

# South American Palm Weevil Invasion in Southern California



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# Rhynchophorus Distribution

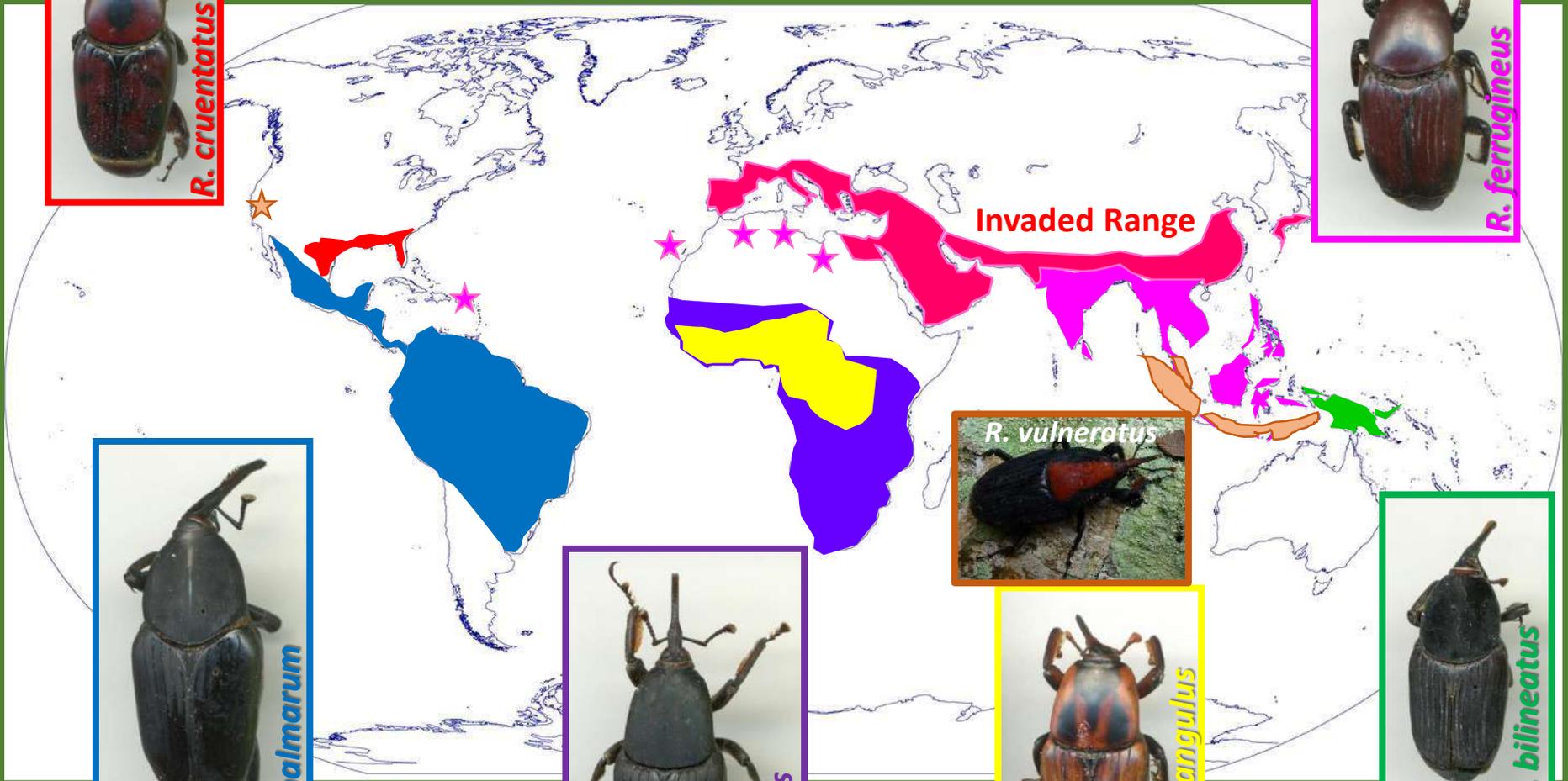
There are ~10 species in *Rhynchophorus*



*R. cruentatus*



*R. ferrugineus*



Invaded Range



*R. palmarum*



*R. phoenicis*



*R. vulneratus*



*R. quadrangulus*



*R. bilineatus*



Male RPW have a "beard" on rostrum. Females lack this

Adult RPW can live 2-3 months



Females can lay 58-531 eggs; hatch in 1-6 days



Pupal period is 11 – 45 days

Life cycle can take 45 – 139 days



3-9 larval instars take 25-105 days to develop

Pupal cocoons made from chewed palm fibers



# External Damage



# Internal Damage



# Palm Tree Removal is Expensive & Dangerous



# Red Ring Nematode

- Adult weevils can spread a nematode that causes red ring disease in palms
- Adults are infected with nematodes and spread them when they defecate or lay eggs
- Uninfected adults acquire nematodes when they feed on palm material infected with nematodes
  - Larvae growing inside infected palms become inoculated and retain nematodes as they develop into adults
- Nematodes don't develop inside weevils – they feed on palm tissue – the weevils move nematodes from palm to palm
- **Nematode infections can kill palms**
  - 35-80% palms may be killed in coconut or palm plantations
  - Serious pest of tropical palms
  - 6-20 weeks post infection palms die
  - Little leaf disease symptoms of incipient RRN infection
- Kill off with weevil infestation with insecticides, nematode infection may kill palm in the absence of weevils
- **Nematode not recorded from the USA**
  - **CDFA dissections of 111 weevils failed to detect the nematode**

