

# **Invasive Species and Local Vineyards**





# Threats Now and On the Horizon

30 March 2010



Paul S. Verdegaal, Farm Advisor

San Joaquin County

# Invasive Species

- "Invasive species" means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.
- "Alien species" means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.

# Exotic Pest

- Exotic pests are organisms that are introduced into an area beyond their natural range and become pests in the new environment. They are also referred to as alien, non-native, or introduced pests. Most introductions have been unintentional and accidental. Having evolved in a different ecosystem, these non-native species may have few natural enemies in their new locations, which can often lead to population increases that can overwhelm native species by out-competing them for resources (e.g., food, water, light, space).

# Invasive Species

- Insects
- Mites
- Diseases
- Plants
- Vertebrates
- Mammals
- Birds
- Aquatic
- Invertebrates





# Invasive Pests

- 1370 Invasive or exotic invertebrates
- 2/3 of all pesticides used; to control invasive species
- \$ 138 billion nationally
- Inspection finds of insects
  - 377 North America
  - 149 Europe
  - 67 Asia
  - 57 Tropical Americas
  - 37 Africa
  - 35 Pacific
  - 26 Australia

# Introduction and Movement

- Equipment
- Planting Materials
- Biological Vectors
  - Animals
  - Birds
  - Invertebrates
- Self Mobility
- Produce
- Transportation Systems
- Flooding , Waterways, Wind

# Integrated Pest Management Principles

- Pest Identification
- Regular Monitoring & Population Assessment
- Control action Guidelines
- Problem Prevention (Early vs Late)
- Integrating Methods (“least disruptive”)



# Recent Arrivals and New Threats

- Variegated Leaf Hopper VLH 1988
- Glassy Wing Sharp Shooter GWSS 1990
- Western Grape Leaf Skeletonizer WGLS 1993
- Vine Mealybug VMB 1998-2000
- Light Brown Apple Moth LBAM 2009
- Spotted Wing Drosophila SWD 2009
- European Grape Vine Moth EGVM 2009
- Red Imported Fire Ant RIFA 2007

# Why Bother To Try

*“An ounce of prevention is worth a pound of cure.”*

- Costs
- Regulations
- Secondary problems (vectors for other problems)
- Resistance Management

