Eradication of the palm weevil Rhynchophorus vulneratus from Laguna Beach

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RED PALM WEEVIL ADVENTIVE AND ENDEMIC DISTRIBUTION

USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

Cooperating State Departments of Agriculture

New Pest Response Guidelines

Red Palm Weevil

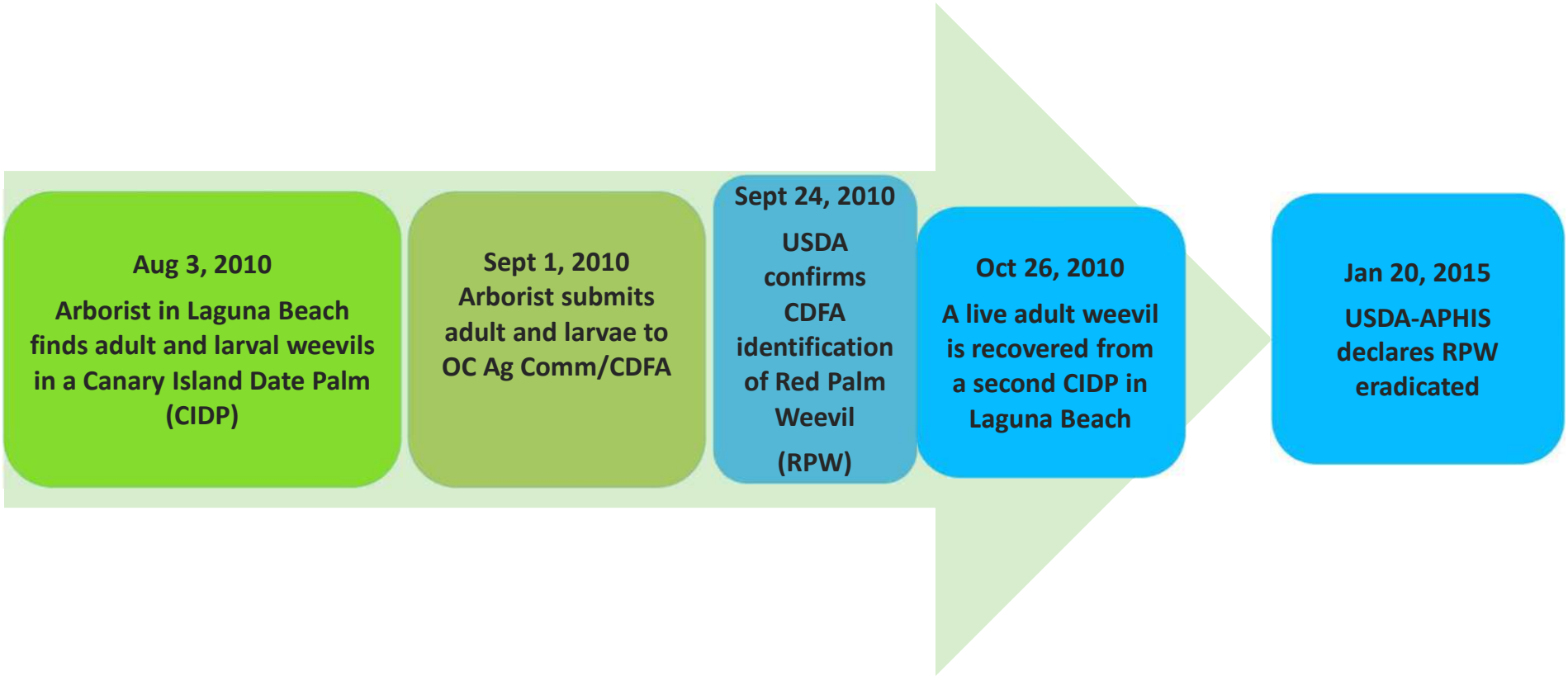
Rhynchophorus ferrugineus

Response in Laguna Beach

- Delineation of infested area
  - Bucket traps deployed
    - Ferrolure 700 mg, ethyl acetate, fermenting apples and 1 liter of 50:50 water and propylene glycol.
  - the base of heavily infested palms.

