

BMSB Distribution and Pest Status in the PNW

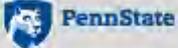
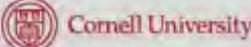
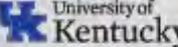
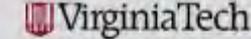
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Javier Gutierrez-Illan,
OR: Nik Wiman, Dave Lowenstein,
Vaughn Walton, Rick Hilton



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 United States Department of Agriculture National Institute of Food and Agriculture
Specialty Crop Research Initiative

Collaborating Institutions

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Determining Distribution in Washington

1. Citizen reports
(tfrec.reportbmsb@wsu.edu)
2. Targeted (aka shotgun) surveys (Obj. 1)

<http://tfrec.cahnrs.wsu.edu/beers-tfentomology/bmsb/bmsb-wa/>



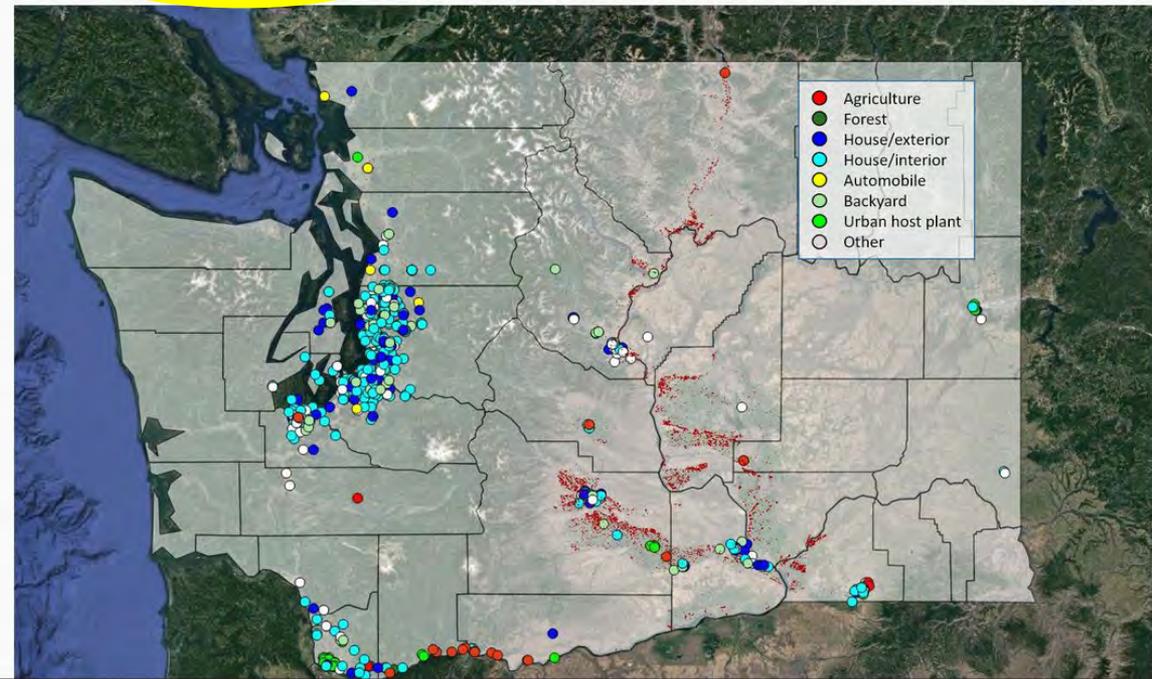
WASHINGTON STATE UNIVERSITY
EXTENSION

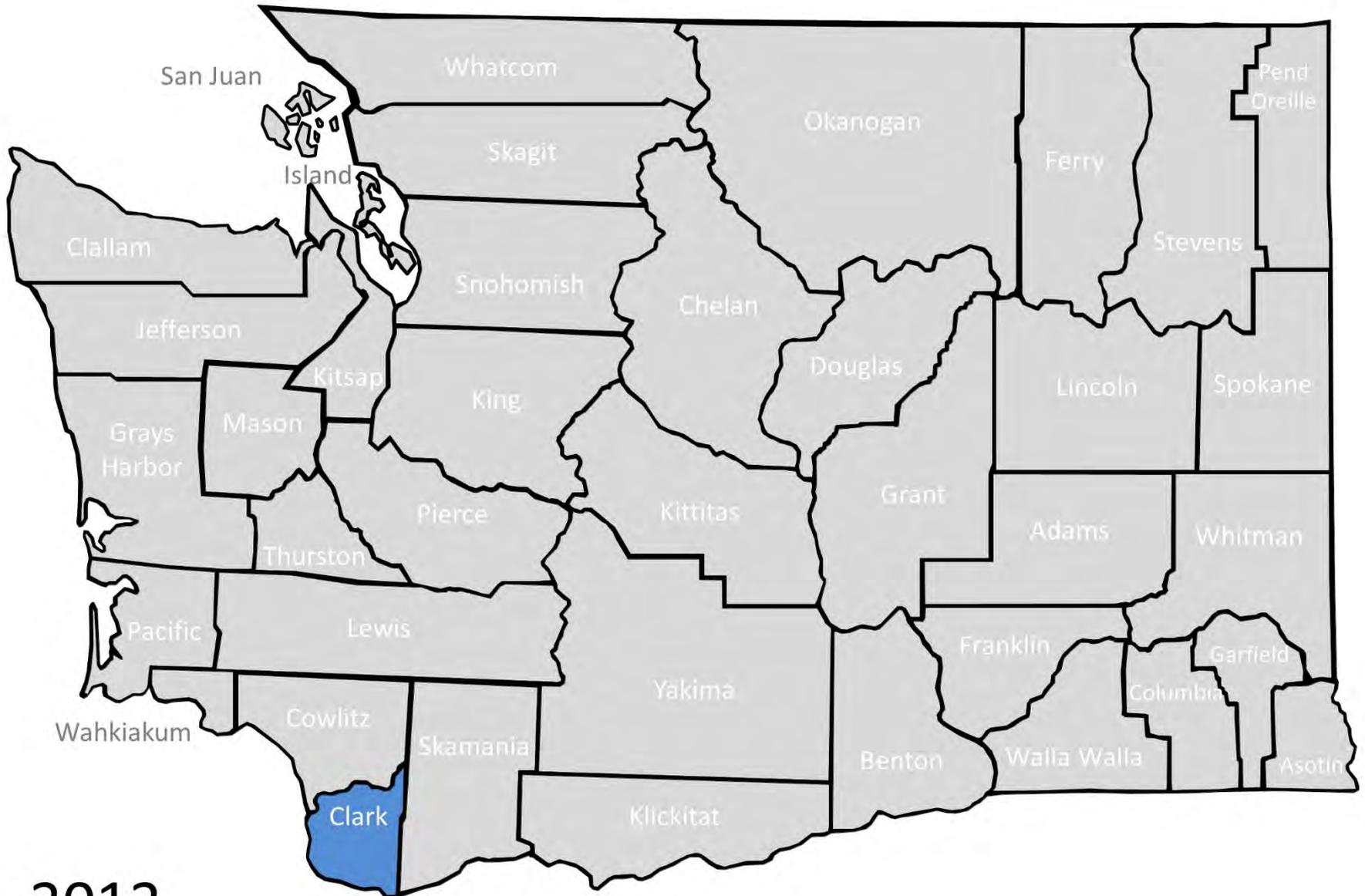
🔍 ✉️ 🌐

- 🏠 Elizabeth Beers
- WA Codling Moth SIR
- Brown Marmorated Stink Bug**
 - Overview
 - BMSB Finds in Washington (Map)**
 - Samurai Wasp (*Trissolcus japonicus*)
 - Fact Sheets and Press Coverage
 - BMSB in Orchard Pest Management ↗
 - Stop BMSB ↗
 - Early Detection National Map ↗
- Little Cherry Disease ↗
- Pear IPM ↗
- Spotted Wing Drosophila ↗
- Orchard Pest Management ↗
- Crop Protection Guide ↗
- WSU Tree Fruit ↗
- WSU TFREC Wenatchee