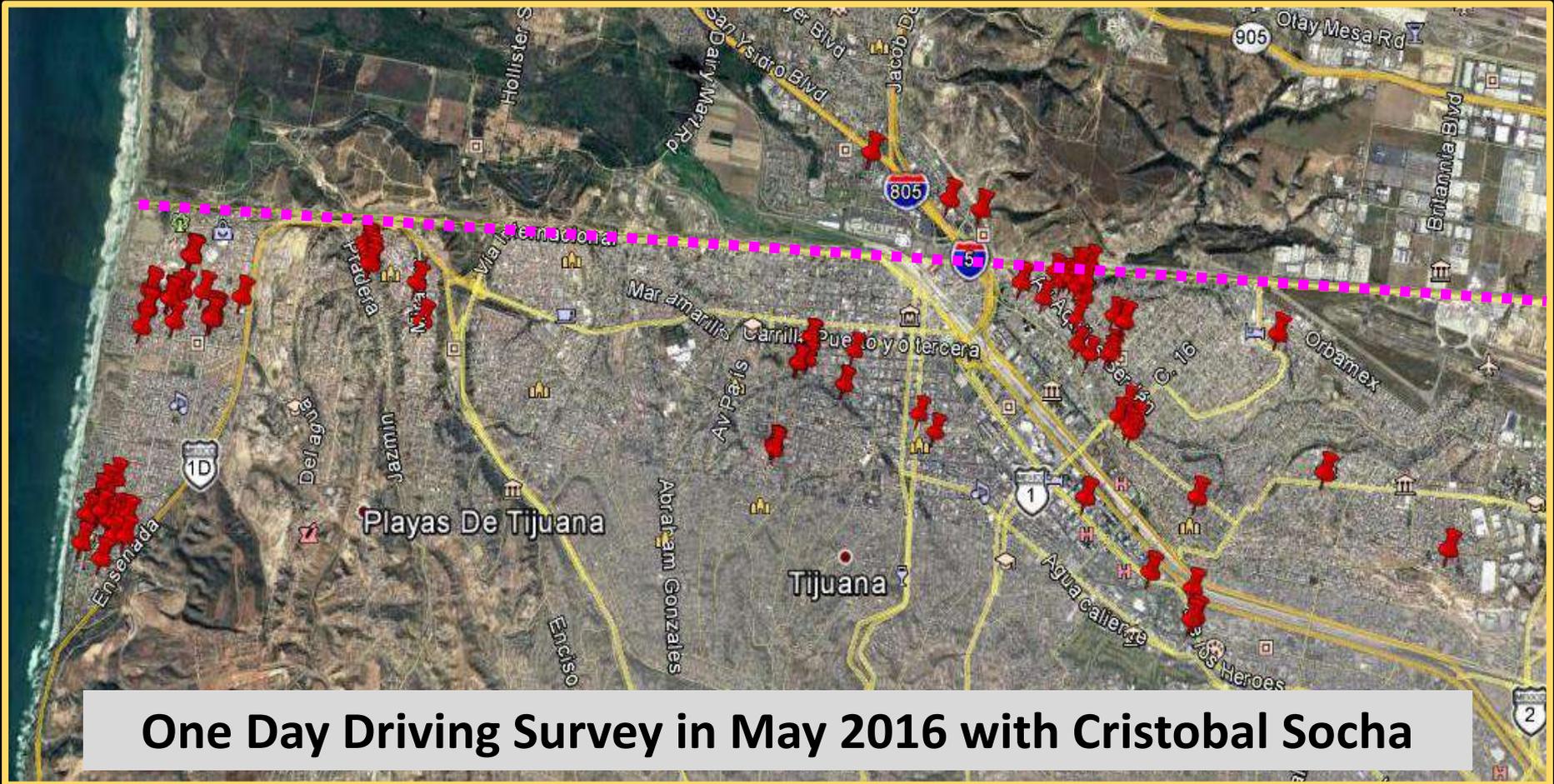


[http://entnemdept.ufl.edu/creatures/nematode/red\\_ring\\_nematode.htm](http://entnemdept.ufl.edu/creatures/nematode/red_ring_nematode.htm)