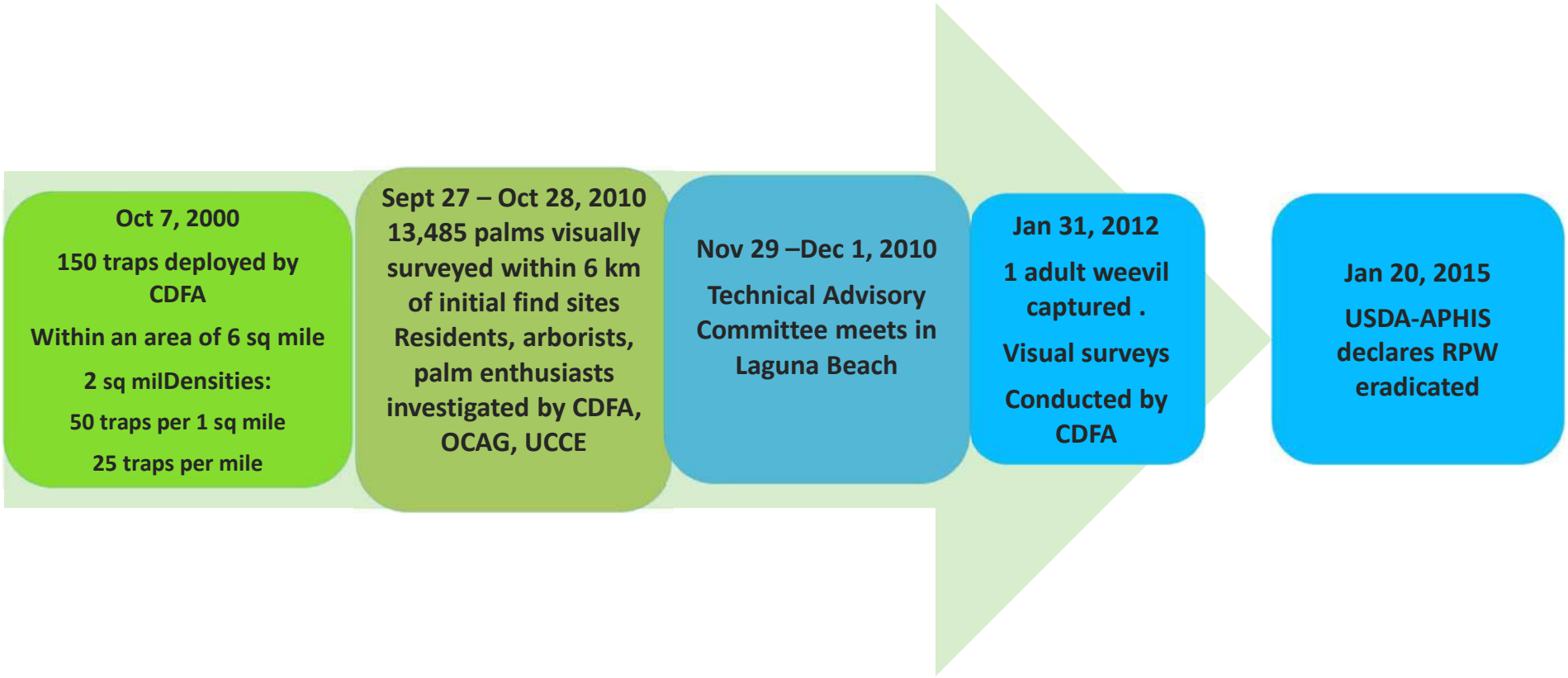
Time Line

Red Palm Weevil Eradication



Time Line

Response in Laguna



Rhynchophorus ferrugineus (RPW)- NOT

DNA-based analyses concludes weevil species collected in Laguna Beach is *R. vulneratus*.

- R. vulneratus native range is so. Thailand and northern Malaysia, Singapore and Indonesia.
- Has a range of color forms including ones typical of *R. ferrugineus* (RPW)
- This was the only find of R. vulneratus outside of its native range.

The Big Questions!

