

# 2022 Oregon Wine Symposium

## **A brief history of mealybug trapping in Oregon vineyards: from 2008 to 2021**

**Rick Hilton**

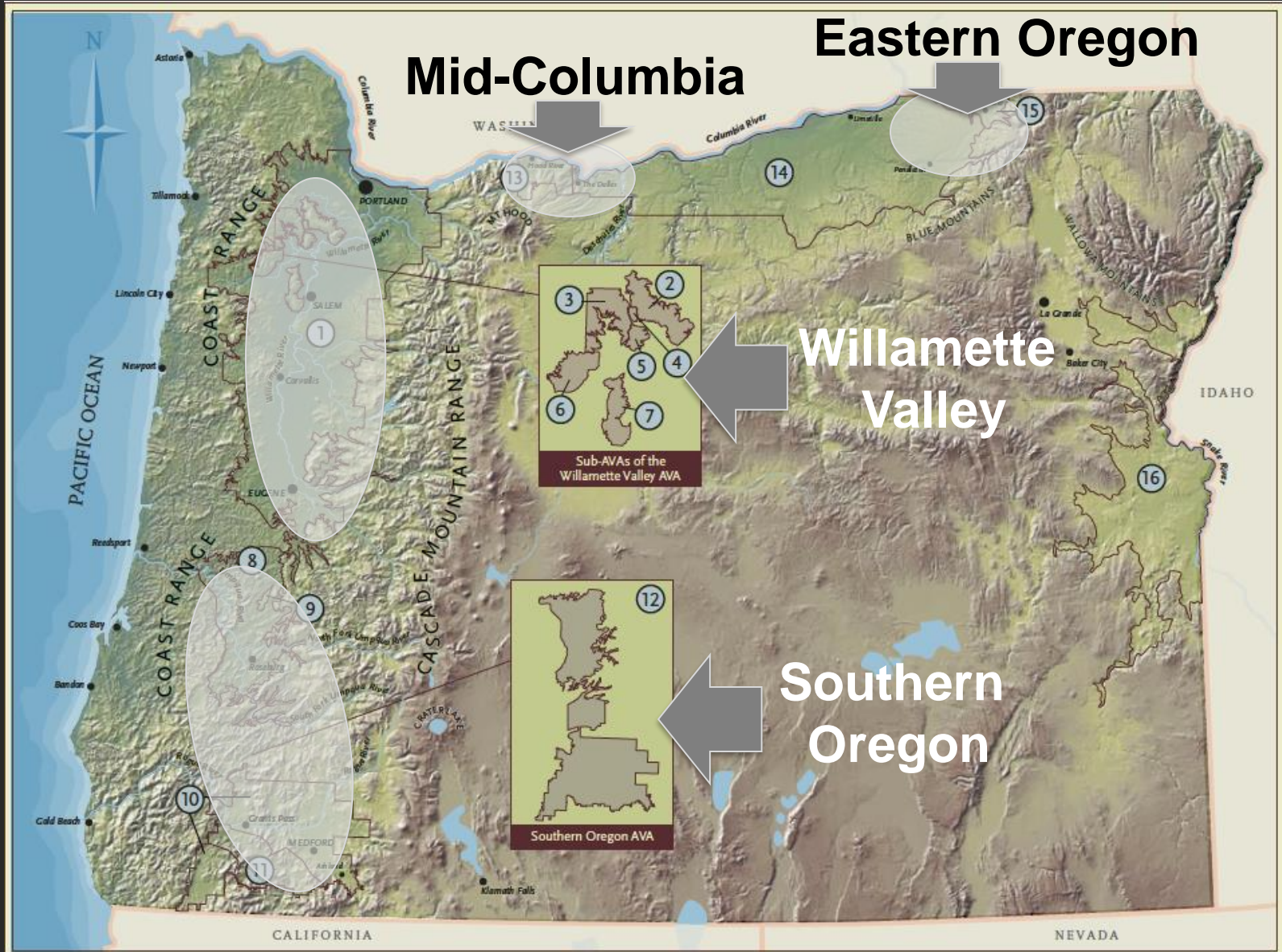


**Oregon State University**  
Southern Oregon Research  
and Extension Center

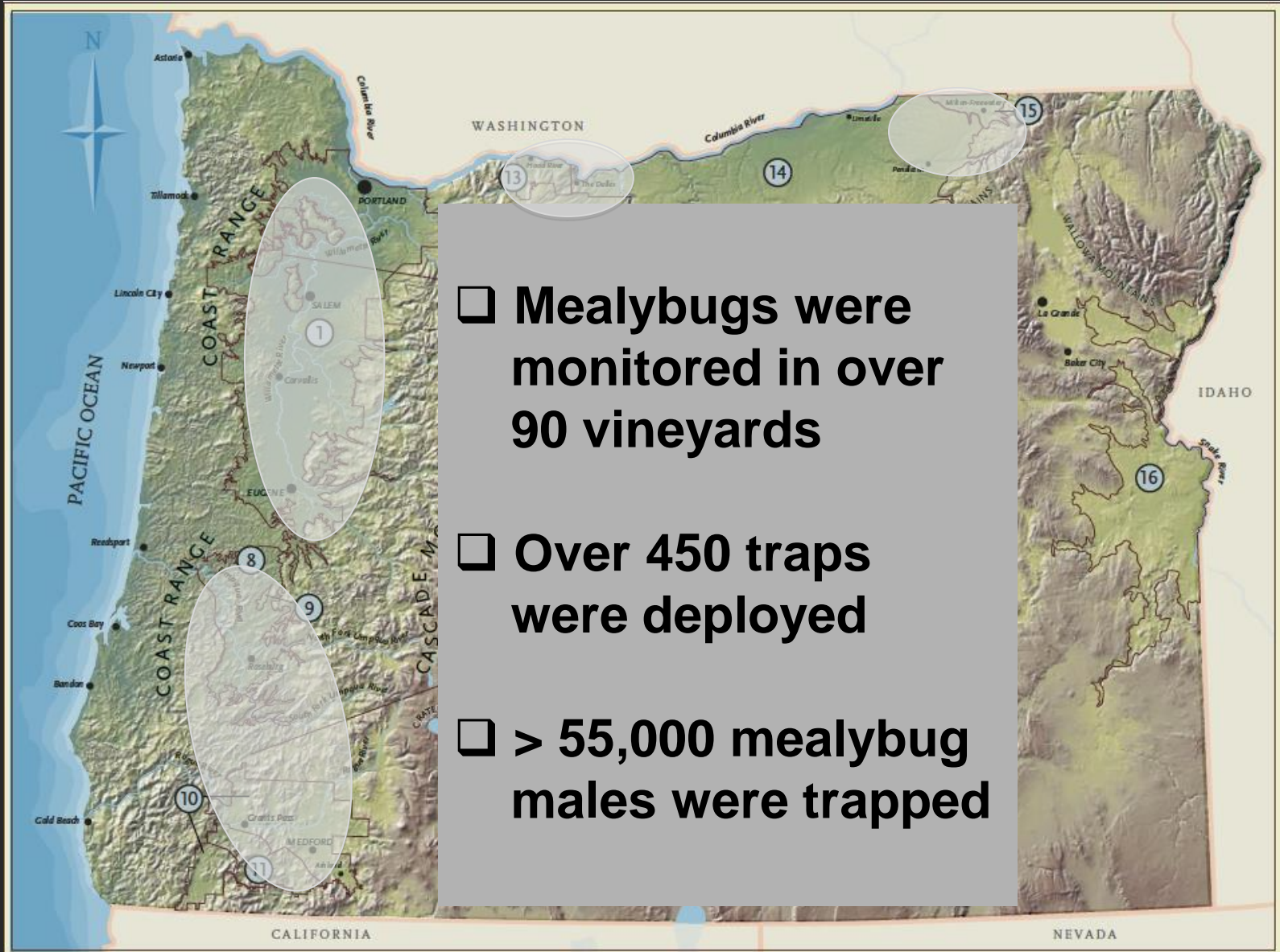
# *Background*

- ❑ Grape mealybug (GMB) were known to be present in the major fruit growing regions of Oregon occasionally becoming a pest in pears
- ❑ Concerns regarding mealybug infestations due to role as a virus vector and the possible introduction of vine mealybug from California
- ❑ Initiated pheromone sampling for GMB and vine mealybug (VMB) in late 2008
- ❑ First vineyard with significant GMB infestation on the fruit seen in southern Oregon in 2008

