Likely introduced to North
America with African fish
imported for the aquarium
trade or to stock reservoirs
Stoeckel and Charlebois
(1999)**

Japanese Stiltgrass

Microstegium vimineum

Probably introduced as packing material
from China



Stem and bulb nematode *Ditylenchus dipsaci*

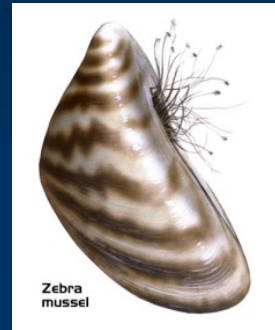


**Garlic, onions, peas, beets, pumpkin,
rubarb, ornamentals**

Education

Awareness Campaigns

- Strategy: Multi-media campaign
 - On-the-Ground
 - Broadcast and Print
 - Online
 - TPWD Outreach
 - Fishing Events
 - Media Events





Thank
You!

Tiger Prawn

Penaeus monodon