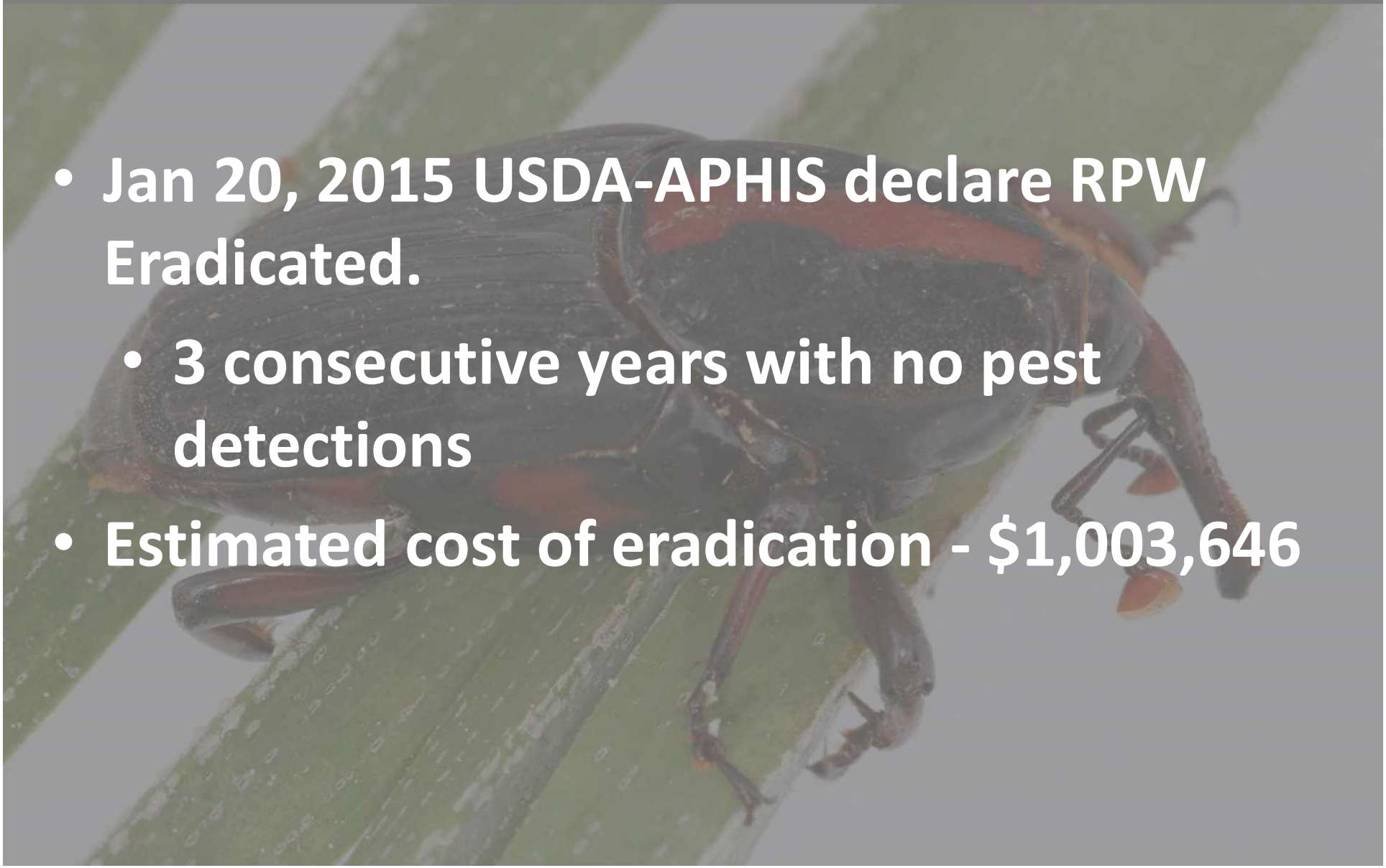
Laguna Beach

- 8.8 Square miles (23 sq kilometers)
- 23,250 inhabitants
- Relatively isolated
  - Wealthy residential area between the Pacific Ocean to the west, and the dry, relatively undeveloped San Joaquin Hills to the east.
  - One north-south highway (State Route 1) and one west-east highway (State Route 133)
  - No airport, seaport or interstate border crossings.

Palm Removals and Pesticides

- **Nov 3, 2010 infested CIDP from Oct 26 removed.**
- Total of 13 palm trees treated with broad spectrum contact pesticide applied to foliage and crown and systemic pesticides applied via trunk or soil injections.
- One CIDP w/confirmed R. vulneratus activity treated on June 2, 2011 was removed on March 27, 2013, examined and had no visual evidence of feeding damage, larvae or pupae

Declaration of Eradication, Cost



- **Jan 20, 2015 USDA-APHIS declare RPW Eradicated.**
  - **3 consecutive years with no pest detections**
- **Estimated cost of eradication - $1,003,646**

Success Factors

Interacting factors that favored eradication

1. Small infested area
2. Highly specific and sensitive monitoring tools such as pheromone baited traps.
3. Lower cost of treatment of smaller area.
4. Social, economic, regulatory and political factors.