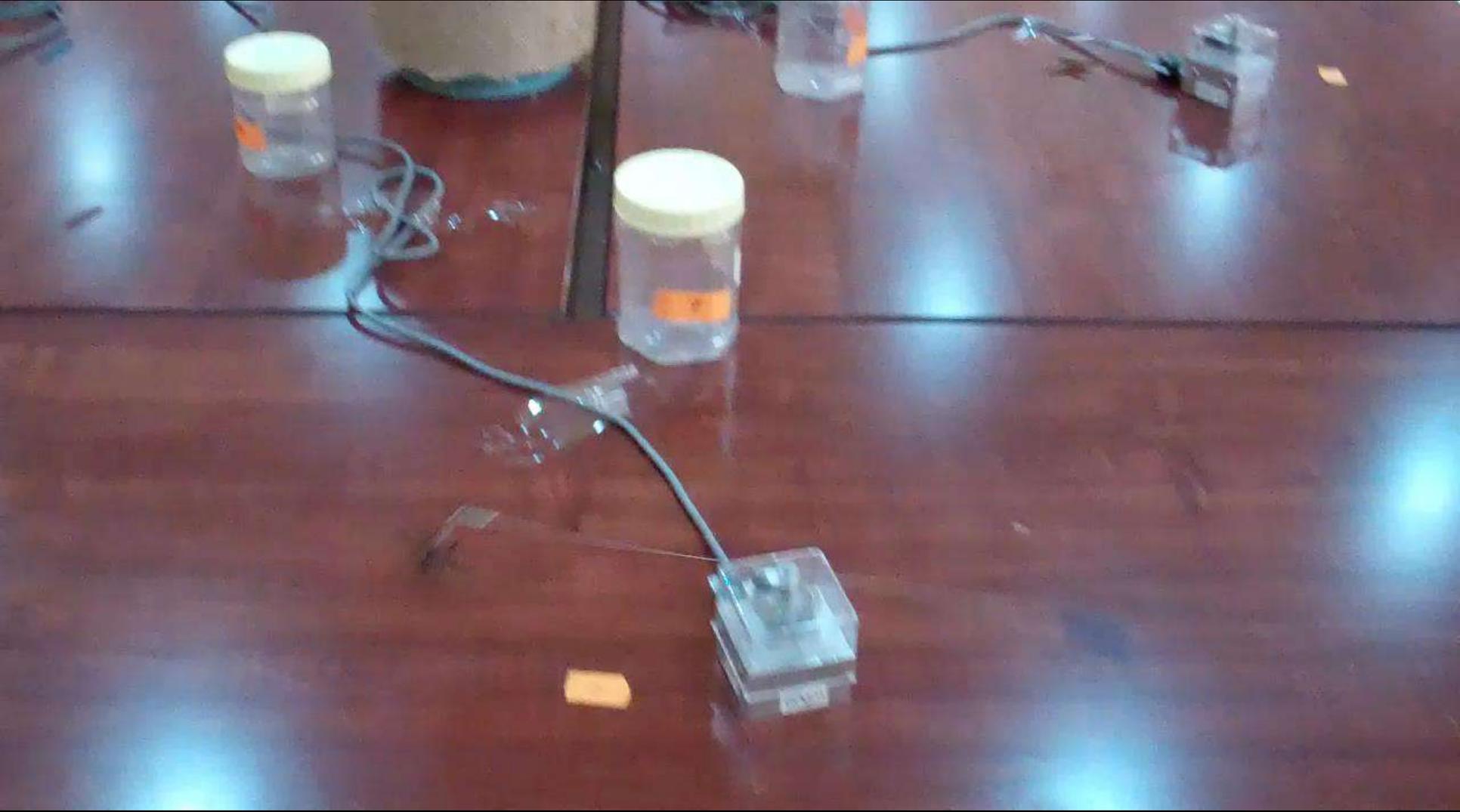
# What's Happening in Tijuana?



# Palm Mortality Survey in Tijuana



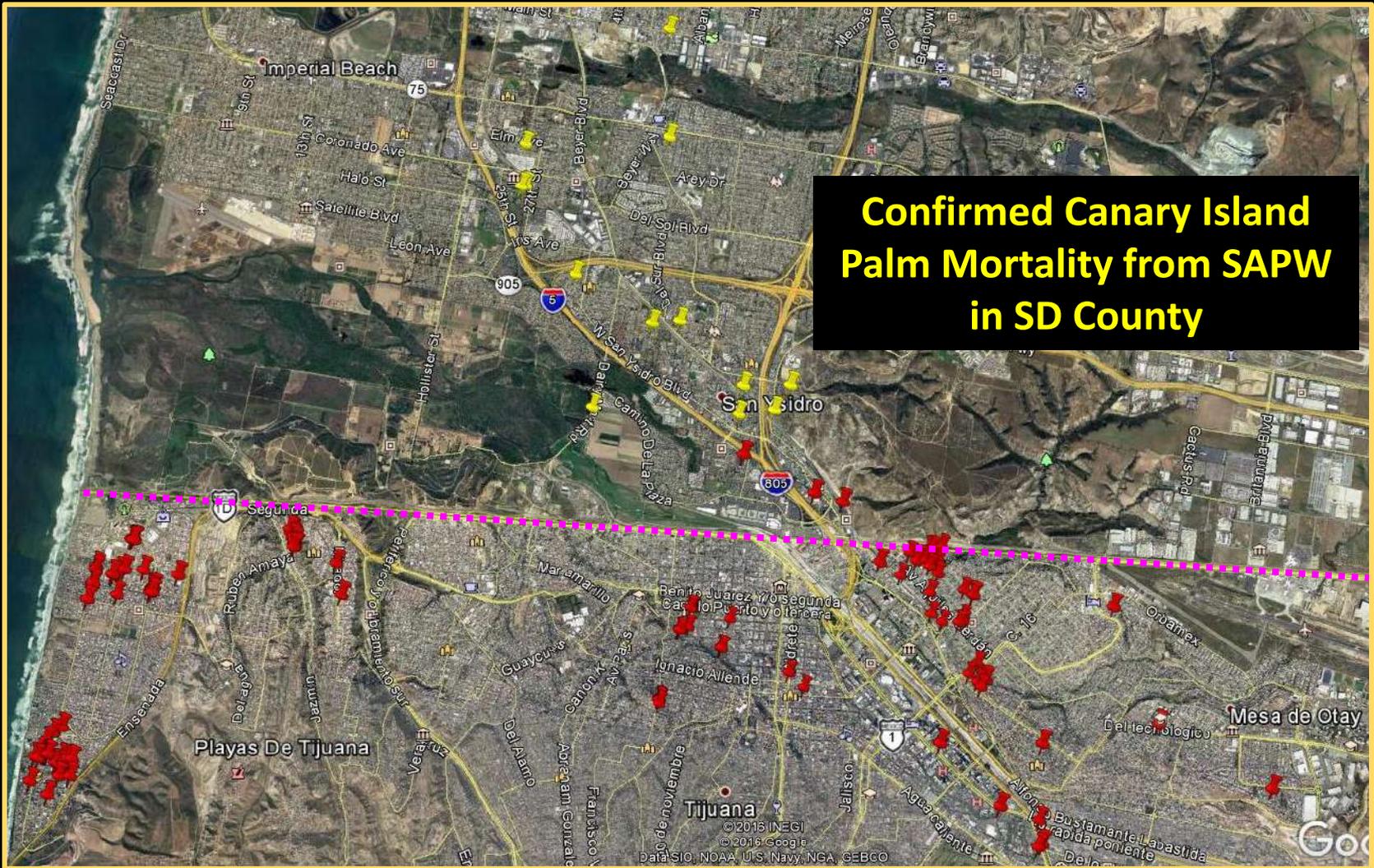
# Flight Mill Studies in KSA with *R. ferrugineus*



