



United States Department of Agriculture  
Animal and Plant Health Inspection Service

**Plant Protection and Quarantine**



# Current Issues in Invasive Species Management

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**Plant Protection and Quarantine**  
**Emergency and Domestic Programs**

# Our Mission

## Safeguarding U.S. Agriculture and Natural Resources

- To ensure an abundant, high-quality, and varied food supply
- To strengthen the marketability of U.S. agriculture
- To preserve U.S. ecosystems and protect against invasive species

# How We Keep Out Foreign Pests

- Establish risk-based import regulations and policies for agricultural commodities (e.g., produce, plants, craft products)
- Inspect and treat agricultural commodities for pests in their country of origin prior to export to the United States
- At inspection stations, inspect propagative material imported into the United States, taking appropriate action when pests are detected

# How We Ensure Safe Agricultural Trade

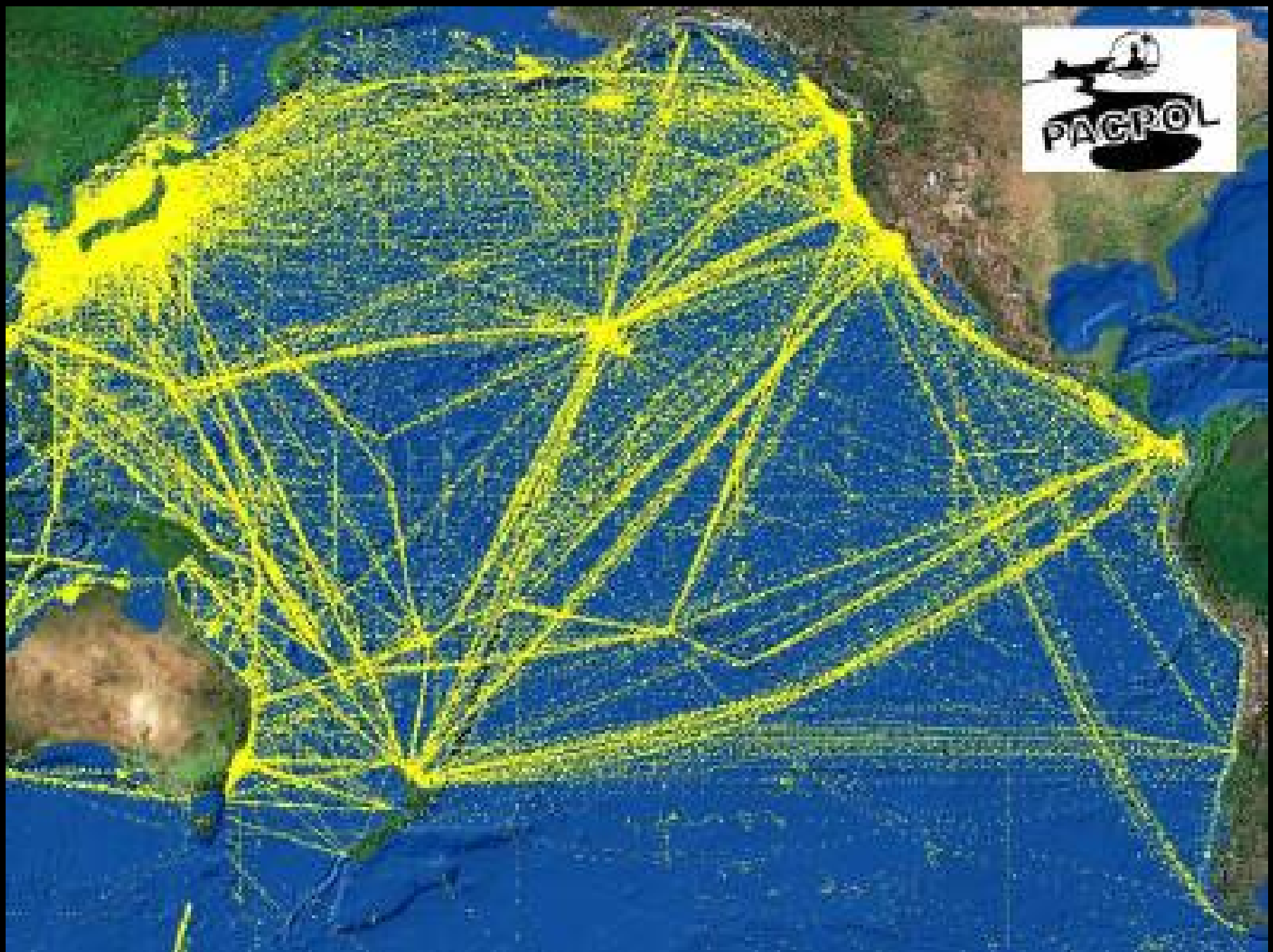
- Establish import regulations and policies for goods imported into the United States
- Issue import and interstate movement permits for plant pests
- Review plant health certificates issued by exporting countries for imported goods
- Monitor trade of endangered or threatened species
- Issue plant health certificates for agricultural goods exported from the United States