Success Factors

Interacting factors that favored eradication:

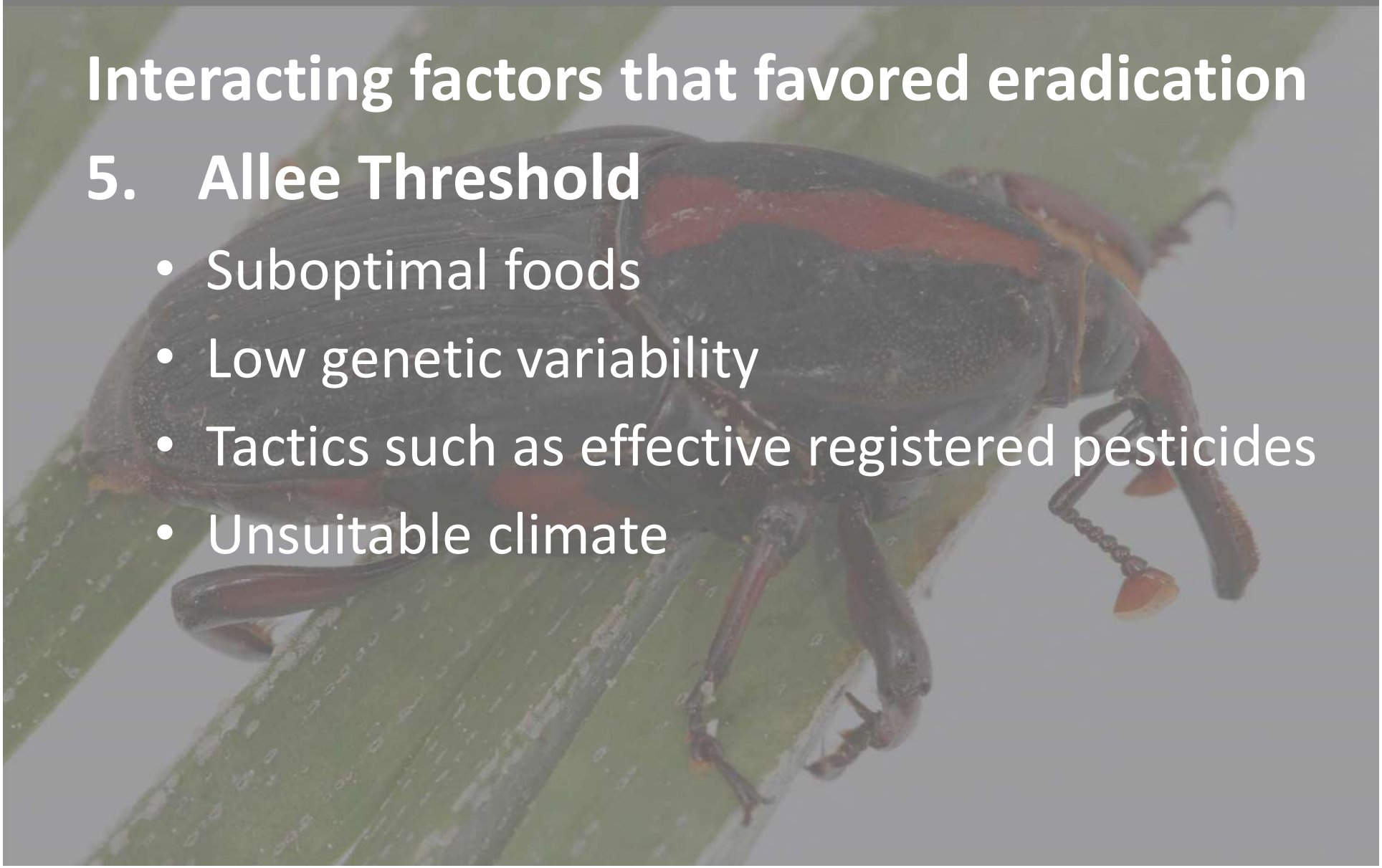
- Social
  - Strong public support for eradication
  - University of California Cooperative Extension science expertise and relationships
- Economic
  - Funds to support the project
- Regulatory
  - OC Ag Commissioner/CDFA/USDA Authority and expertise.
- Political factors
  - Commitment and political will

Success Factors

Interacting factors that favored eradication

5. Allee Threshold

- Suboptimal foods
- Low genetic variability
- Tactics such as effective registered pesticides
- Unsuitable climate