# Glassywinged sharpshooter, *Homalodisca coagulata*



# GWSS versus GLH and VLH

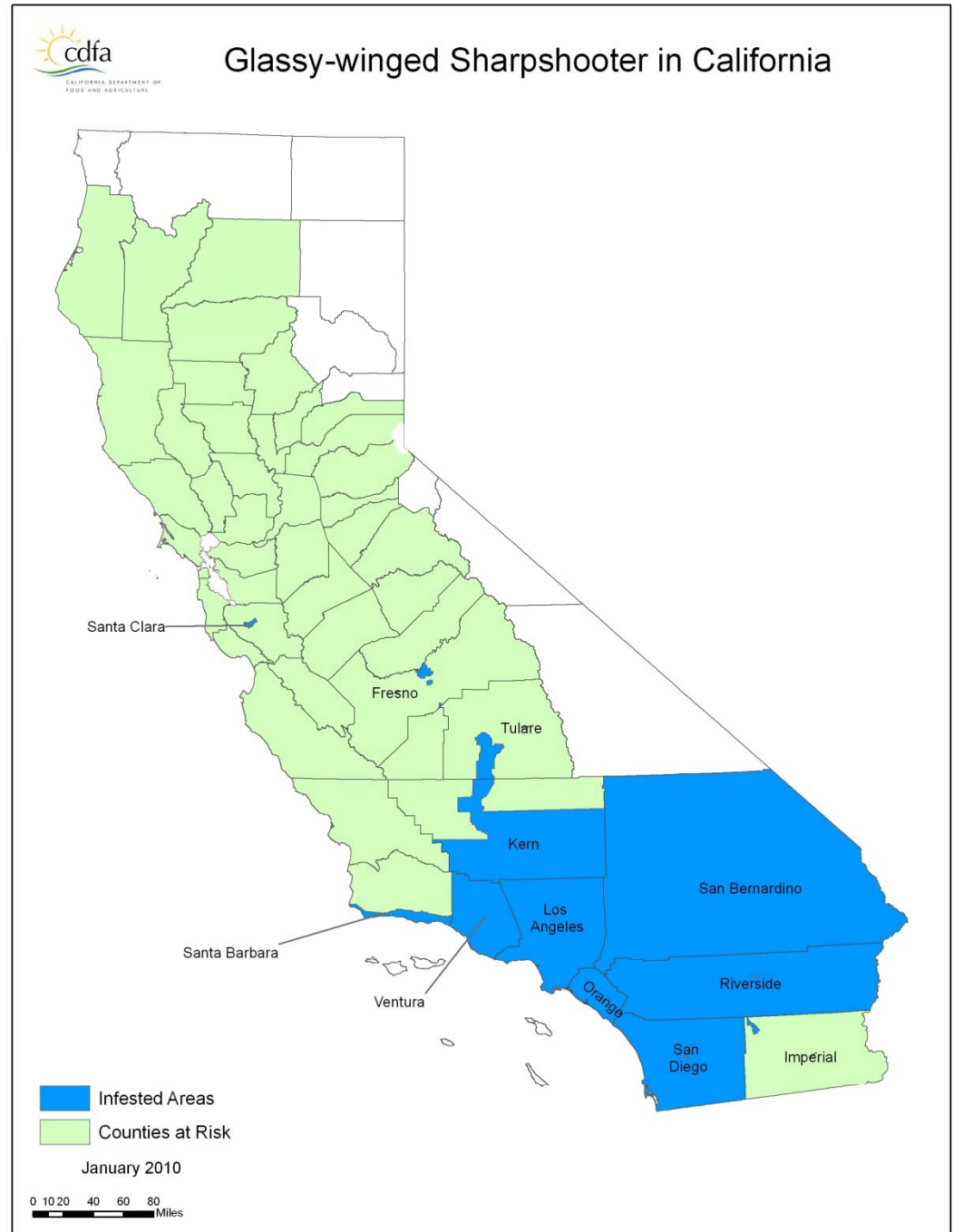


1 in = 25 mm



# GWSS 2010

- More Counties
- More Programs
- Research ongoing



**In the meantime...**



**FreakingNews.com**

**more pests arrived**

# Vine Mealybug VMB

- Looks similar to other mealybugs
- More severe damage
- Later in the season
- Predator /Parasites lacking
- Some available chemical controls
  - Under scrutiny
  - Restricted
  - Costly Alternatives
  - New alternatives under scrutiny already