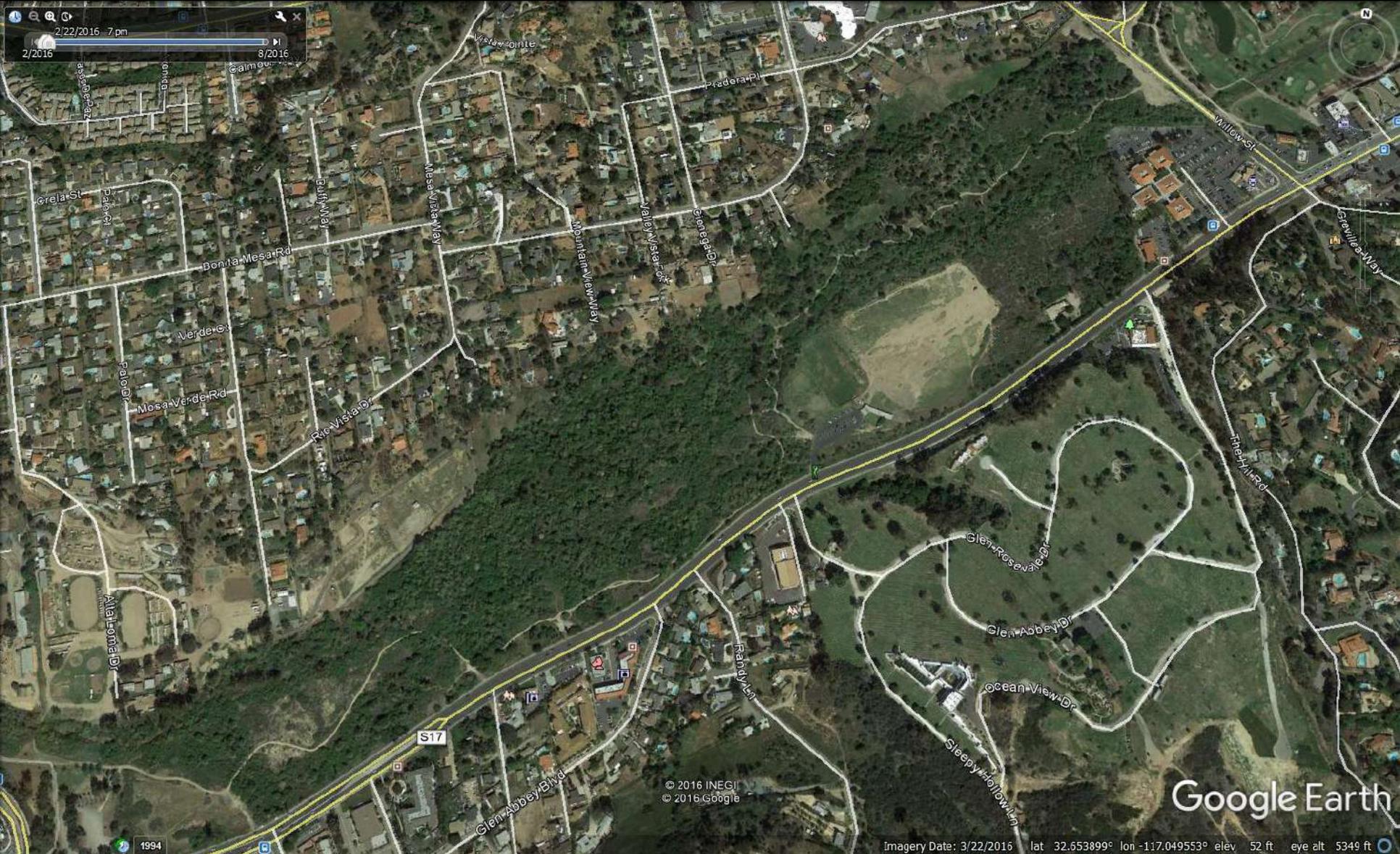
# Live Palm Movement – Rapid Long Distance Spread?