# How We Detect, Control, or Eradicate Plant Pests and Diseases

- Excluding foreign pests, when possible, is our goal
- If barriers fail, early detection of the pest is the next best strategy
- Early detection assures
  - Faster and cheaper control
  - Availability of more control strategies
  - Greater possibility of success

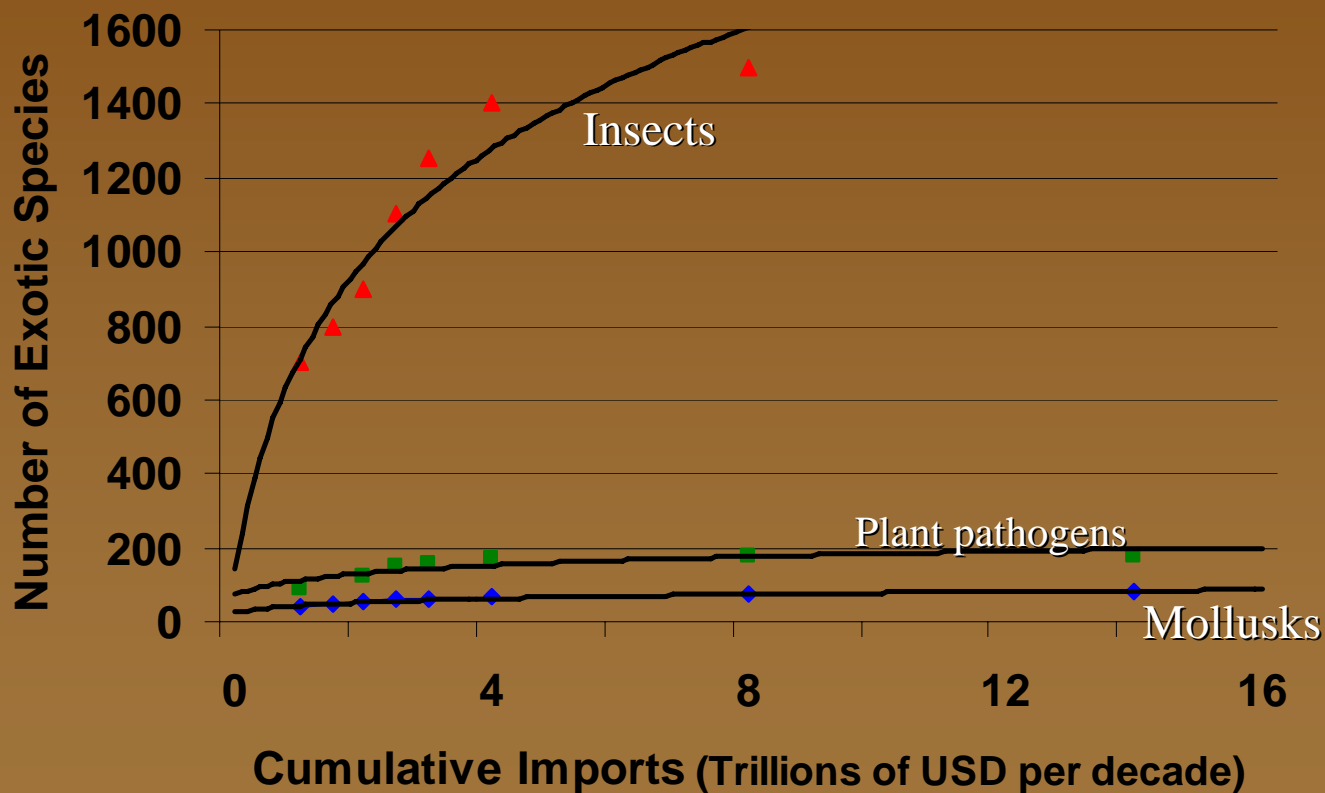
# Elements of Pest Response Program

- Identification (What are they?)