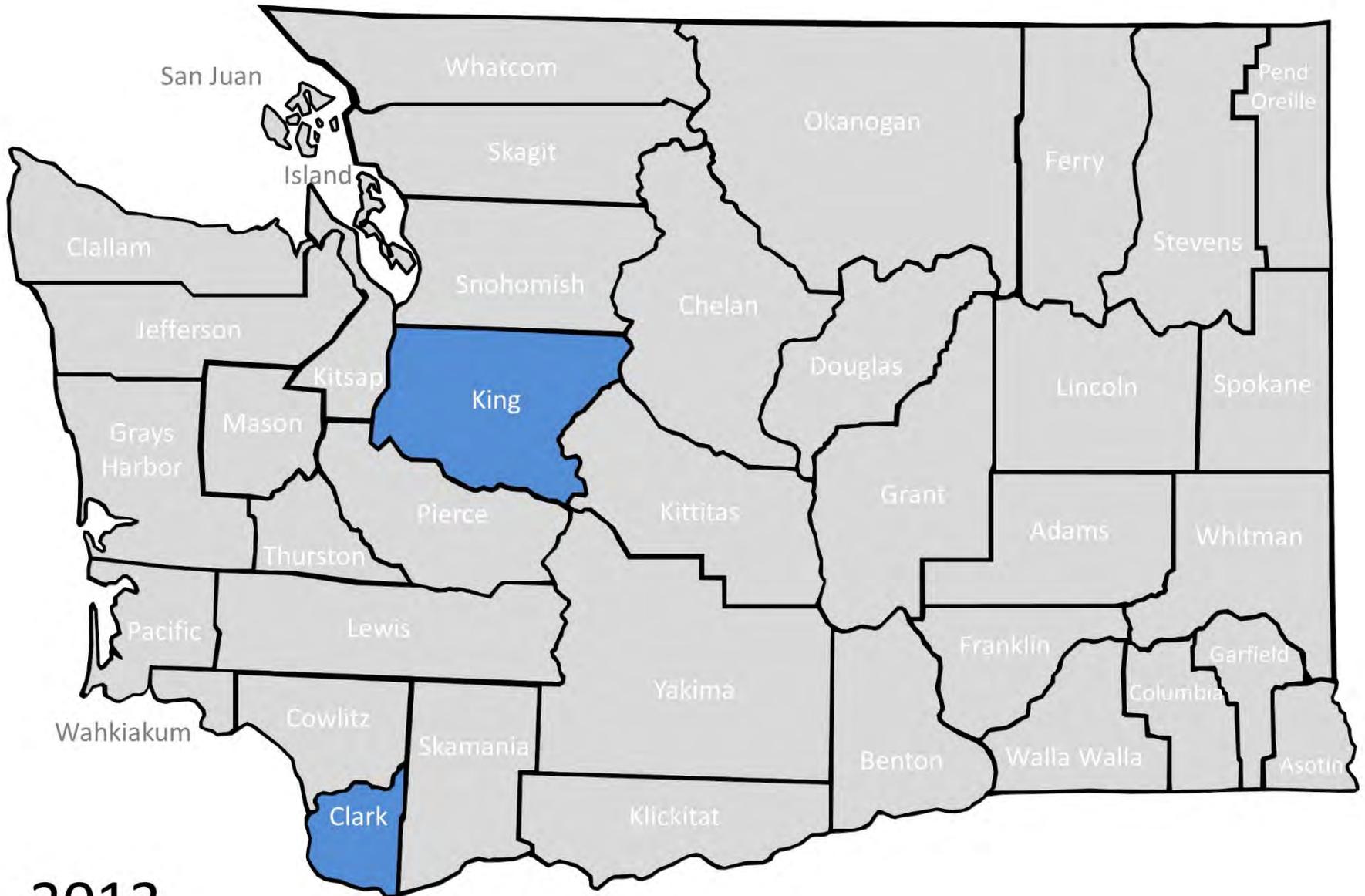
BMSB Finds in Washington (Map)

As of December 2018, brown marmorated stink bug (BMSB) has been recorded in 24 Washington state counties; with most along the I-5 corridor. **If you find a BMSB, please send a photo, general location (inside or outside of house or car, backyard, park, etc.) and the address it was found to: tfrec.reportBMSB@wsu.edu**