# Statewide Mealybug Monitoring (2009)



# Statewide Mealybug Monitoring (2009)



# Mealybug Monitoring—Conclusions and Findings

- ❑ GMB was present in all regions of Southern Oregon (>90% of the sites were positive for GMB in 2010)
- ❑ No confirmed finding of VMB to date
- ❑ GMB had two generations in the Rogue / Bear Creek region and one in the Illinois Valley
- ❑ GMB populations have been increasing in number and economic impact
- ❑ The use of pheromone traps for GMB provides early detection of economically damaging populations
- ❑ Pheromone traps for VMB should be used for detection of this invasive pest

# Mealybug Monitoring—Conclusions and Findings

- ❑ GMB was present in all regions of Southern Oregon (>90% of the sites were positive for GMB in 2010)
- ❑ No confirmed finding of VMB to date
- ❑ GMB had two generations in the Rogue / Bear Creek region and one in the Illinois Valley
- ❑ GMB populations have been increasing in number and economic impact
- ❑ The use of pheromone traps for GMB provides early detection of economically damaging populations
- ❑ Pheromone traps for VMB should be used for detection of this invasive pest

# OSU Extension Publications

2010

2009

EM 8990 • October 2009

## Grapevine Leafroll Virus and Mealybug Prevention and Management in Oregon Vineyards

V. Walton, A.J. Dreves, P. Skinkis, C. Kaiser, M. Buchanan, R. Hilton, B.R. Martin, S. Castagnoli and S. Renquist

**G**rapevine Leafroll associated Viruses (GLRaVs) cause disease in grapevines worldwide. In some regions, the viruses have reached epidemic levels. Recently, they have been identified in vineyards in Oregon, which has led to concern. The disease is caused by a complex of ten species of viruses that may produce a wide variety of symptoms including: leaf chlorosis and discoloration; downward rolling of leaves; fruit yield reductions of up to 40%; and lower berry quality from a lack of ripening, reduced sugar content and poor pigmentation. The viruses have also been associated with poor graft union development and young vine failure.

Mealybugs (Homoptera: *Pseudococcidae*) are known transmitters, or "vectors," of GLRaVs. Virus-infected vines often mirror patterns of mealybug infestations in a vineyard. Prominent examples of mealybugs found in Oregon include grape mealybug (*Pseudococcus maritimus*), obscure mealybug (*Pseudococcus viburni*) and longtailed mealybug (*Pseudococcus longispinus*). Grape mealybug is the only mealybug found in vineyards in the state. Vine mealybug (*Planococcus ficus*), an invasive species, is also believed to be a vector of viruses in California. It has not been reported in Oregon to date.

Viruses and their insect vectors, including mealybugs, can be mitigated by implementing safe practices, first by prevention and second by management. Prevention measures should be used to keep insect vectors and viruses out of vineyards. Management of GLRaVs and quarantine of mealybug vectors are required to prevent further spread if a vineyard site is already infected.



Figure 1: Honeydew, ants and sooty mold are often found on grape clusters infested with mealybugs.

V. Walton, Horticultural Entomologist, Department of Horticulture, Oregon State University (OSU). A. Dreves, Research & Extension Entomologist, Department of Crop and Soil Science, OSU. P. Skinkis, Viticulture Extension Specialist, Department of Horticulture, OSU. C. Kaiser, Extension Horticulturist, Umatilla County Extension & Department of Horticulture, OSU. M. Buchanan, Viticulture Extension Instructor, Southern Oregon Research and Extension Center, OSU. R. Hilton, Entomologist, Southern Oregon Research and Extension Center, OSU. B.R. Martin, Research Plant Pathologist, Horticultural Crops Research Laboratory, USDA Agricultural Research Service. S. Castagnoli, Extension Horticulturist, Hood River County Extension & Department of Horticulture, OSU. S. Renquist, Extension Horticulturist, Douglas County Extension & Department of Horticulture, OSU.