# What's Happening in San Diego County?



# The Sweetwater Reserve



2/22/2016 7 pm  
2/2016 8/2016

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Google Earth

Imagery Date: 3/22/2016 lat 32.653899° lon -117.049553° elev 52 ft eye alt 5349 ft

# Sweetwater Reserve has Hundreds of Naturalized Canary Islands Date Palms



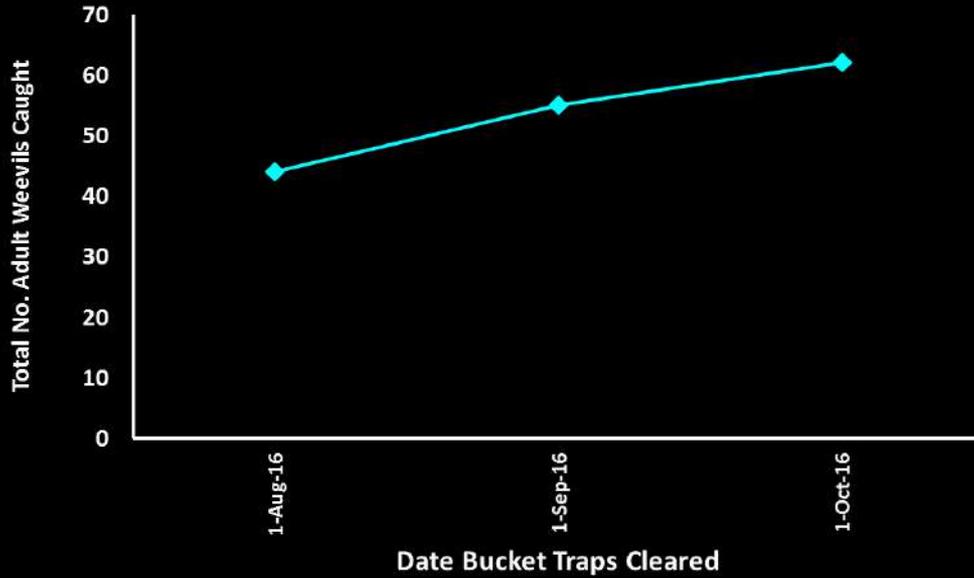
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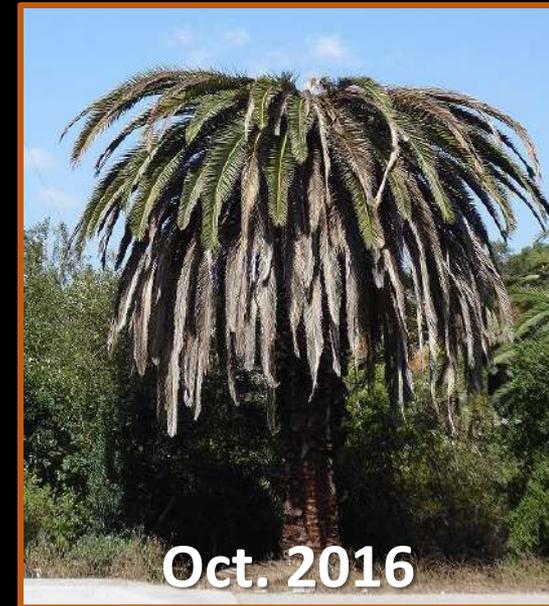
Imagery Date: 3/22/2016 lat 32.652237° lon -117.050990° elev 48 ft eye alt 497 ft