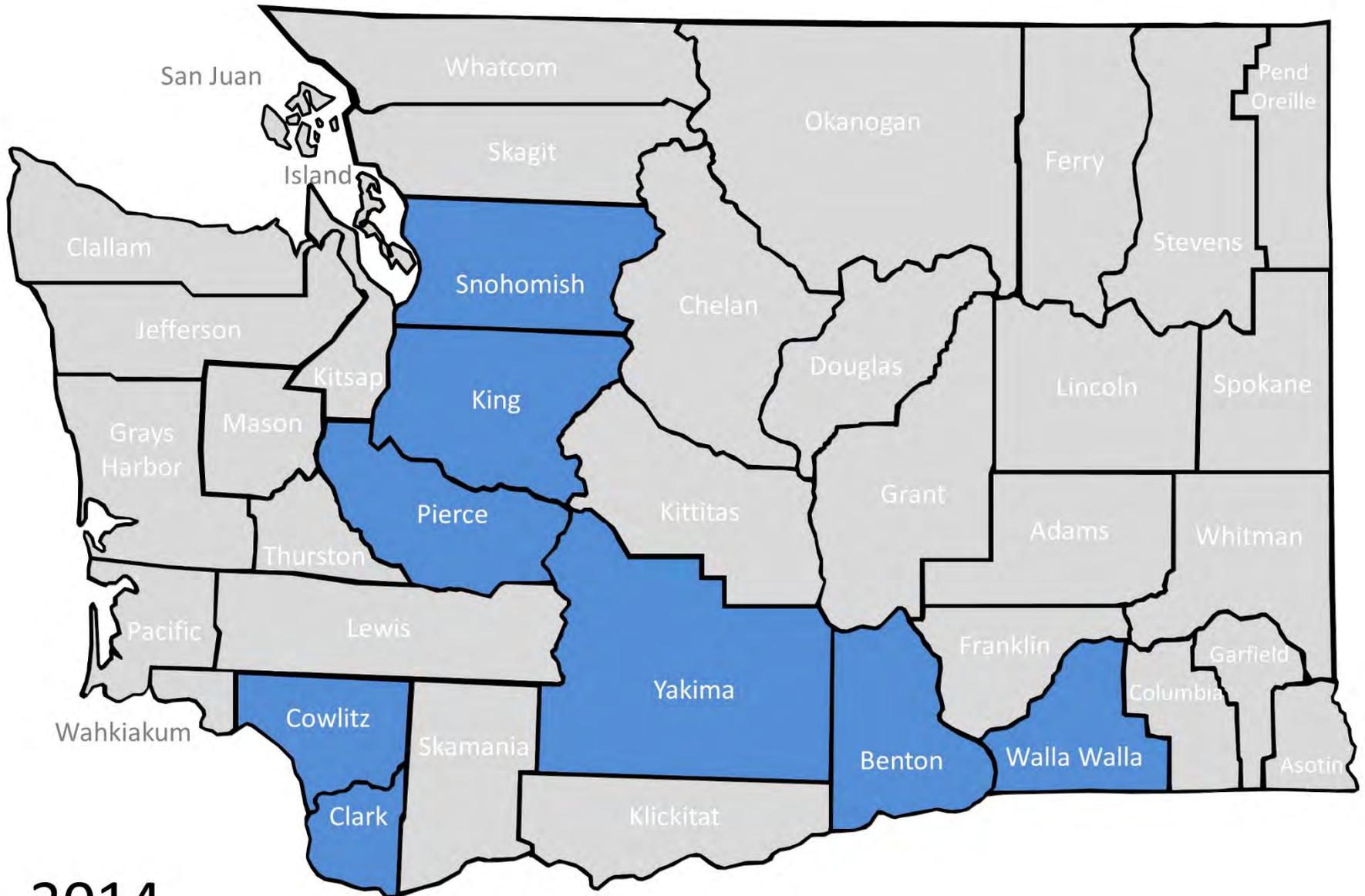




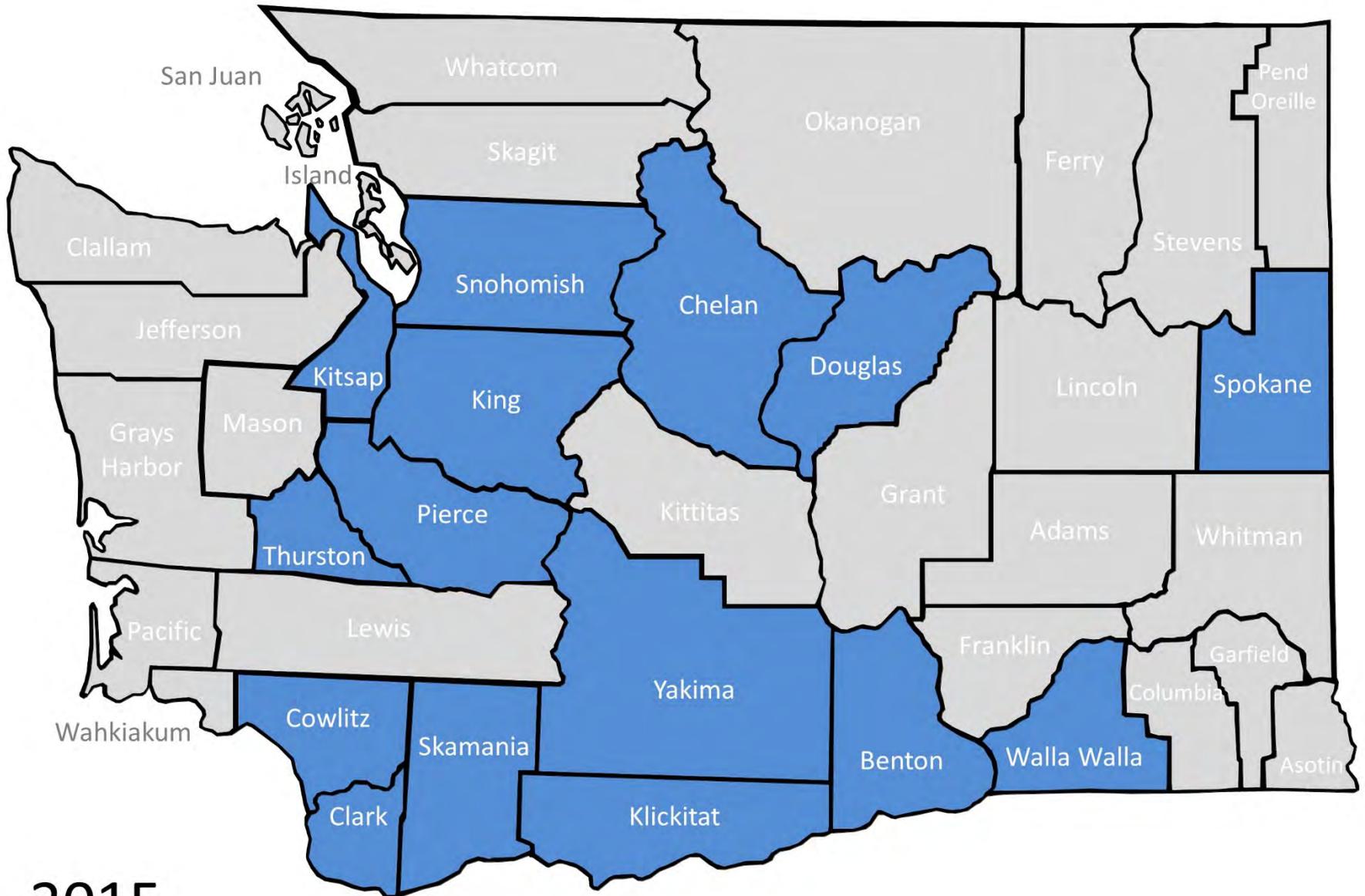
2012



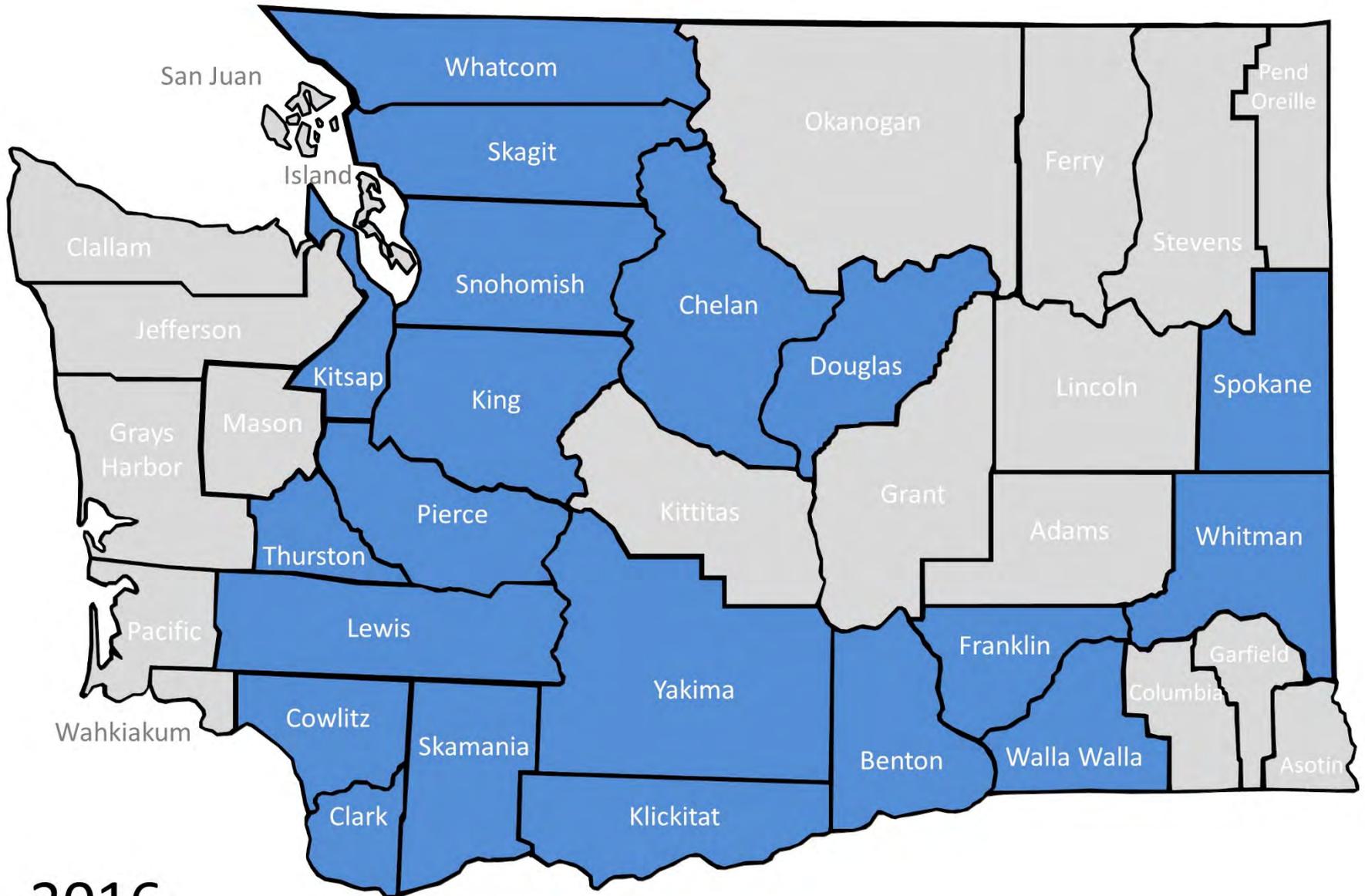
2013



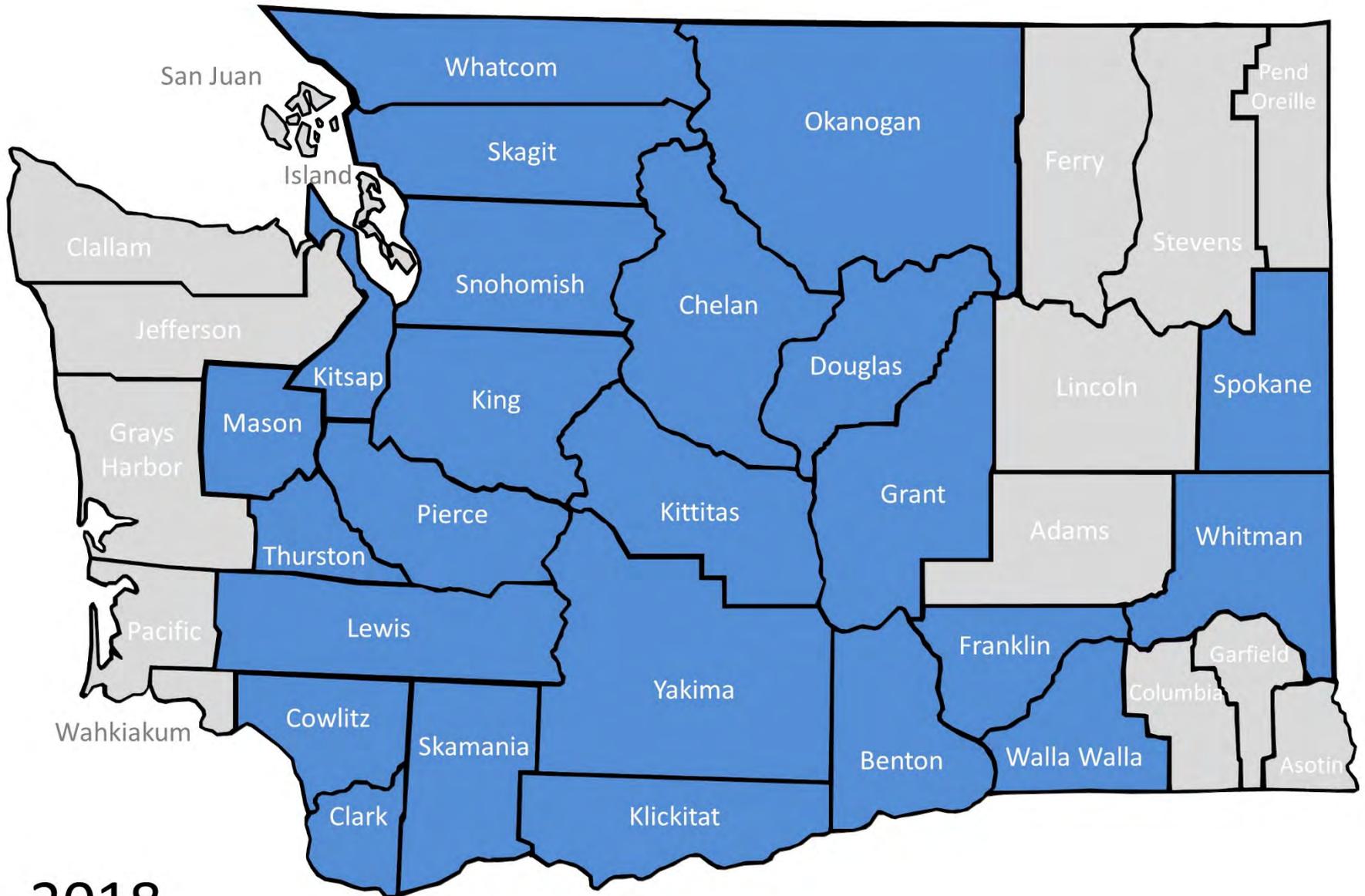
2014



2015



2016