- Survey (Where are the pests?)
- Regulation to prevent spread
  - Bans movement of materials with a quarantine
  - Restricts movement of materials through permits
- Control or eradication
  - Host removal
  - Pesticides
  - Agricultural production practices
  - Biological control
  - Sterile insect release



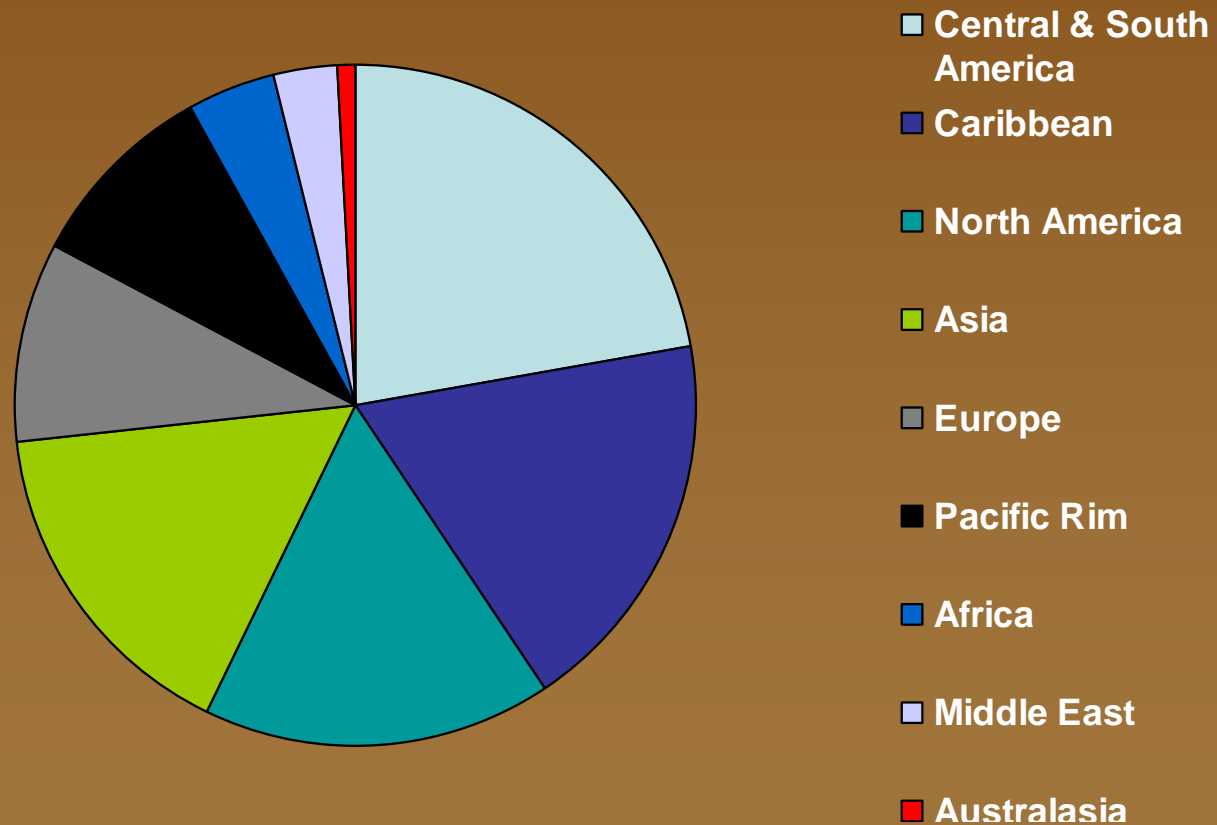
South Pacific Regional Environment Programme: <http://www.sprep.org.ws/>