# VMB vs Grape Mealybug

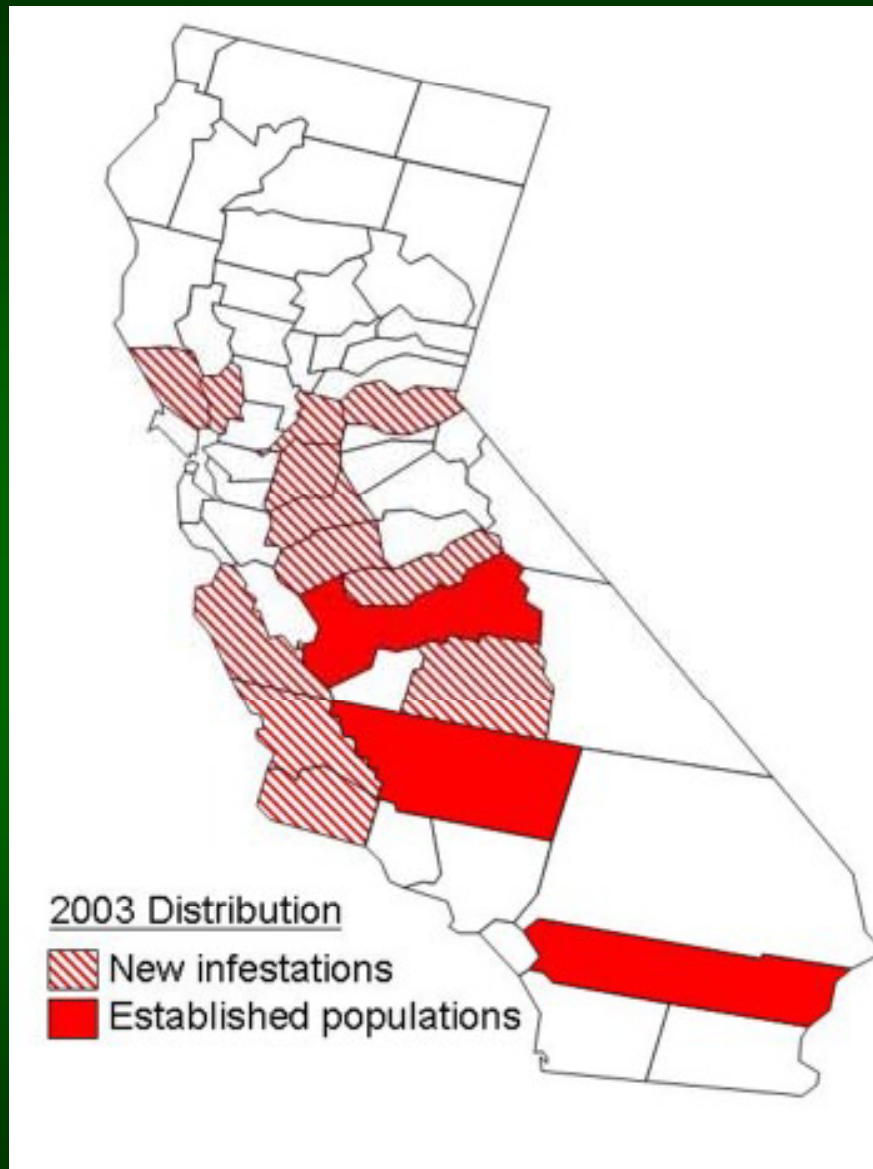


UC Statewide IPM Program  
© 2002 Regents, University of California



# VMB Counties

**Alameda, Fresno, El Dorado\***  
**Kern, Madera, Merced, Monterey,**  
**Napa, Riverside, Sacramento,**  
**San Joaquin, San Luis Obispo,**  
**Santa Barbara, Santa Clara, Solano,**  
**Sonoma, Tulare, Yolo**



# VMB 2010

- More Counties
- Some options
- Some frustrations
- Research ongoing

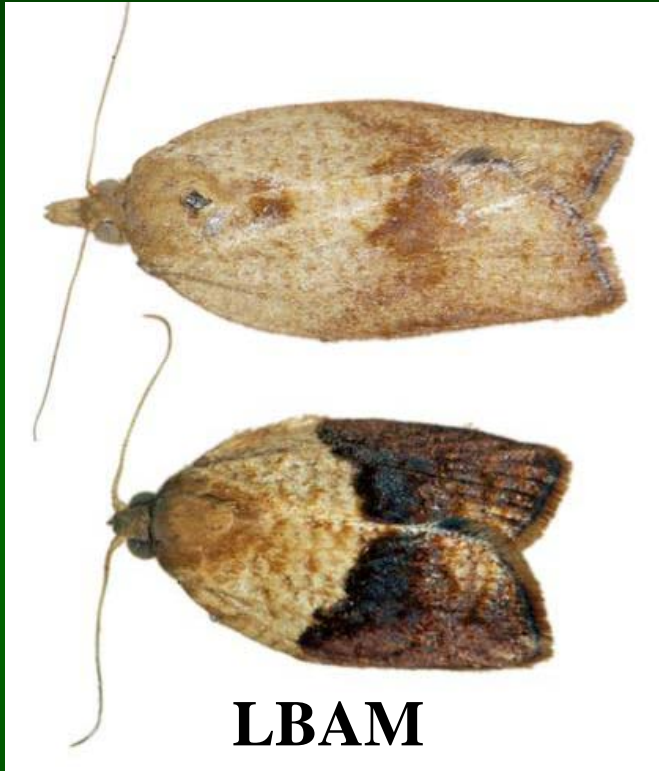
Vine Mealybug Status in California



Figure 1. The distribution of vine mealybug within California in 2007.