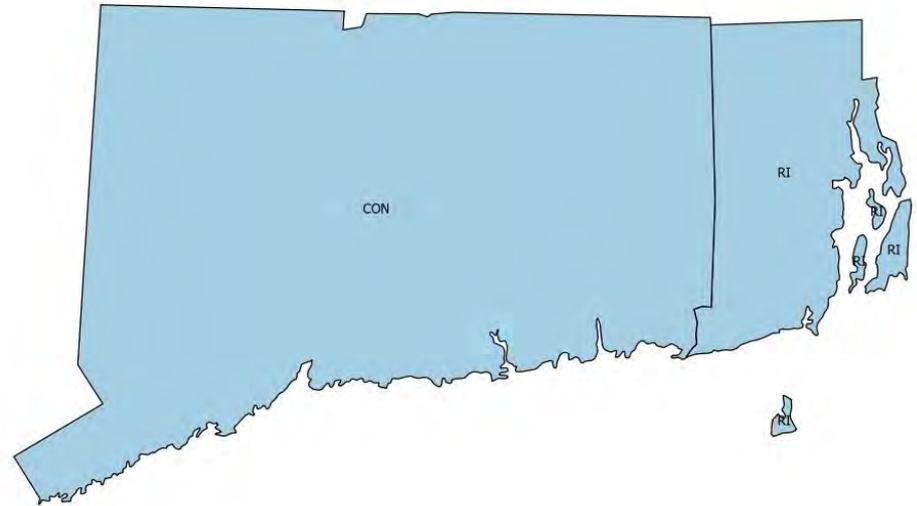
2018



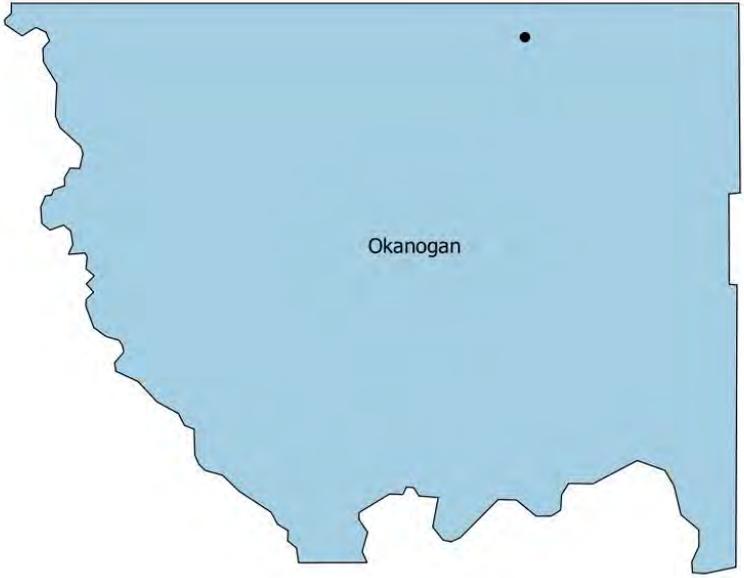
Big Counties Out West



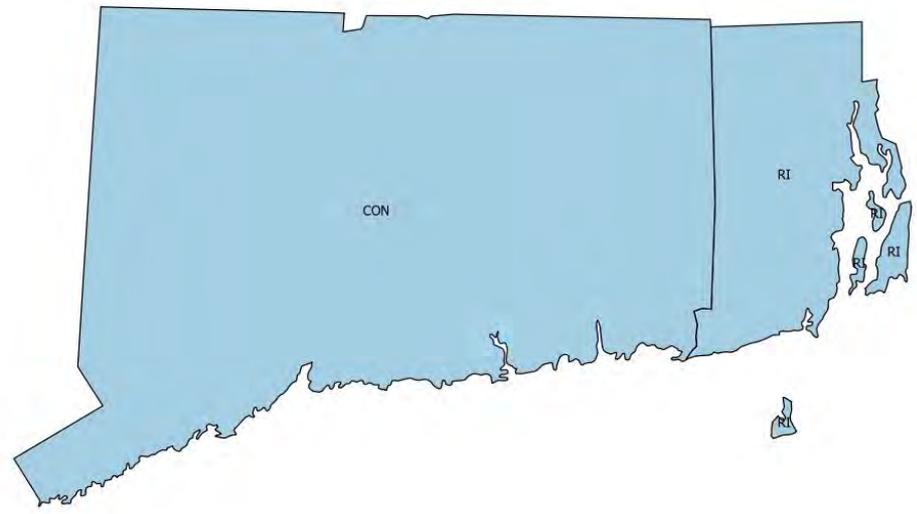
Okanogan County
5,315 square miles
Scale 1:1,500,000