## Relationship between U.S. merchandise imports and the accumulation of exotic insects, plant pathogens, and mollusks





# Where in the world are invasive pests coming from?



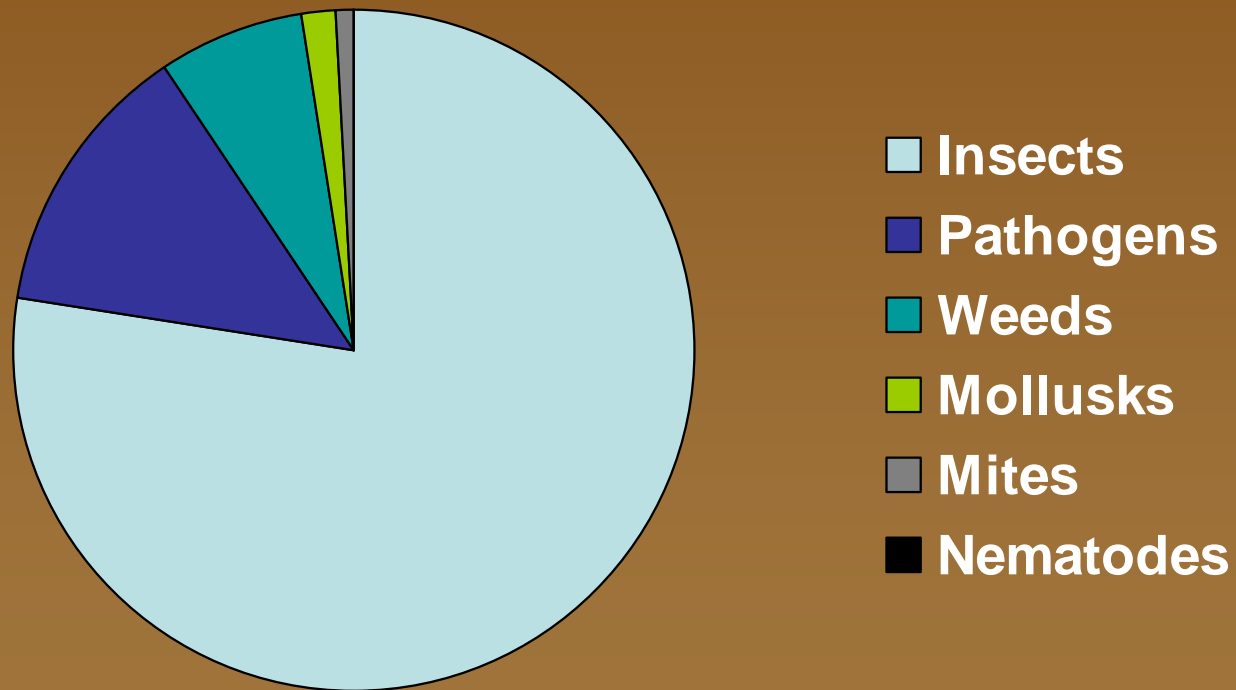
Adapted from McCullough et al. 2006

## ***Reportable Plant Pest Interceptions\* - 2007***

|                           |               |
|---------------------------|---------------|
| <b>Airport</b>            | <b>42,003</b> |
| <b>Express Carrier</b>    | <b>6</b>      |
| <b>Foreign</b>            | <b>38</b>     |
| <b>Inland Inspection</b>  | <b>66</b>     |
| <b>Inspection Station</b> | <b>2,763</b>  |
| <b>Land Border</b>        | <b>14,394</b> |
| <b>Maritime</b>           | <b>4,518</b>  |
| <b>PPQ</b>                | <b>24</b>     |
| <b>Pre-departure</b>      | <b>4,869</b>  |
| <b>Rail</b>               | <b>16</b>     |
| <b>SITC</b>               | <b>62</b>     |
| <b>USPS Mail</b>          | <b>184</b>    |
| <b>Total</b>              | <b>68,943</b> |

