A Devastating Threat to California Trees

Shot Hole Borers and their Fungal Pathogens in Southern California

Photo by John Boland

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Dieback of Wetland Trees
Tijuana River

Photo by John Boland

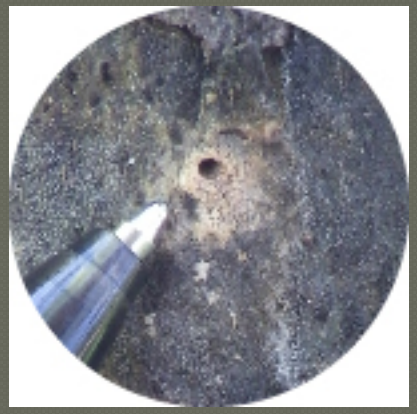
May 2015

Photo by John Boland

February 2016

What is causing the problem?

- **Insect**: Shot hole borers (Polyphagous and Kuroshio)
- **Fungus**: Fusarium and other pathogens



Irvine, CA – Mason Regional Park (April 2016)

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Willow

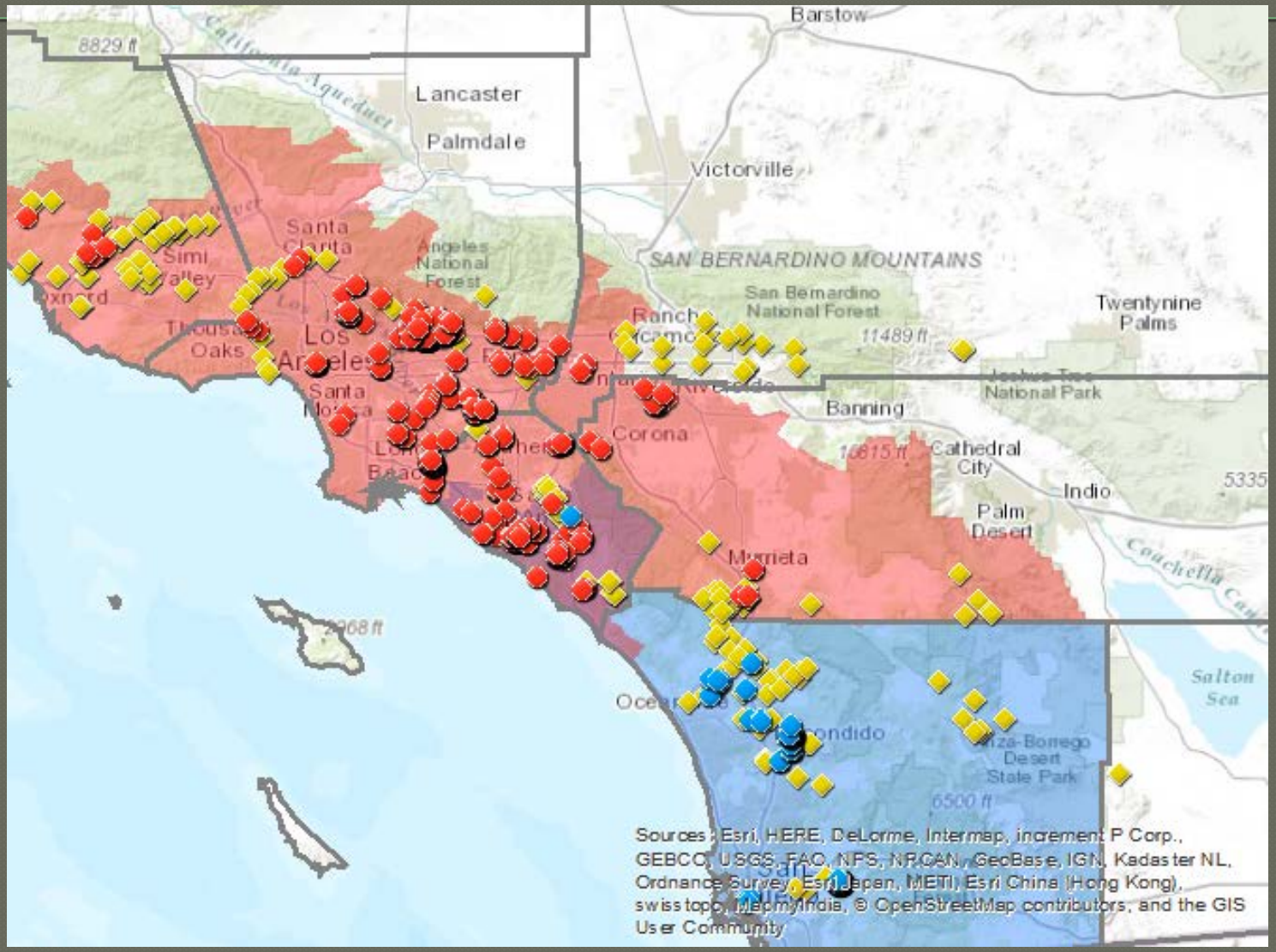
How did they get here?