Connecticut + Rhode Island
5,879 square miles
Scale 1:1,500,000



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5,315 square miles
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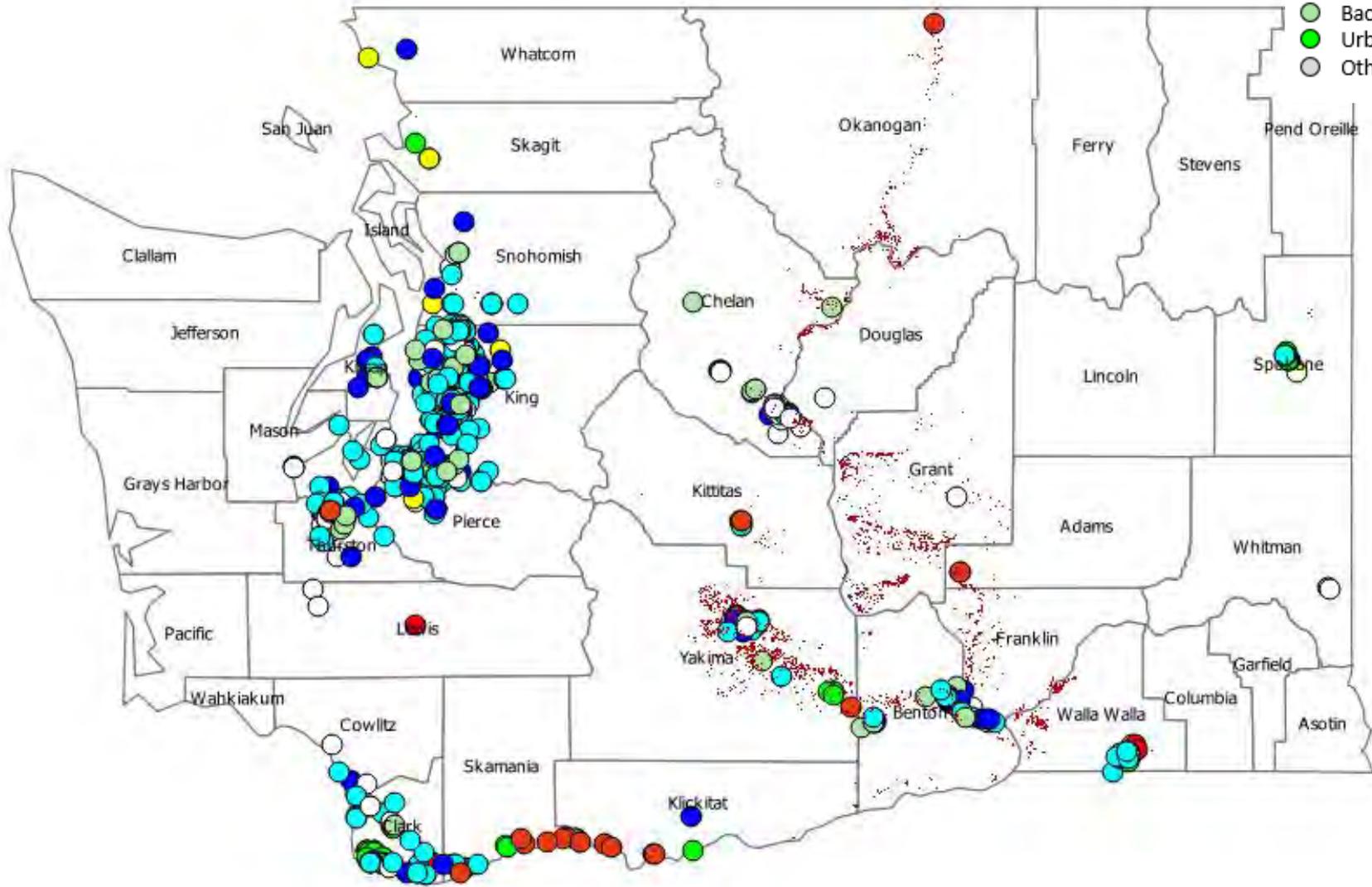


Connecticut + Rhode Island
5,879 square miles
Scale 1:1,500,000



Washington BMSB detections to date

- Agriculture
- Forest
- House/exterior
- House/interior
- Automobile
- Backyard
- Urban host plant
- Other

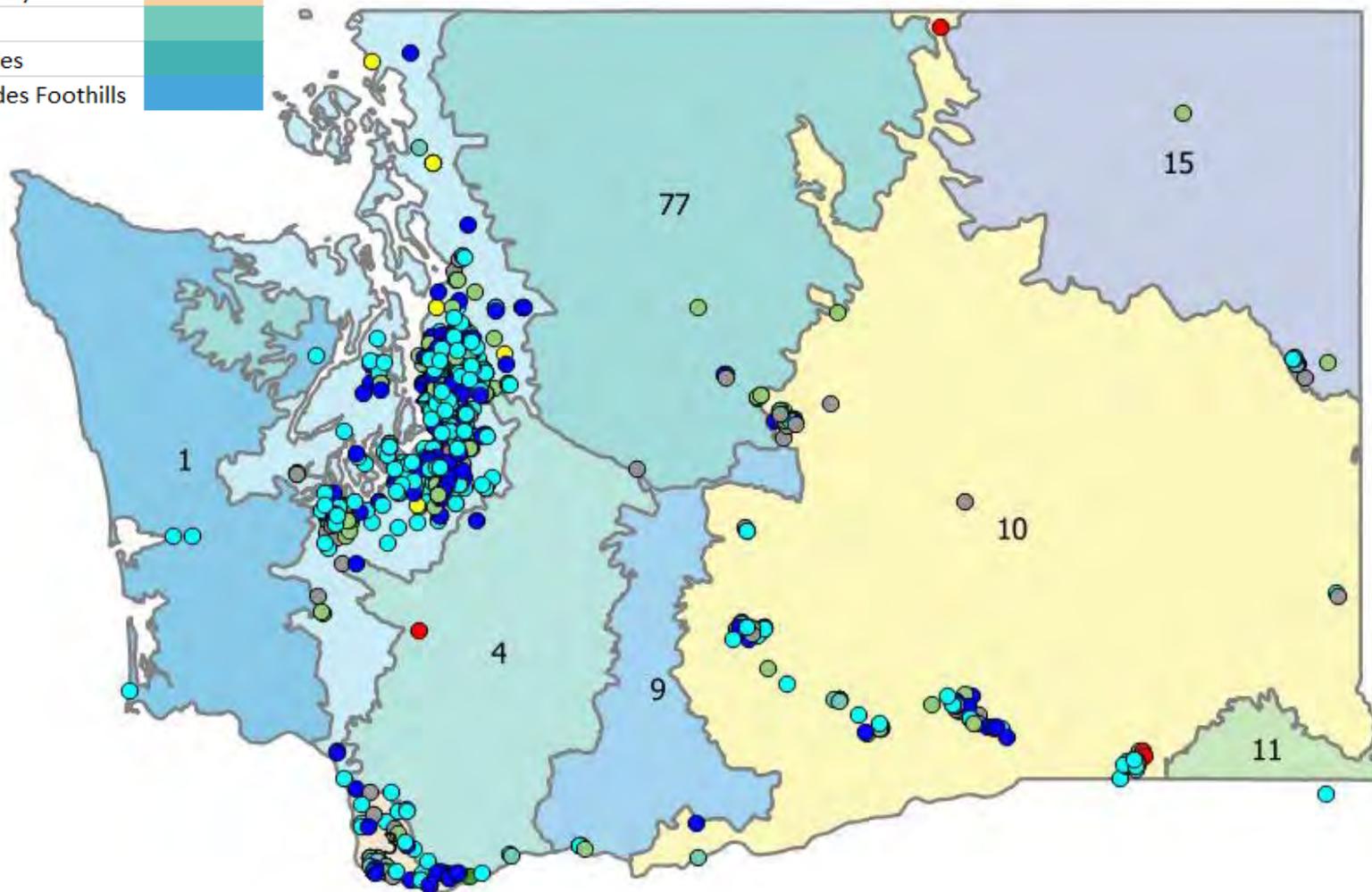




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#	Ecoregion	Code
1	Coast Range	
10	Columbia Plateau	
11	Blue Mountains	
15	Northern Rockies	
2	Puget Lowland	
3	Willamette Valley	
4	Cascades	
77	North Cascades	
9	Eastern Cascades Foothills	





