

# Shot Hole Borers and Fusarium Dieback in Wetlands



Photo by John Boland

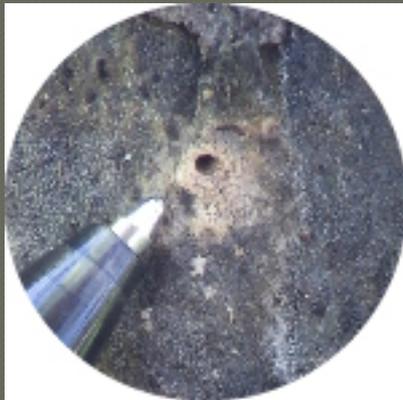


Photo by John Boland

Eric Porter  
Carlsbad Fish and Wildlife Office

# What is causing the problem?

- Polyphagous and Kuroshio shot hole borers



- Fusarium (fungus) and other pathogens

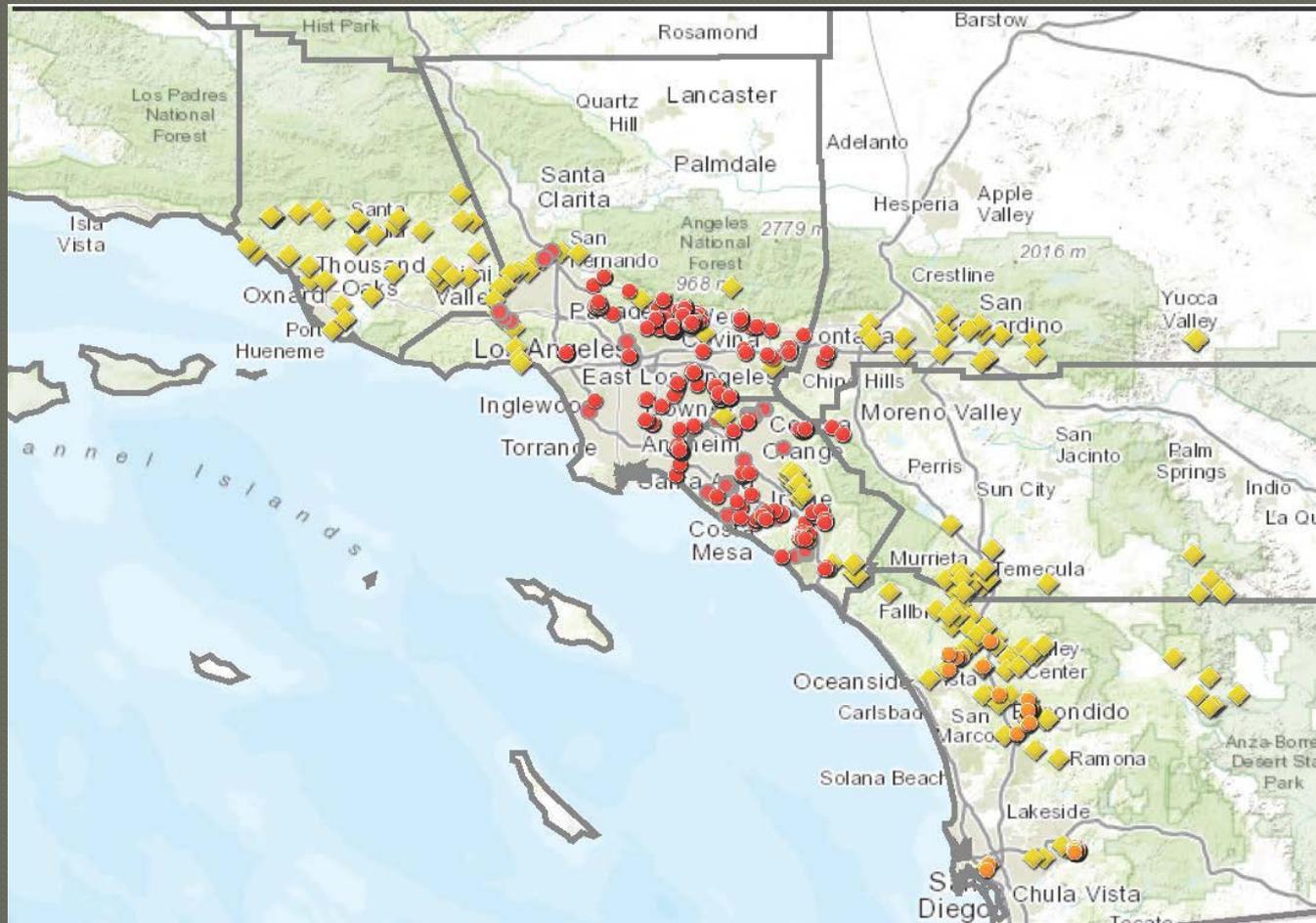


# How did they get here?

---

- ◉ 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
- ◉ Extensive outbreaks in Orange County Parks, UC Irvine, and avocado since
- ◉ First discovered in riparian ecosystems in 2015 (Tijuana River)

# Current Distribution (Almost)





# What can we do about it?

## NOW

---

- Early Identification (see handouts)
- Quick Response
  - Cutting
  - Chipping
  - Solarizing (tarps)
- Don't Spread
  - Firewood
  - Landscaping Waste

## FUTURE

---

- Pesticides/Fungicides?
  - Limited Effectiveness
  - Concern in Riparian
- Classic Biological Control
  - >2 Years Out
- Native bacteria and fungi that attack pests
  - Evidence from avocado