# Light Brown Apple Moth LBAM

- Wide range of hosts and crops
- Highly regulated response required
- Controversy and passion against control
- Actual damage and loss is possible, but manageable



**LBAM**



**OLR**

UC Statewide IPM Project  
© 2000 Regents, University of California

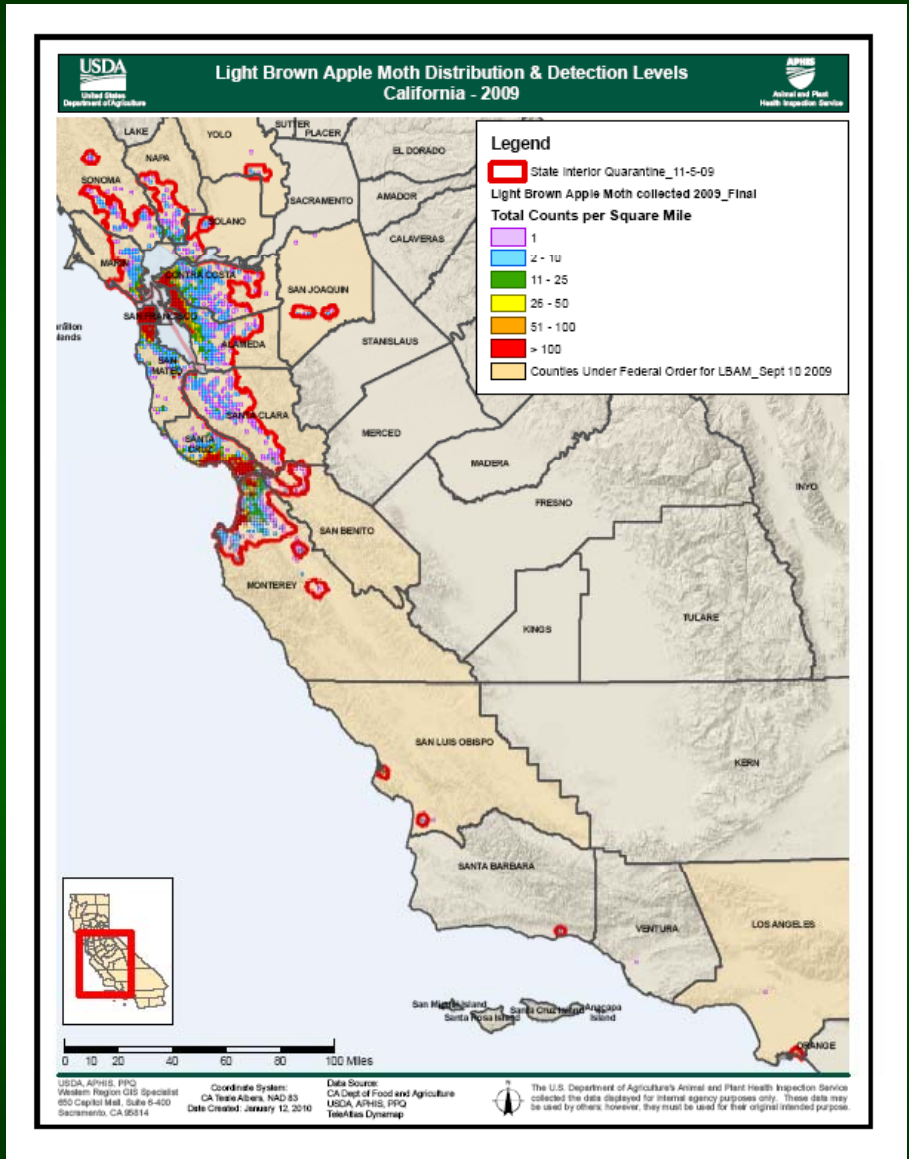
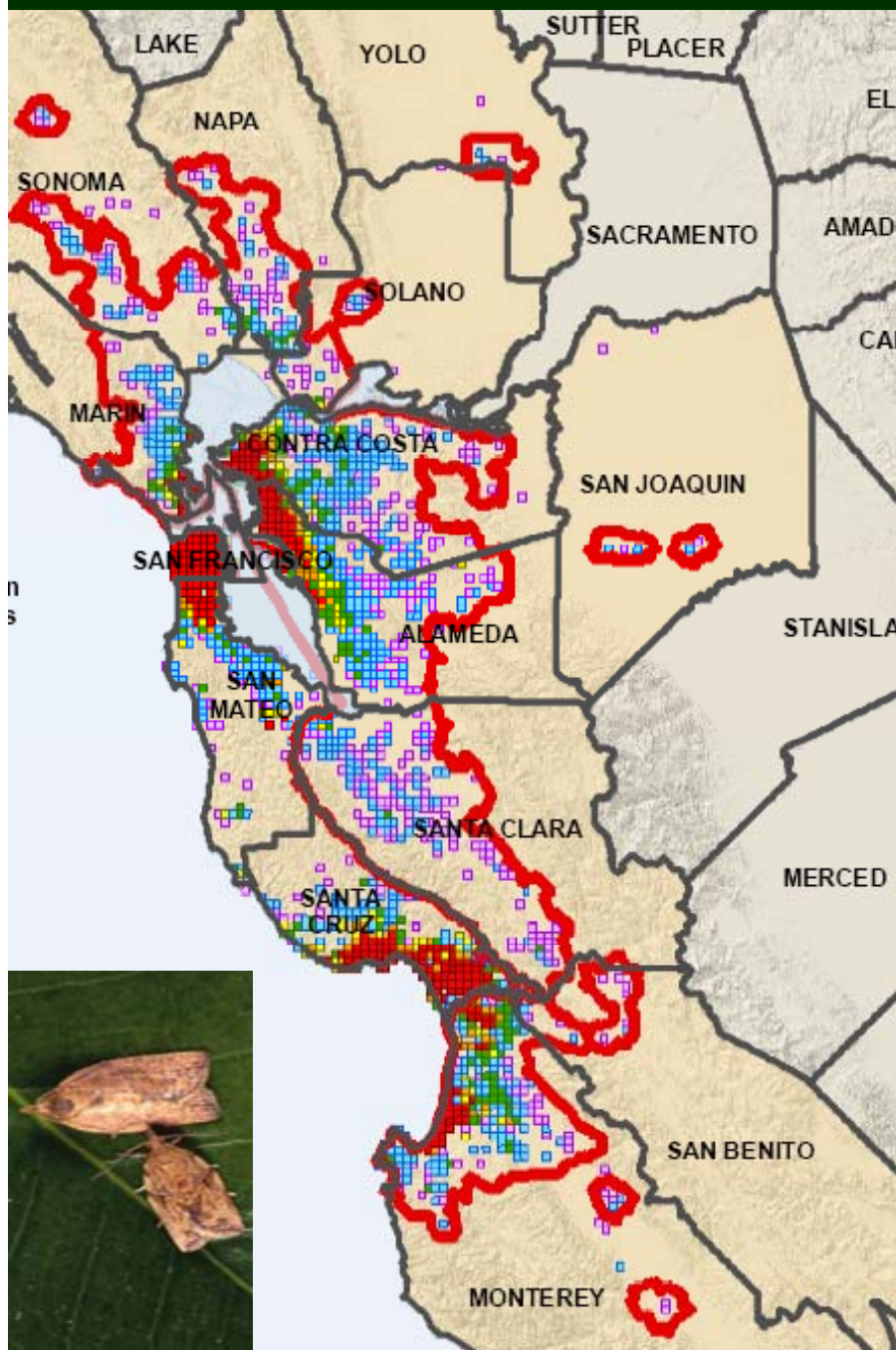