Shotgun Survey 2018

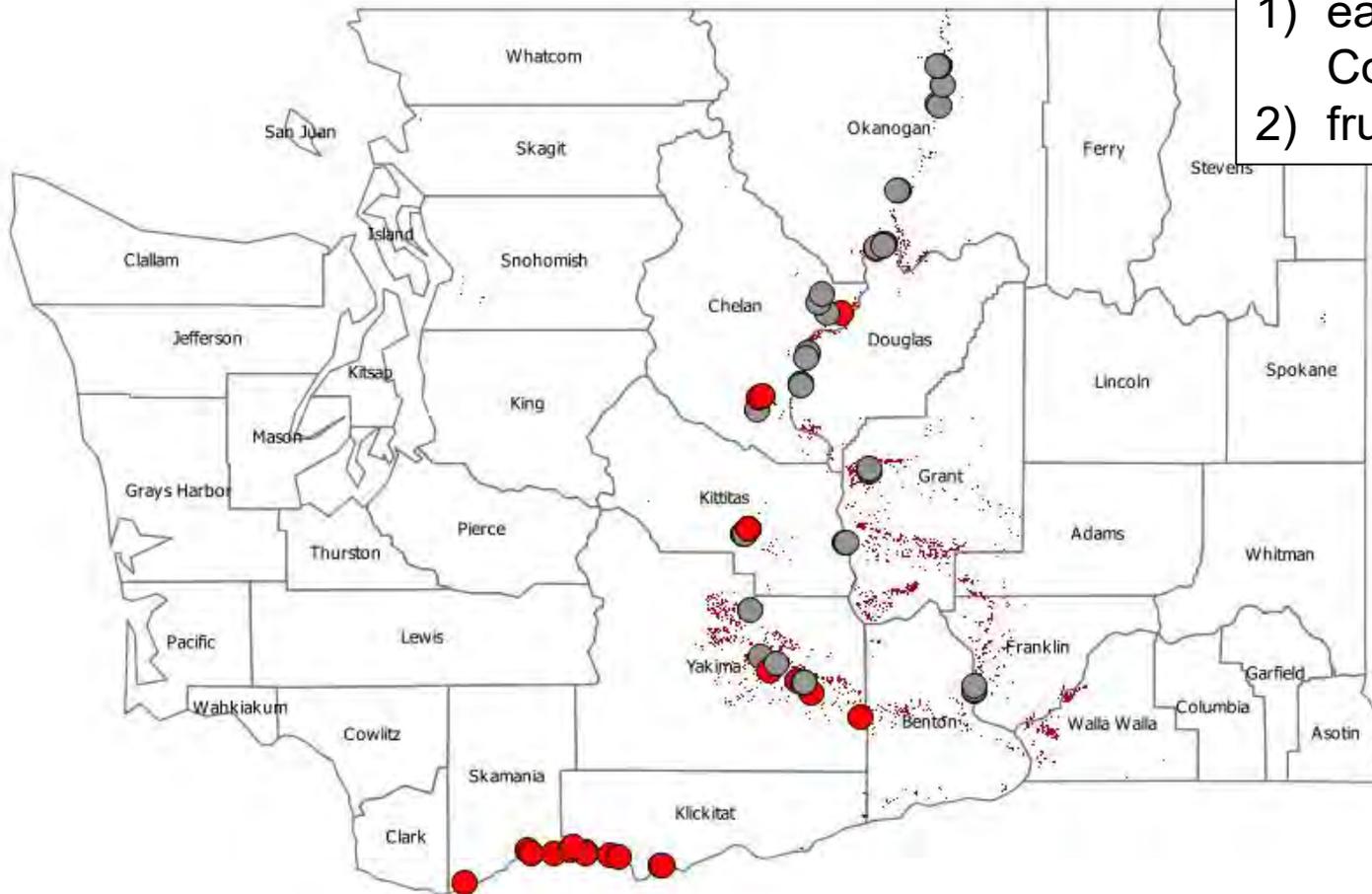
- Positive
- Negative

*Red speckles are apple acres from CropScape

63 sticky traps in central WA,
along Columbia River (Sept-
Dec 2018)

Targets:

- 1) eastward spread on
Columbia,
- 2) fruit growing districts





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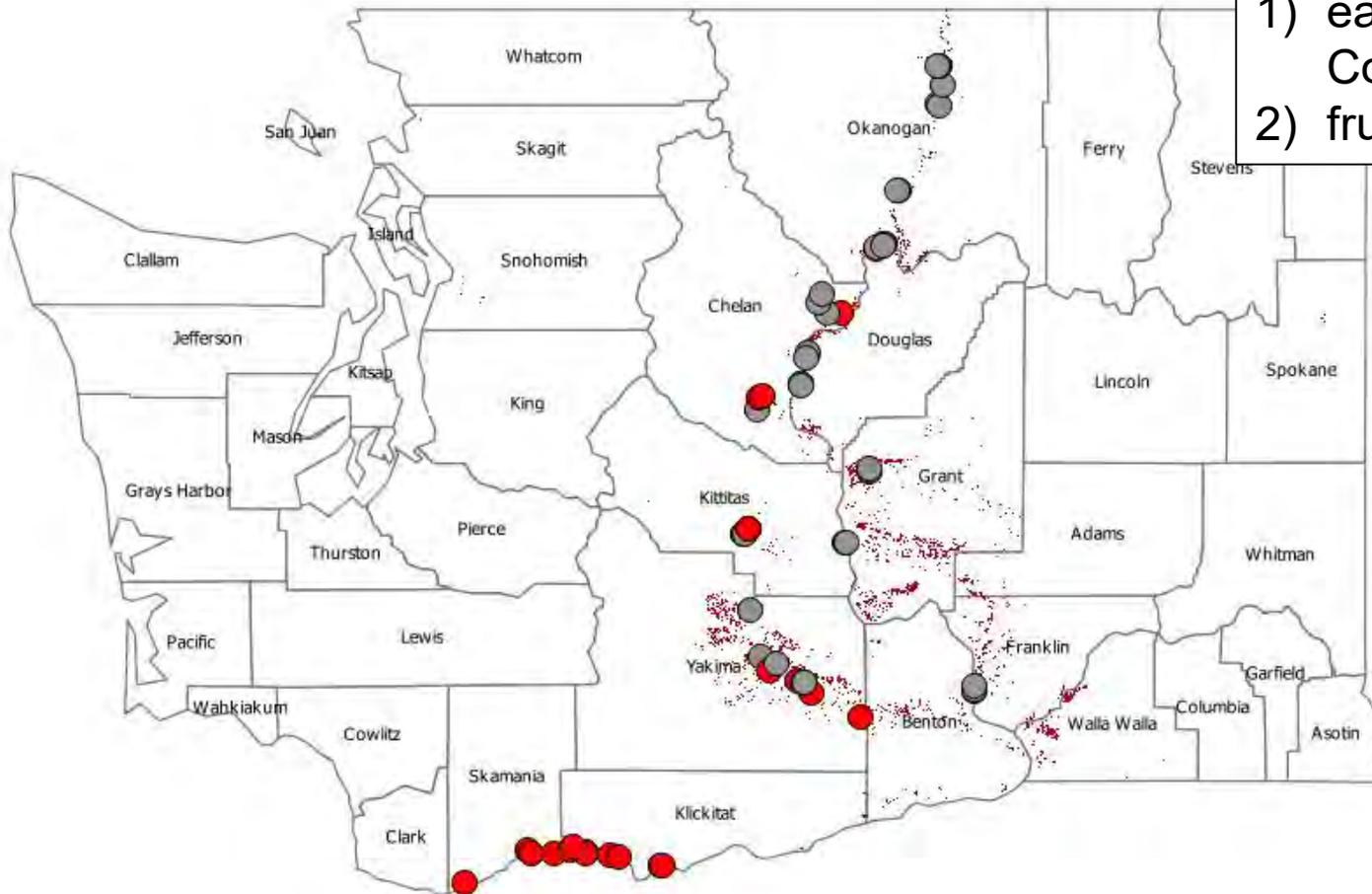
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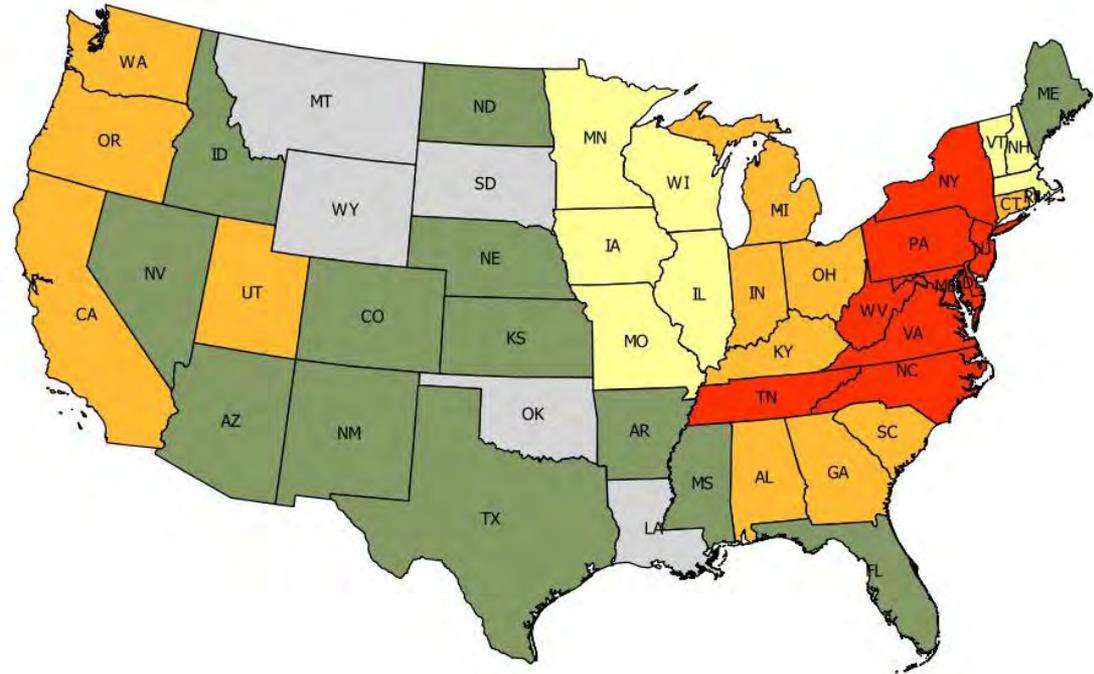
Washington – Pest Status

StopBMSB.org lists WA as 'Ag and Nuisance'

'Ag' designation based on 2013-2014 reports of damage to small, suburban diversified farms in Vancouver area

2016 – rumors of crop damage in large commercial orchards further east

2018 – verified crop damage to such farm(s) – now a study site for A&K

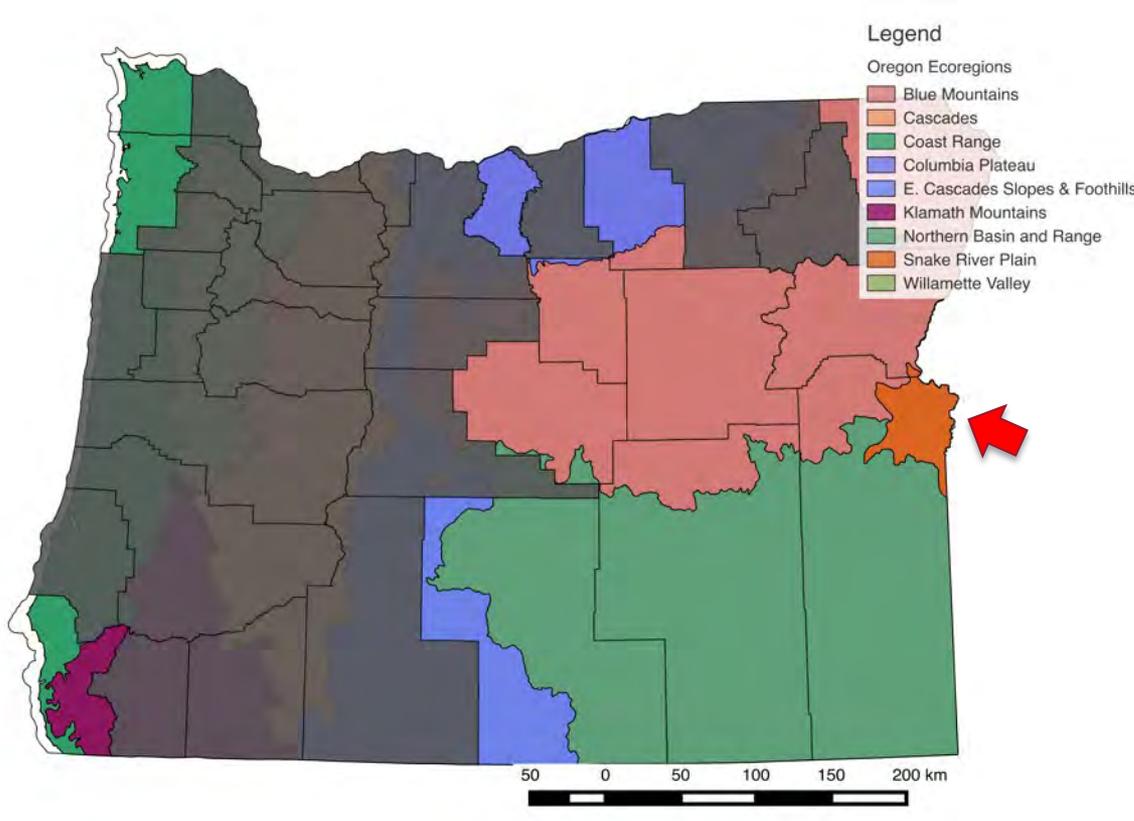


-  Not detected
-  Detected/intercepted
-  Nuisance only
-  Ag and nuisance
-  Severe ag