Success Factors

Interacting factors that favored eradication

5. Allee Threshold

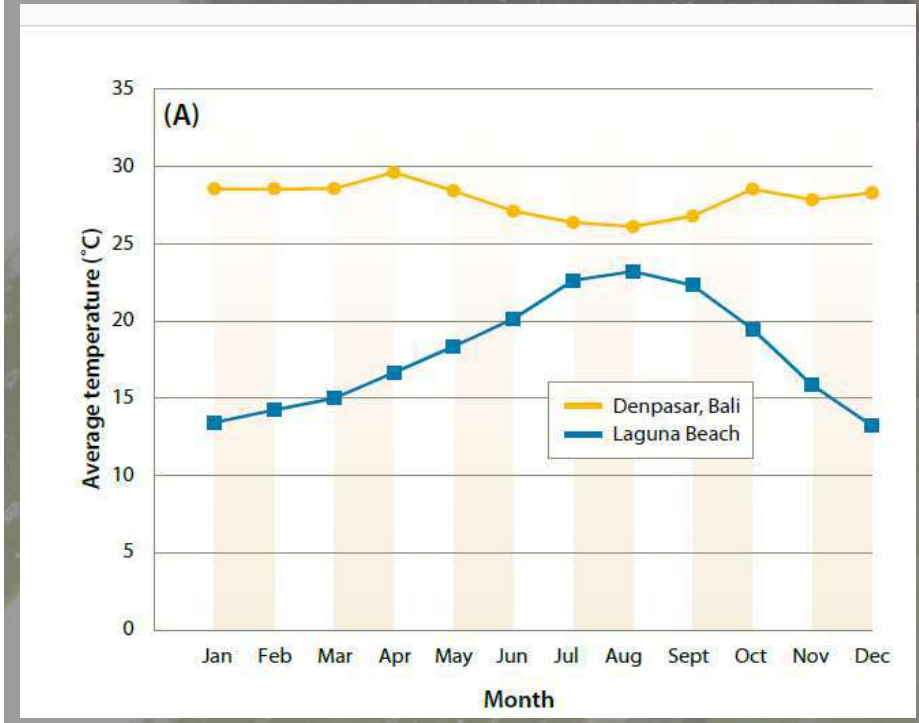
- Suboptimal foods
  - CIDP a marginal host?
- Low genetic variability
  - Small size of founding population = reduced fitness.
- Tactics such as effective registered pesticides
- Unsuitable climate

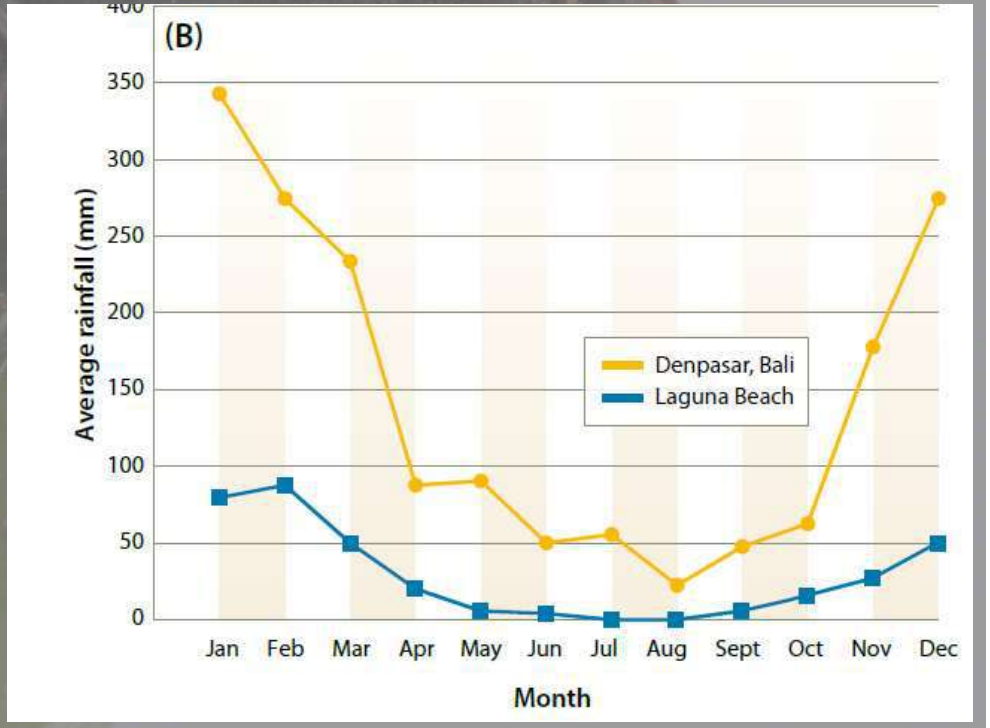
Success Factors

Interacting factors that favored eradication

5. Allee Threshold

- Unsuitable climate





Communication

If you see or suspect signs of RPW damage Call:

- CDFA Pest Hotline
  - 1-800-491-1899
  - www.cdfa.ca.gov/go/reportapest
- County Agricultural Commissioner

RPW Information

http://cisr.ucr.edu/

http://ucipm.ucdavis.edu/PMG/PESTNOTES/pn74148.html

https://www.cdfa.ca.gov/plant/rpw/

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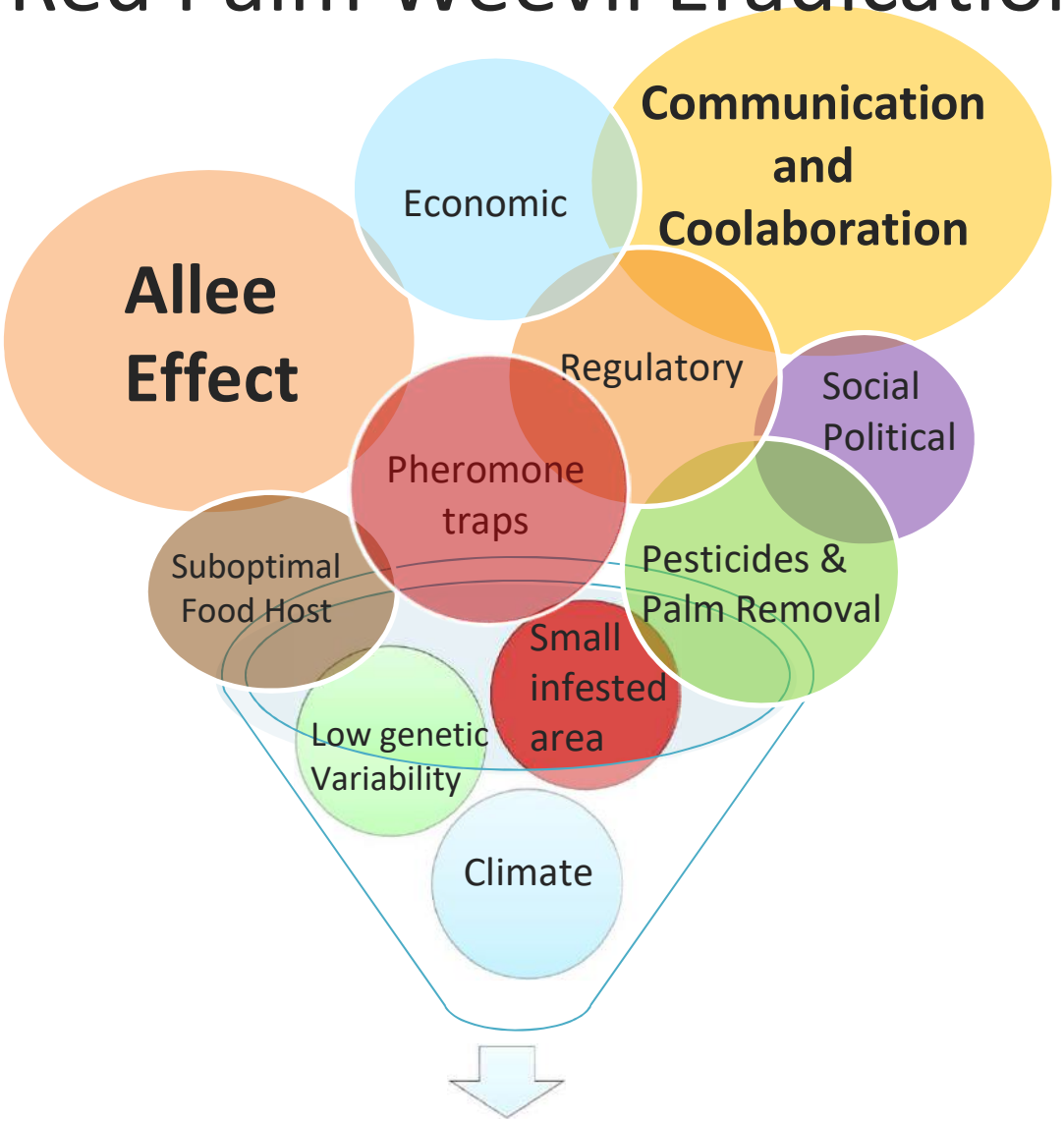

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