**EGVM**

UC Statewide IPM Project  
© 2000 Regents, University of California



# LBAM 2009



# European Grape Vine Moth EGVM

- Most recent finds in north coast
- Very similar to Orange Tortrix, but...
- May move easily with equipment?
- More potentially damaging
- May require more cost (prevention control)
- Many unknowns



# Spotted Wing Drosophila SWD

- Extremely rapid spread
- Unregulated movement (non-quarantine)
- Wide range of crops
- Potential damage moderate to high
- Control possible ,but costly
- Limited alternative materials
- Many unknowns yet

# Spotted Wing Drosophila



SWD male

Healthy cherry with  
SWD stings



**SWD 2009**

**27 Counties**

**SWD 2007**

**0 Counties ?**

**Detections till 28.May.2009**



**Yolo Co: Davis**  
**Merced Co: Gustine**  
**San Joaquin: Tracy**  
**Santa Cruz Co: Watsonville**  
**Santa Clara Co: Gilroy, Morgan Hill**  
**Stanislaus Co: Patterson, Newman, Wesley**

**Varieties: Black Tartarian, Ruby, Bing**



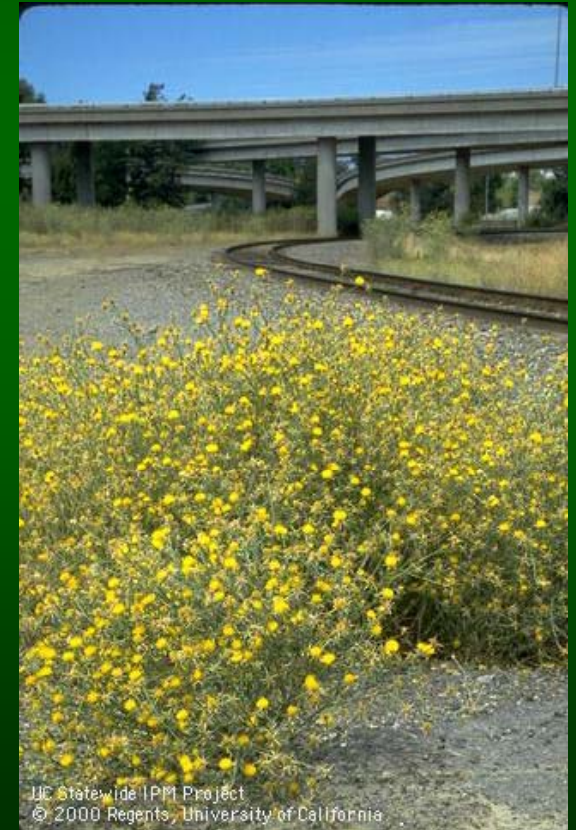
# Gill's Mealybug



El Dorado grapes & Central Valley nut crops

# Plants as Weeds

- Troublesome
  - Competitive (Years 1 through 3 or Old Vines)
  - Potential hosts
    - GWSS
    - VMB
    - Voles and Gophers
  - Hindrance
- Noxious
- Invasive



# Particular Difficulties of Weeds

- No Thresholds
- Long term carryover
- Alternative materials costly
- Soil environment almost as restricted as water ways
- Hosts for vectors; diseases; vertebrates
- Fire hazards

# Weed Management Keys

- Prevention most important
- Materials choice and rotation very important
- Monitor in fall and spring
- In season management need with drip systems

# New Threat; Stinkwort

## Old Culprits

- Mare's Tail
  - Flax leaf Fleabane
  - Paniced willow herb n
  - Fringed leaf willow herb n
  - Yellow Star Thistle
  - Velvet leaf n
  - Anoda cristata?
  - Puncture vine
- 
- Fitch's Spike Weed n
  - Sandbur, longspined (native)





# Summary

- Stay notified of updates and new information
- Train permanent employees to be on lookout
- Follow basic IPM practices
- Limit and monitor movement of equipment and people between blocks and ranches or districts
- Maintain clean equipment
- Proactively manage riparian and nature areas
- Communicate with your neighbors
- Call UC Cooperative Extension or LDGGA or LWC

- **UC Integrated Pest Management**
- <http://www.ipm.ucdavis.edu/>
- **Glassy winged sharp Shooter**
- <http://www.cdfa.ca.gov/pdcp/index.html>
- Vine Mealybug
- <http://vinemealybug.uckac.edu/VMB.htm>
- Spotted wing Drosophila Fly
- <http://www.ipm.ucdavis.edu/EXOTIC/drosophila.html>
- European Grapevine Moth
- [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/pest\\_detection/downloads/pralbotranapra.pdf](http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/pralbotranapra.pdf)
- <http://www.ipm.ucdavis.edu/EXOTIC/eurograpevinemoth.html>
- Light Brown apple Moth
- [http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam\\_main.html](http://www.cdfa.ca.gov/phpps/PDEP/lbam/lbam_main.html)
- California Invasive Plant Council
- <http://www.cal-ipc.org/ip/inventory/index.php>
- **UCCE San Joaquin County**
- <http://cesanjoaquin.ucdavis.edu/>