1994

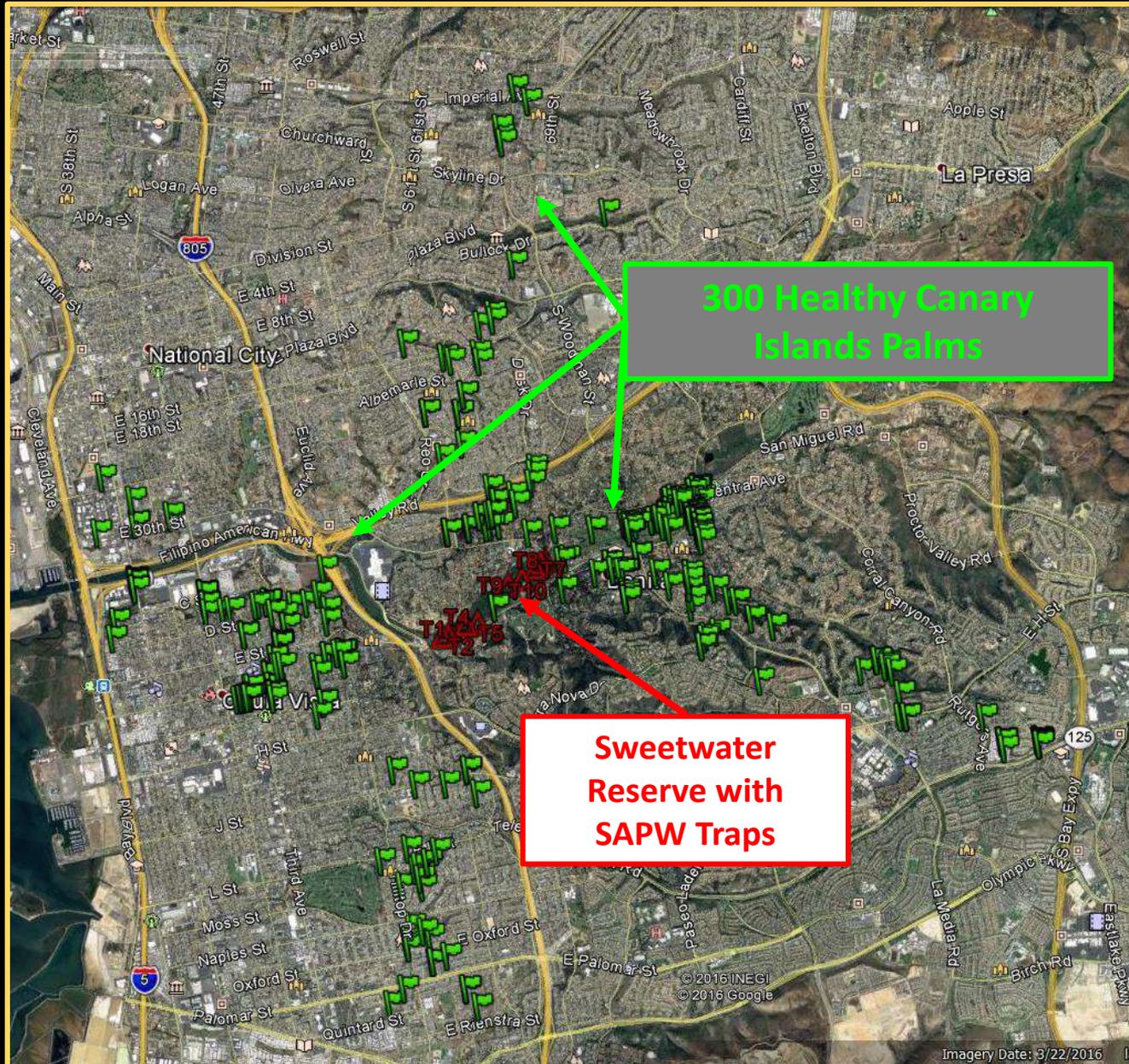
# and lots of SAPW .....