\*Port-of-Entry Inspections by DHS-CBP

# What's coming at us?



# What's showing up in the surveys?

- False codling moth
- Sapodilla flower moth
- Ficus gall midge
- Leafhopper
- Grass aphid
- *Chilocorus nigritus* beneficial ladybeetle
- Mango leafcoating mite
- *Cathaica fasciola* (mollusk)
- Leafspot of red bud (fungus)

# Cooperative Agricultural Pest Surveys

## 2008

- Citrus
- Oak
- Soybean
- Exotic wood-boring beetle
- Cyst nematode
- *Phytophthora ramorum*
- Plum pox

## 2009

- Grape
- Pine
- Small grains

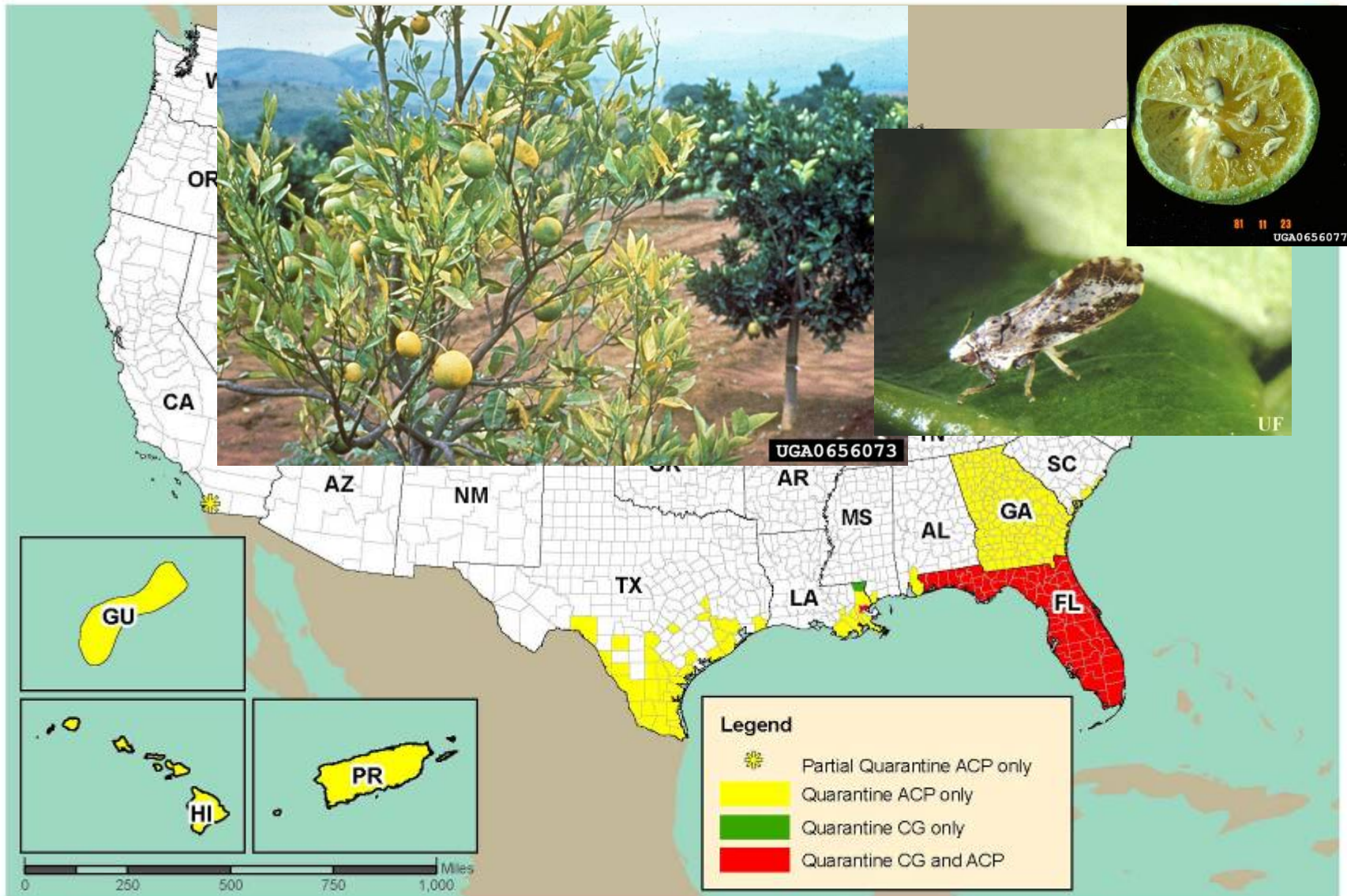
## Developing

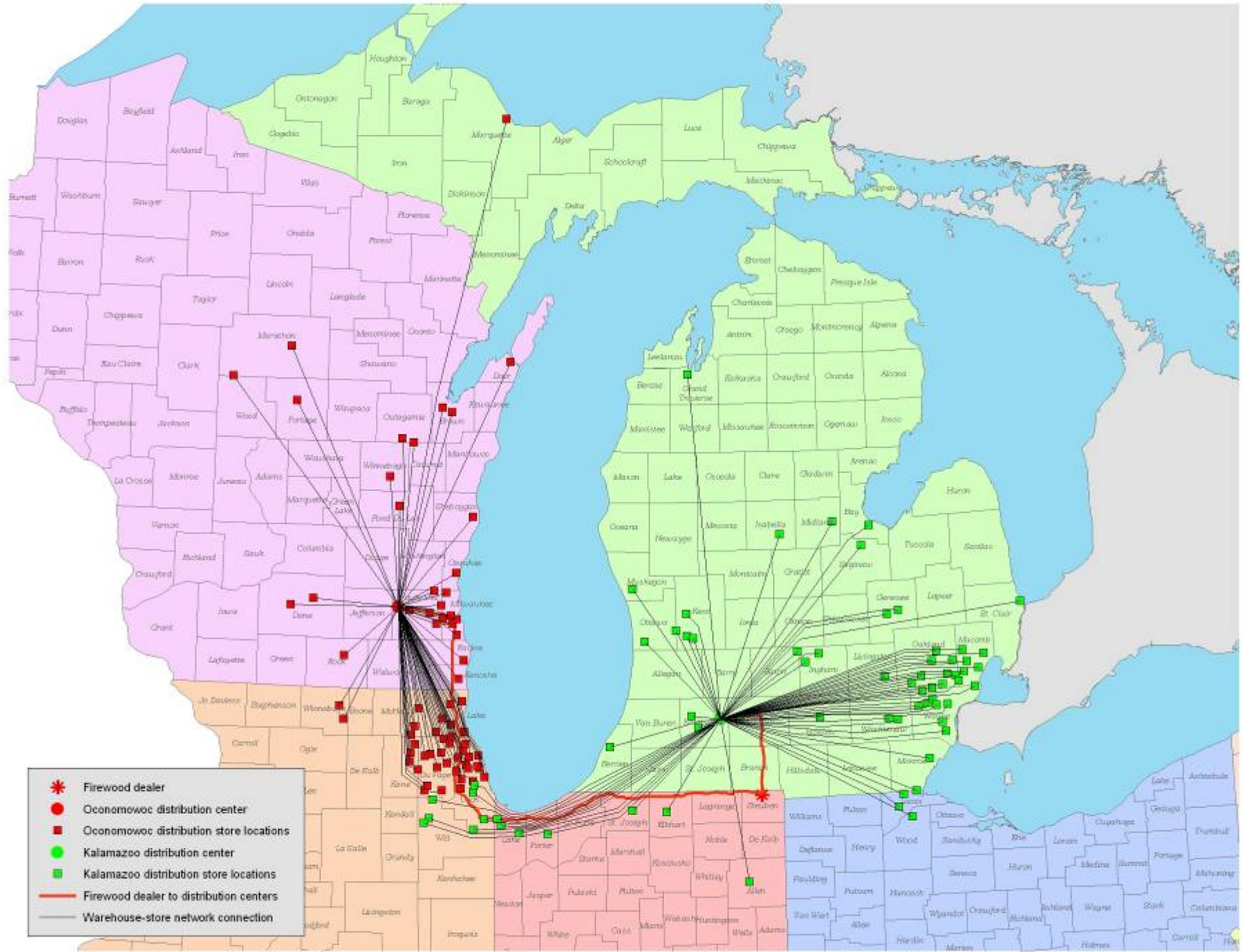
- Corn
- Potato

# Emergencies, problems, and annoyances

- Fruit flies
- Light brown apple moth
- Emerald ash borer
