



# New Pest Response Guidelines

## Red Palm Weevil

*Rhynchophorus ferrugineus*



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Kathy Kamminga, NCSU, March 7, 2011



# Red Palm Weevil NPRG

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# Historical Information

The red palm weevil, a serious pest of palms, is native to Southeast Asia and has spread through the Arabian Gulf. Among palm weevil species, the red palm weevil has spread to the greatest number of countries, probably due to its association with the date palm (*Phoenix dactylifera*), which is propagated by offshoots.

It was detected in Orange County, California in October, 2010.

# Economic Impact

Economic pest of coconut, date, oil, and sago palms

## Palm sales, 2007

Puerto Rico: \$7.1 million

United States: \$203 million for almost 8000 acres

Florida: \$127 million

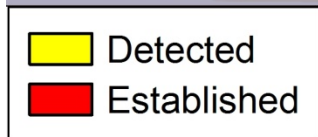
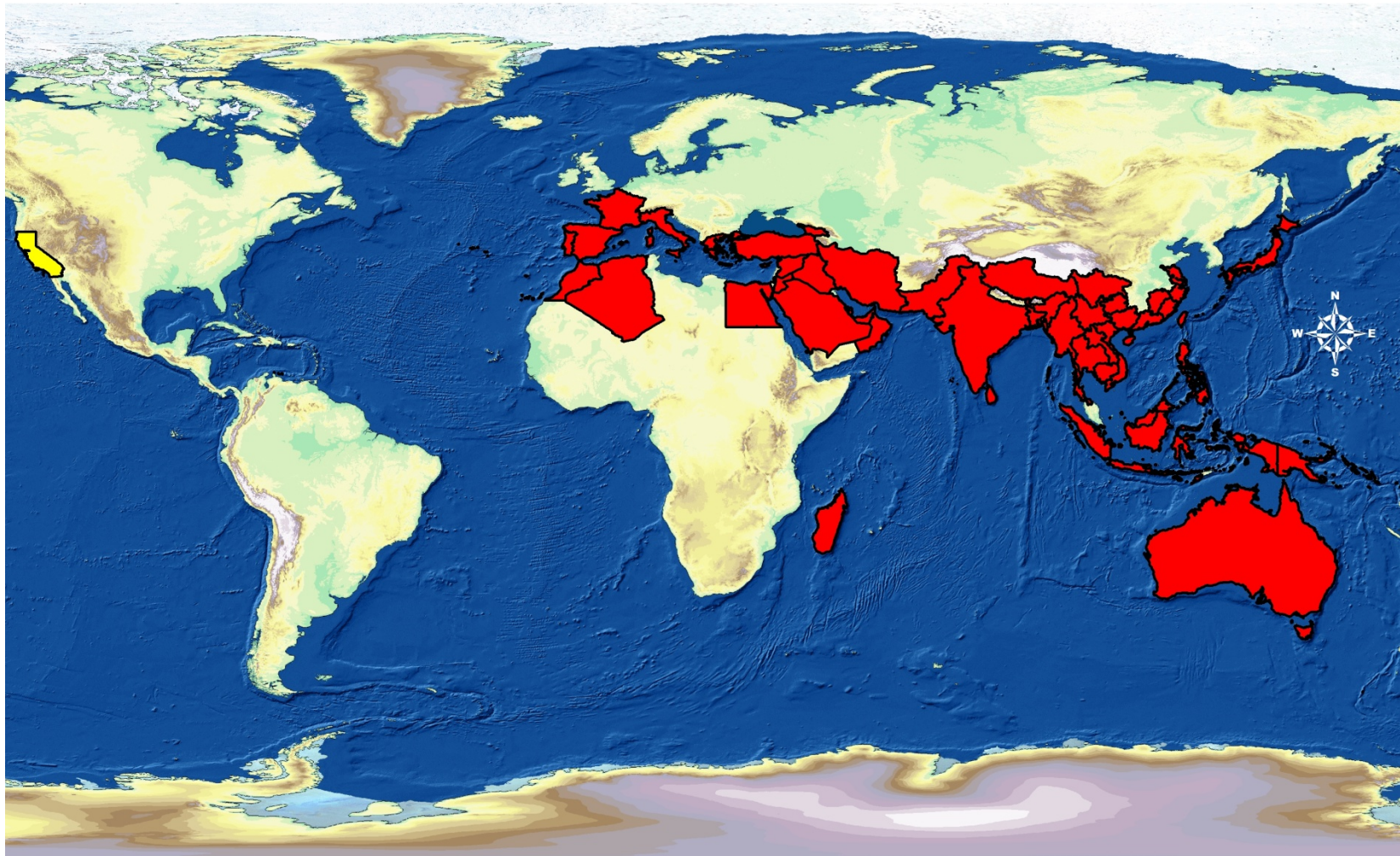
California: \$70 million