- Native to southeast Asia
- Found in Los Angeles County in 2003
- Large outbreak in Long Beach in 2010
- Discovered and identified in avocados in 2012
- Since 2012 extensive outbreaks in Orange County Parks, UC Irvine, and avocado orchards

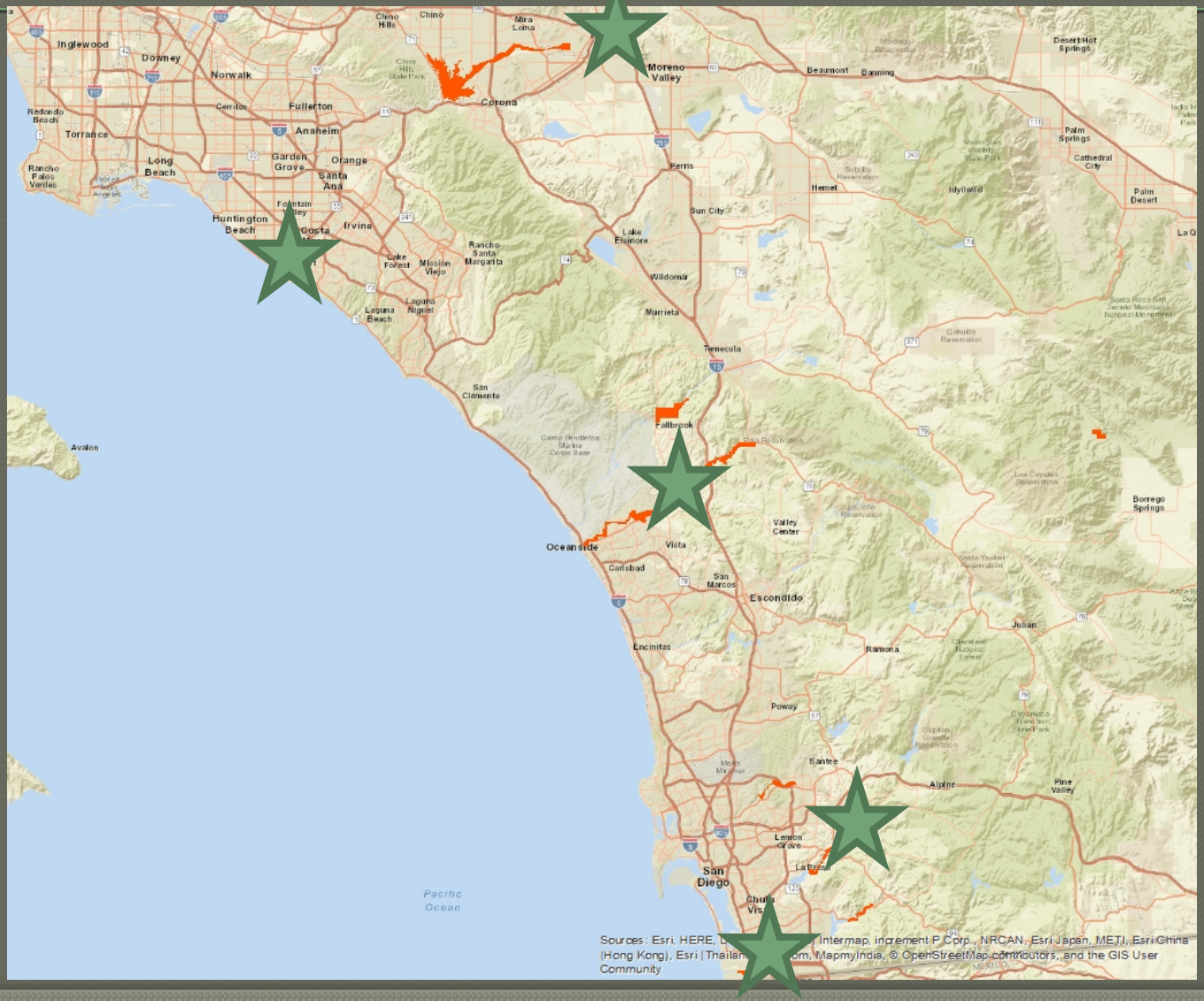
Recently Found Invading Wildlands

- First discovered in riparian ecosystems in 2015 (Tijuana River)
- First discovered in Riverside in 2016 (Santa Ana River)

Current Distribution



Concern in Local Riparian Areas



What can we do about it?

NOW

- Early Identification (see handouts)
- Quick Response (mild infestation)
  - Cutting/Chipping/ Solarizing (clear tarps) of infected trees
- Don't Spread
  - Firewood
  - Landscaping Waste
- Sterilize tree trimming tools between trees (70% ethanol)

FUTURE

- Pesticides/Fungicides?
  - Limited Effectiveness
  - Concern in Riparian
- Classic Biological Control
  - >2 Years Out
- Native bacteria and fungi that attack pests in trees (endophytes)
  - UCR conducting research on effectiveness (avocado and sycamore)