- Asian longhorned beetle
- Asian citrus psyllid
- Asian gypsy moth
- Gypsy moth
- Cactus moth
- Coconut rhinoceros beetle
- Sirex woodwasp
- Khapra beetle
- Crazy ant
- Panicle rice mite
- Red palm mite
- Salt cedar
- Citrus greening
- Citrus canker
- Karnal bunt
- Sudden oak death
- Potato cyst nematode

# National Quarantine Citrus Greening (CG) and Asian Citrus Psyllid (ACP)





- \* Firewood dealer
- Oconomowoc distribution center
- Oconomowoc distribution store locations
- Kalamazoo distribution center
- Kalamazoo distribution store locations
- Firewood dealer to distribution centers
- Warehouse-store network connection



# BEFORE Asian Longhorned Beetle



# AFTER Asian Longhorned Beetle



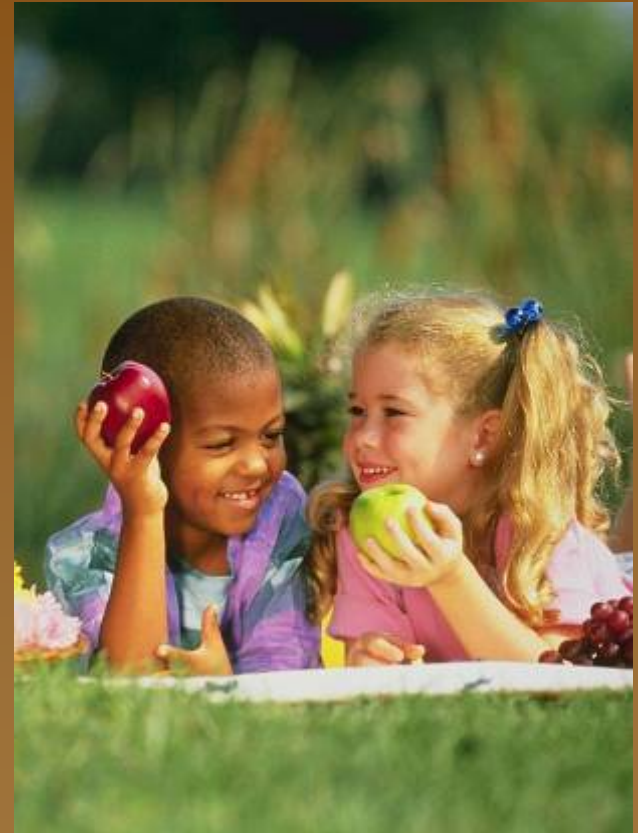
USDA photo

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# Protecting American Agriculture and Natural Resources



<http://www.aphis.usda.gov/ppq>

# References

- Levine, J. M., and C. M. D'Antonio. 2003. Forecasting biological invasion with increasing international trade. *Conservation Biology* 17: 322-326.
- McCormack, R. 2008. U.S. container exports still dominated by junk – scrap paper, scrap metal and bulk commodities. *Manufacturing & Technology News* 15 (14).
- McCullough, D. G., T. T. Works, J. F. Cavey, A. M Liebold, and D. Marshall. 2006. Interceptions of nonindigenous plant pests at US ports of entry and border crossings over a 17-year period. *Biological Invasions* 8: 611-630.