Texas: \$3 million

# Red palm weevil damage



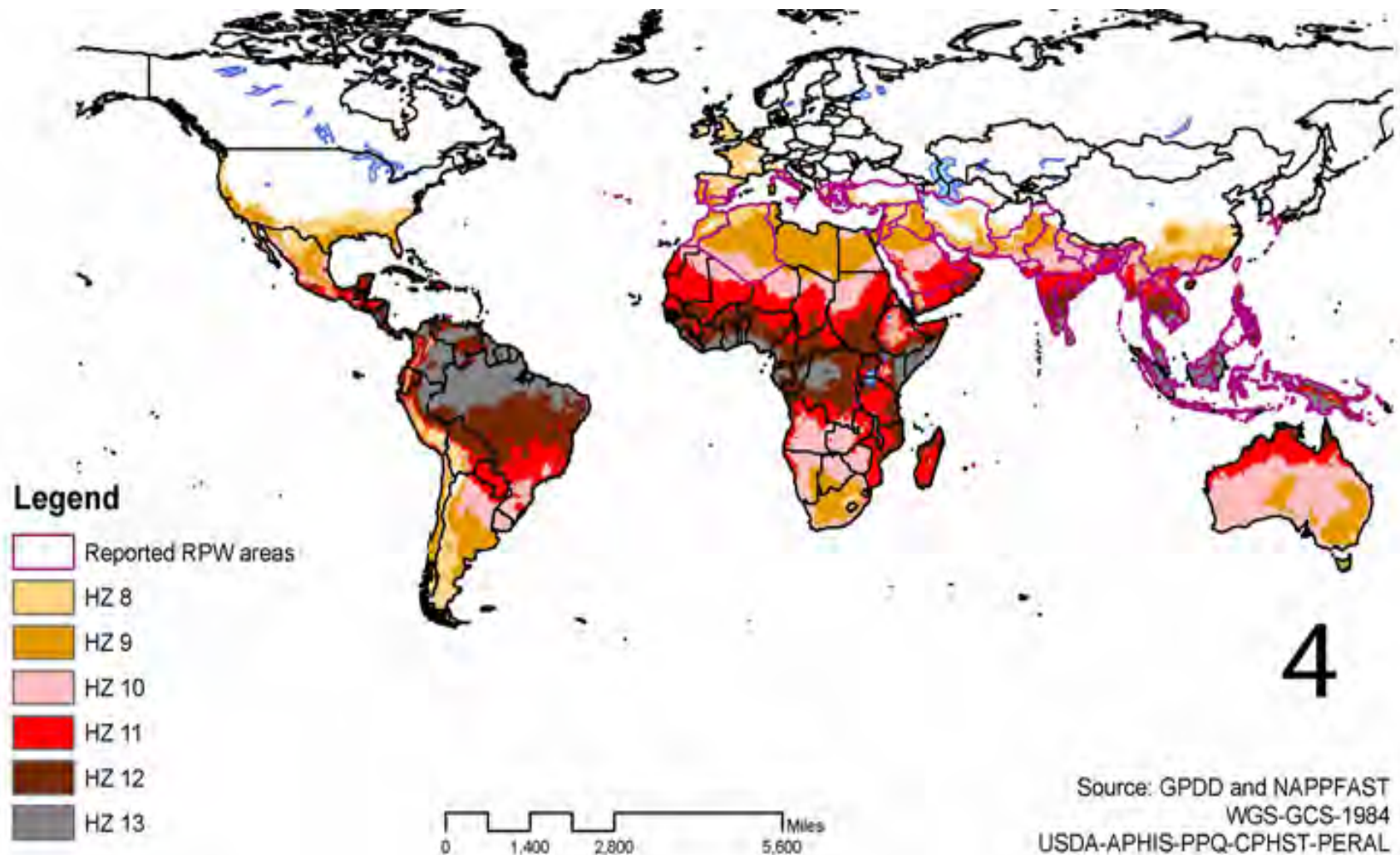
# Red Palm Weevil Distribution



10,000 Kilometers

Sources: Alhudaib, 2009; Baldacchino, 2007; Bloem pers. comm., 2011; Borchert, 2009; Bozbuga and Hazir, 2008; CABI, 2009; EPPO, 2007; Murphy and Briscoe, 1999; Pelikh, 2009; Ren, 2011; Soroker et al., 2005  
Created By: G. Fowler and K. Kamminga  
USDA-APHIS-PPQ-CPHST-PERAL  
WGS 1984  
February 25, 2011

# Potential Distribution of Red Palm Weevil



Source: GPDD and NAPPFAST  
WGS-GCS-1984  
USDA-APHIS-PPQ-CPHST-PERAL  
Daniel Borchert  
4/17/2009



[http://www.russellpm-agriculture.com/insect.php?insect\\_id=119](http://www.russellpm-agriculture.com/insect.php?insect_id=119)

**Eggs:** Eggs are light yellow, approximately 2.5 mm long and are oviposited in palm tissue. Hatch in about 3 days.



Mike Lewis, Center for Invasive Species Research, Bugwood.org

5430201

**Adult:** Red and blackish brown and about 35 mm long. Adults live up to 3 months feeding on palm trees.

**Larvae:** Whitish-yellow and feed on surrounding palm tissue, moving toward the interior of the palm upon hatching (2-6 months).



Amy Roda

**Pupae:** Mature larvae pupate in damaged tree tissue. The pupal stage requires about 3 weeks.



Luigi Barraco