Oregon State UNIVERSITY Extension Service

Oregon State UNIVERSITY Extension Service

EM 8998 - January 2010

## Trapping and Identifying Mealybugs in Oregon Vineyards

Ray L. Dreves and Vaughn M. Walton

**M**ealybugs, a family of soft, oval bodied pests (Homoptera: Pseudococcidae), are known vectors of viruses in vineyards of grape. Mealybugs can add to growers' concerns. It is difficult to manage because of various life stages, eggs, and insects that feed on them. Mealybugs in vineyards can be identified by...



Figure 1. Oregon mealybug. Photo by Ray L. Dreves, Oregon State University.

**Pheromone Traps**  
Pheromone traps may be used as an early warning tool for mealybug infestations in vineyards.

## Distribution and Monitoring of Grape Mealybug: A Key Vector of Grapevine Leafroll Disease in Oregon

EM 9062 - April 2014

David Carlson, Vaughn Walton, Kent Daniel, Chris Kaiser, Rick Hillis, and Linda Bremer

**W**estern Oregon typically produces cool-season wine grape varieties. In warmer areas, such as parts of southern Oregon and the eastern side of the state, floodplain vineyards are common. In some years, a primary concern for growers is translucent accumulation of leaf axils required to ripen grapes at the end of the growing season.

Mealybugs in Pacific Northwest vineyards sometimes infest grape clusters touching the fruit, reducing fruit quality and, in some cases, rendering them unmarketable. More importantly, the grape mealybug, *Pseudococcus maritimus*, spreads the viruses that cause grapevine leafroll disease (Figure 1). You may see this referred to as GLRaV in some local oral literature. Grapevine leafroll disease delays fruit ripening, exacerbating the cool season climate conditions during the ripening phase. Managing mealybug populations can limit the spread of leafroll.

Scale insect species—including grape mealybug, P. maritimus; obscure mealybug, P. viburni; longtailed mealybug, P. longispinus; vine mealybug, P. ficus; and locust scale, P. aspidiotus—are found in Oregon, with the exception of vine mealybug. The vine mealybug presence in the western United States has been confirmed only in California vineyards. If this species were to become established in Oregon, it could cause significant...



Figure 1. Cool-season vineyards typically have berries that take longer to ripen.

Vaughn M. Walton, OSU Oregon State University



Figure 2. Adult female grape mealybug with some beehive-like wax.

# Mealybug Monitoring—Summary

- ❑ GMB is present in all regions of Southern Oregon
  - ❑ GMB has two generations in some areas of the Rogue / Bear Creek region and one in other Southern Oregon regions
  - ❑ GMB populations are localized and still high in some areas, Movento provides adequate control and fruit damage has been low, remains a concern esp. if leafroll virus is present
  - ❑ The use of pheromone traps for GMB can aid substantially in early detection of economically damaging populations
- ❑ Pheromone traps for VMB should be used for detection of this invasive pest
  - ❑ No confirmed finding of VMB to date

Photo taken by Daniel Sweeney  
on April 17, 2014



## Gill's Mealybug

**First detected in  
Oregon in 2014  
in a vineyard  
near Jacksonville**



*Ferrisia gilli*

<http://anrcatalog.ucdavis.edu/pdf/8207.pdf>

## Gill's Mealybug timeline

**2014** first detection

**2015** survey located two additional vineyards, both very near the original detection site

**2018** observed at high abundance in a vineyard not in the vicinity of the original detection (5.5 mi.)

**2020** found in at least one additional vineyard

**2021** observed in a few vineyards including one distant from the original detection site (14.1 mi.)

## Mealybug trapping in 2021

- ❑ GMB and VMB traps placed in six vineyards

❑ In two of the vineyards, both near the initial detection site for Gill's mealybug, mealybug males were caught in the VMB traps

- ❑ Note: no vine (or grape) mealybugs were observed on the vines, only Gill's mealybug

- ❑ Specimens from the traps were sent to the ODA for species verification

Feel free to contact me:  
[richard.hilton@oregonstate.edu](mailto:richard.hilton@oregonstate.edu)