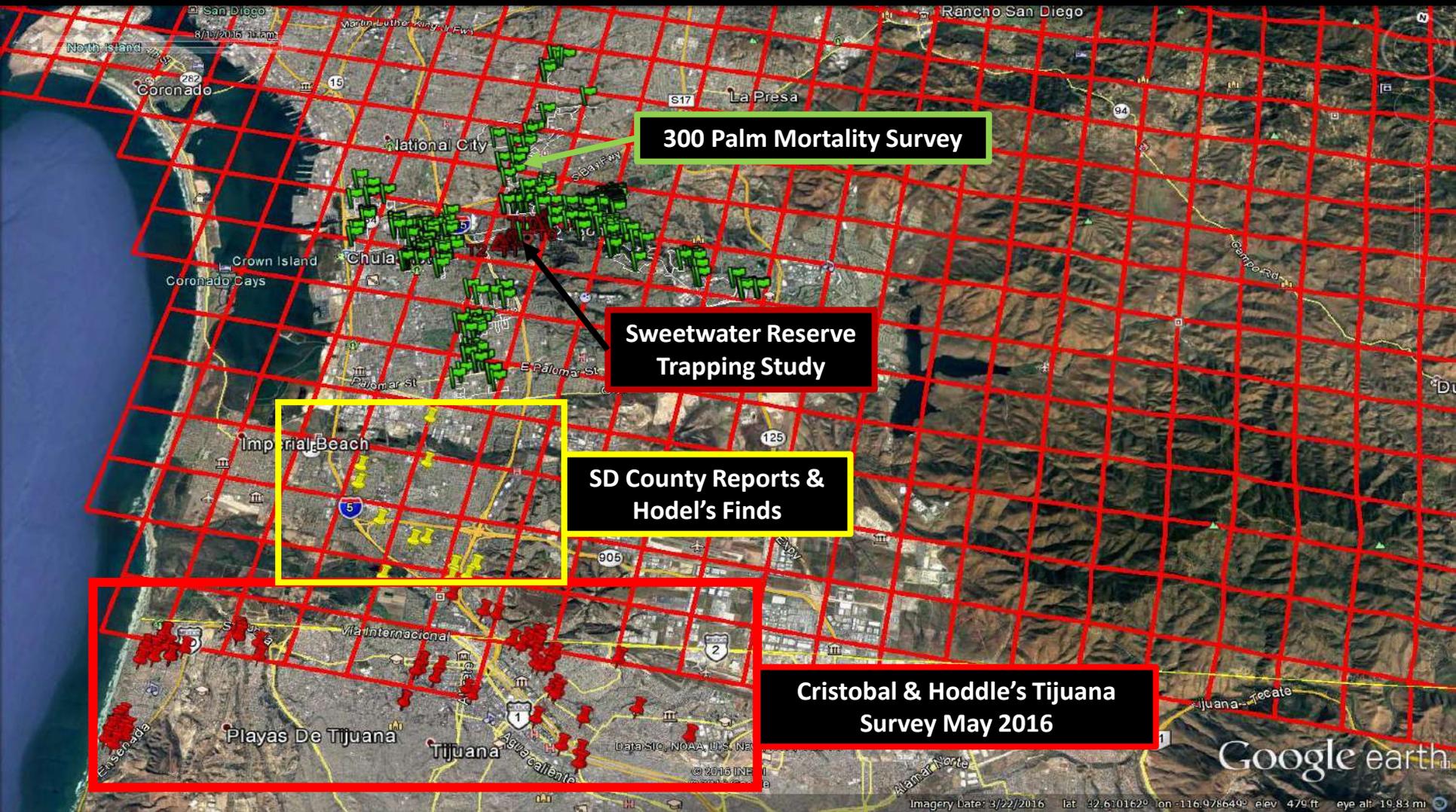


# and Dead Palms .....



# What's Being Done?





**300 Palm Mortality Survey**

**Sweetwater Reserve Trapping Study**

**SD County Reports & Hodel's Finds**

**Cristobal & Hoddle's Tijuana Survey May 2016**

Google earth

Imagery Date: 3/22/2016 lat 32.6101629 lon -116.9786499 elev 479 ft eye alt 19.83 mi

# Drone to Monitor Rate of Palm Death



2/22/2016 - 7 pm  
2/2016 8/2016

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© 2016 Google

Google Earth

1994

Imagery Date: 3/22/2016 lat 32.652237° lon -117.050990° elev 48 ft eye alt 497 ft

# Report Infested Palms

<http://cisr.ucr.edu/palmarum.html>

← → ↻ | cisr.ucr.edu/palmarum.html | 🏠 ☆ ☰ ✎ 📁 ⋮

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**Has the South American Palm Weevil, *Rhynchophorus palmarum*, Established in Southern California?**

The **Situation**: The South American palm weevil, *Rhynchophorus palmarum* (Coleoptera: Curculionidae), has a known distribution that includes Mexico, Central and South America, and the Caribbean. Like other species of *Rhynchophorus*, such as the red palm weevil, *R. ferrugineus*, and the palm weevil *R. vulneratus*, *R. palmarum* is a destructive palm pest in its native and invaded ranges.

[Click Here to Report Infested Palms](#)

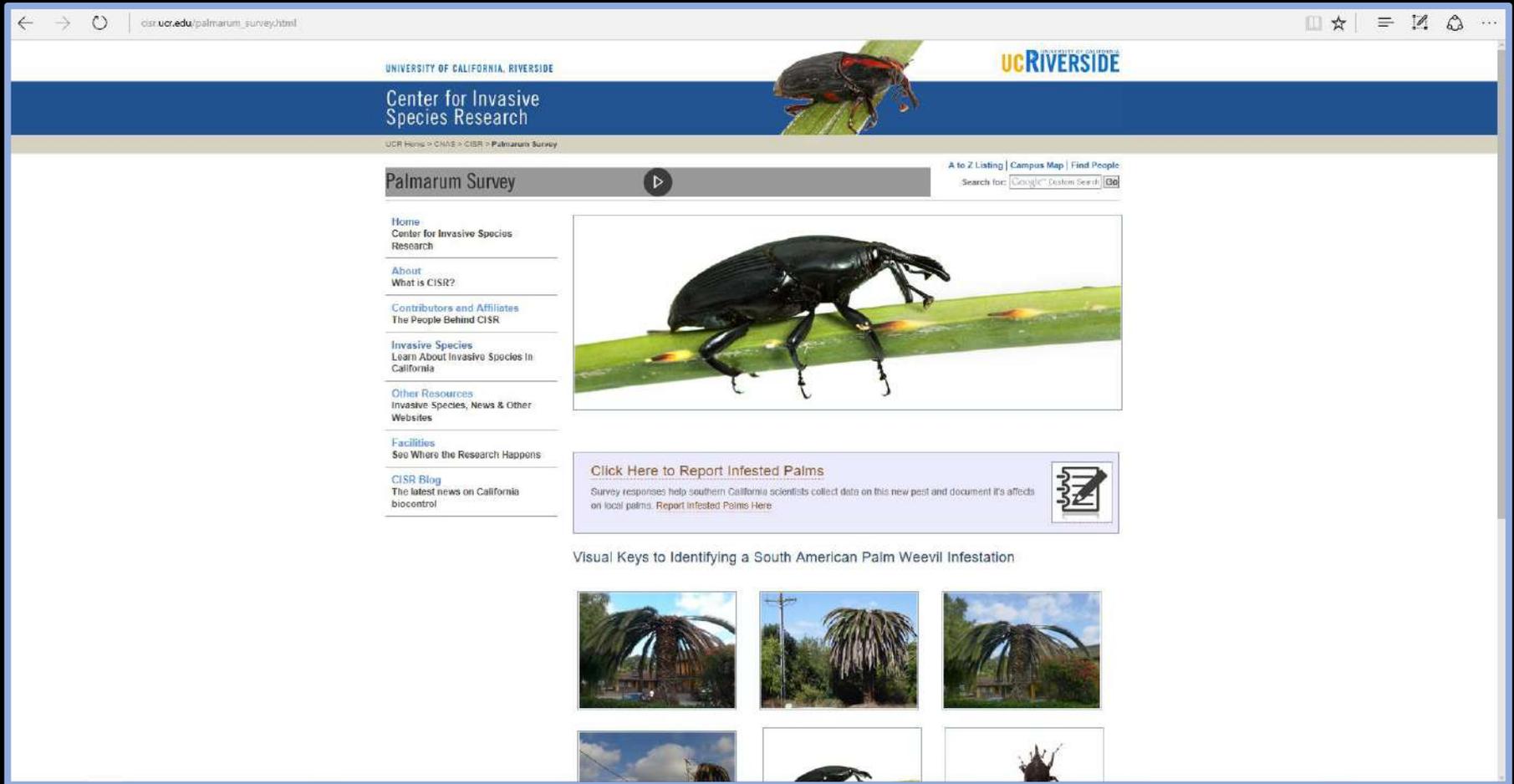
Survey responses help southern California scientists collect data on this new pest and document if it affects on local palms. [Report Infested Palms Here](#)