**Palmetto Weevil Adult**



**Red Palm Weevil Adult**

**Thomas, M. 2010.** Pest Alert, Giant Palm Weevils of the Genus *Rhynchophorus* (Coleoptera: Curculionidae) and Their Threat to Florida Palms. FDACS, Division of Plant Industry. DACS-P-01682.

## Identification for *Rhynchophorus*



1. *R. ferrugineus*;
2. *R. cruentatus*, red and black form
3. *R. cruentatus*, black form
4. *R. palmarum*

1. Pronotum strongly lobed posteriorly (Fig. 4); color black.....*R. palmarum*  
 — Pronotum evenly curved posteriorly (Fig. 3); color red, red and black, or black
2. Pronotum gradually narrowed anteriorly (Fig. 1).....*R. ferrugineus*  
 — Pronotum abruptly narrowed anteriorly (Fig. 2).....*R. cruentatus*

# Survey

- Pheromone traps
  - Pheromone lure
  - Food source
  - Liquid trap
  - Placed in or near hosts
- Olfaction: Trained dogs detect red palm weevil odor
- Acoustics: Gnawing sound from larval feeding

# Bucket traps

- **Outside**

- Rough texture
- Loop on lid
- Or buried in the ground
- Large hole (3cm)

- **Inside**

- Propylene glycol/water mixture to cover the food baits
- Pheromone lure



# Control

- Sanitation
  - Shredding
  - Burning
- Insecticides
  - Preventive
  - Curative
- Mass Trapping
- Biological Control
  - Bacteria
  - Parasitoids
  - Nematodes



# Pathways

- Natural
- Commerce
  - Cut flowers
  - Plant materials (Palm plants)



## Research Needs

Eradication

Control methods

Detection

Education

## NPRG Needs

Control methods

Research

Language

Manual updates



Questions?