Feeding by weevil larvae in the crown of palm trees, causes significant damage that may result in the death of meristematic tissues. If meristematic tissue is destroyed, it results in the "crown" of the palm dying and this inability to produce new fronds gradually leads

# Report Infested Palms

<http://cisr.ucr.edu/palmarum.html>



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Visual Keys to Identifying a South American Palm Weevil Infestation



# Report Infested Palms

<http://cirs.ucr.edu/palmarum.html>

## South American Palm Weevil Survey

Survey responses help southern California scientists collect data on this new pest and document it's affects on local palms.

Date Observed

Your Name

Your Email Address

Your Phone

Street Address of Infested Palm (No. & Name)

City with Infested Palm

County with Infested Palm

GPS Longitude (optional)

GPS Latitude (Optional)

Observations/Notes

File Upload

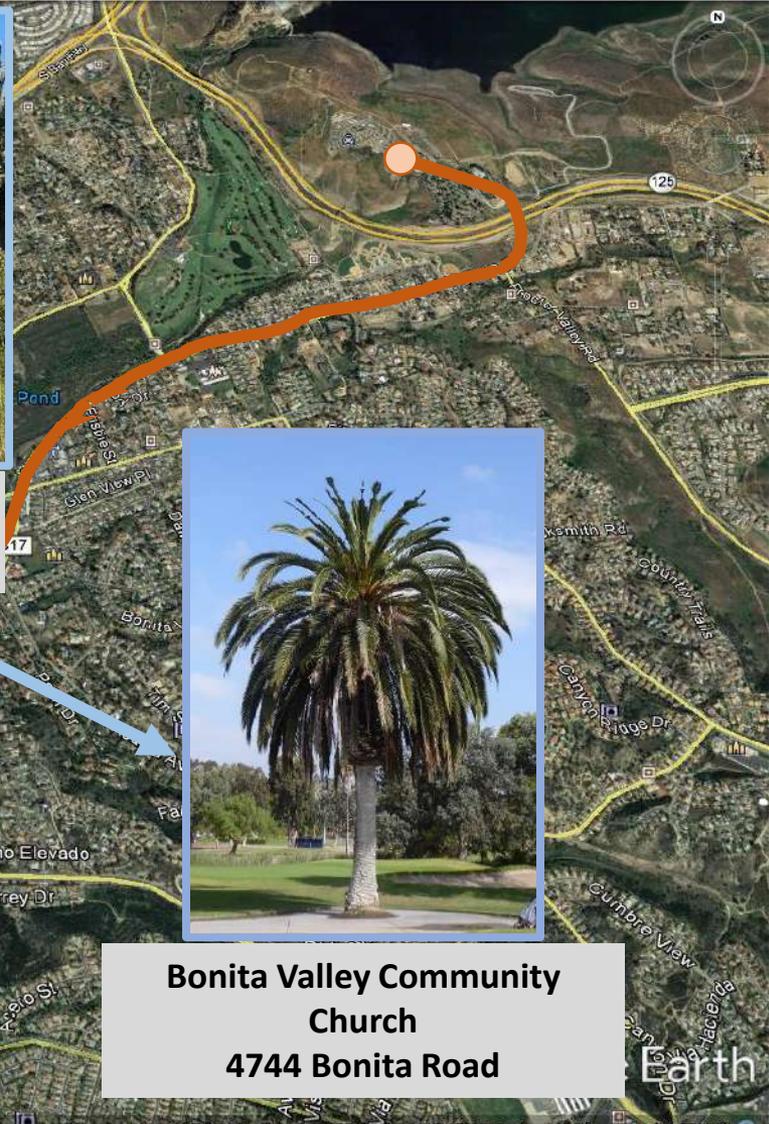
Select a file from your computer



# Field Trip to See Infested Palms



**10 minute walk from eastern staging area on Willow Road  
(opposite Sweetwater Road)**



**Bonita Valley Community  
Church  
4744 Bonita Road**



# Questions?