Oregon BMSB by Ecoregion

Oregon Ecoregions + BMSB counties

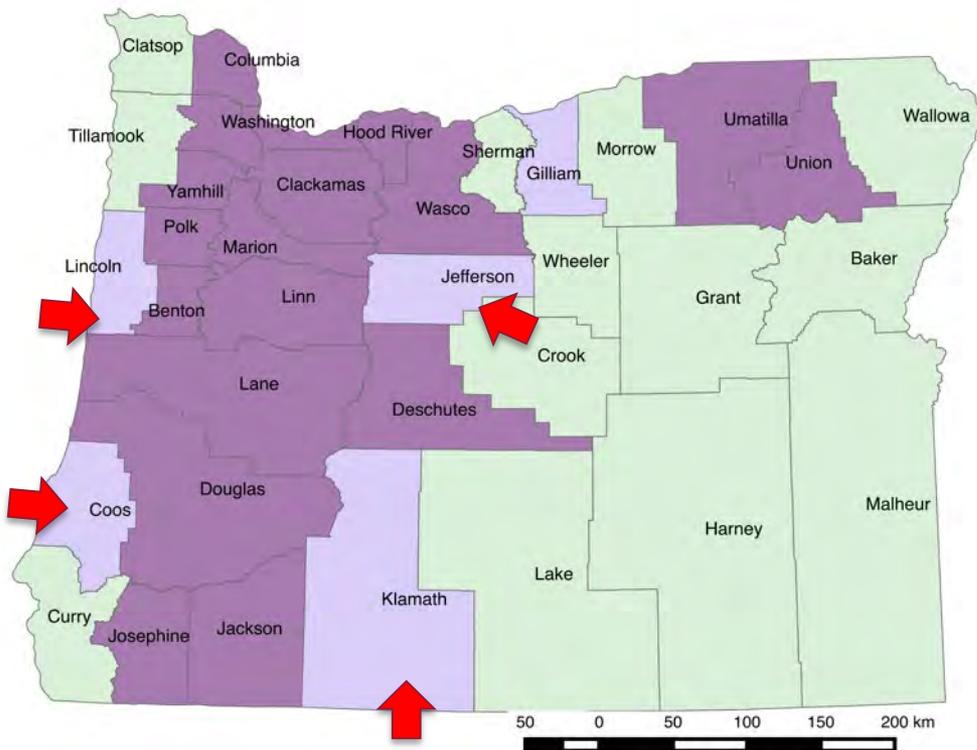


- BMSB are found in 7 of the 9 regions
 - County presence/absence data
- Snake River and N. Basin are only negatives
 - Snake river on ID side has BMSB



Oregon BMSB by County

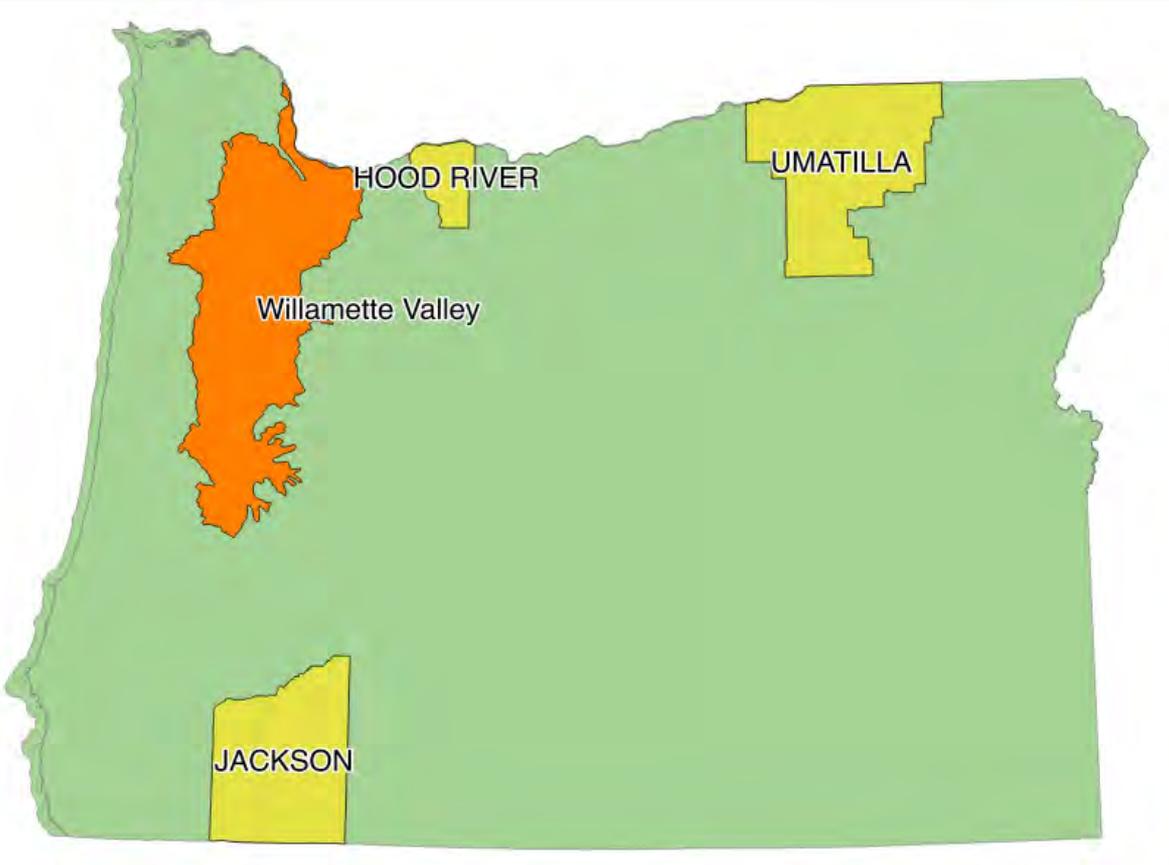
County Status and Recent Finds



- Recent finds (light purple = detected)
 - Klamath 2017
 - Coos 12/27/17
 - Lincoln 2017
 - Jefferson 2017



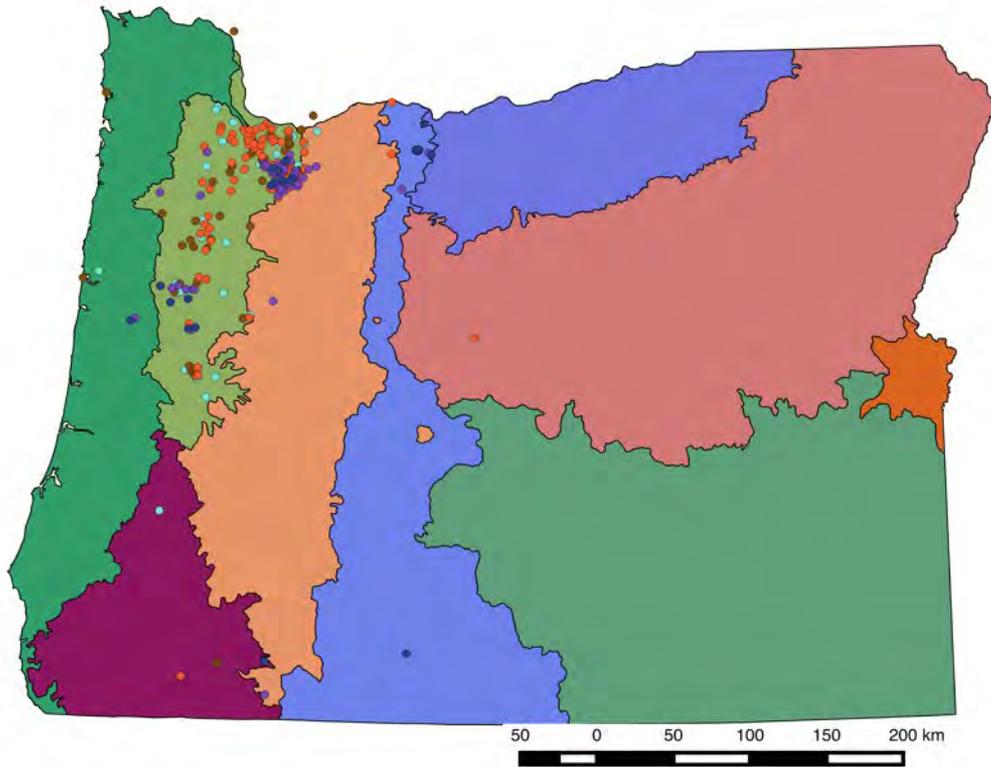
Oregon hotspots



- The Willamette Valley
 - Early establishment (2004)
 - Tree fruits, hazelnuts
- Umatilla
 - Milton-Freewater
 - Walla Walla valley
- Jackson
 - Some SB damage showing in pears
- Hood River/Gorge
 - Orchards
 - Farm buildings/packers



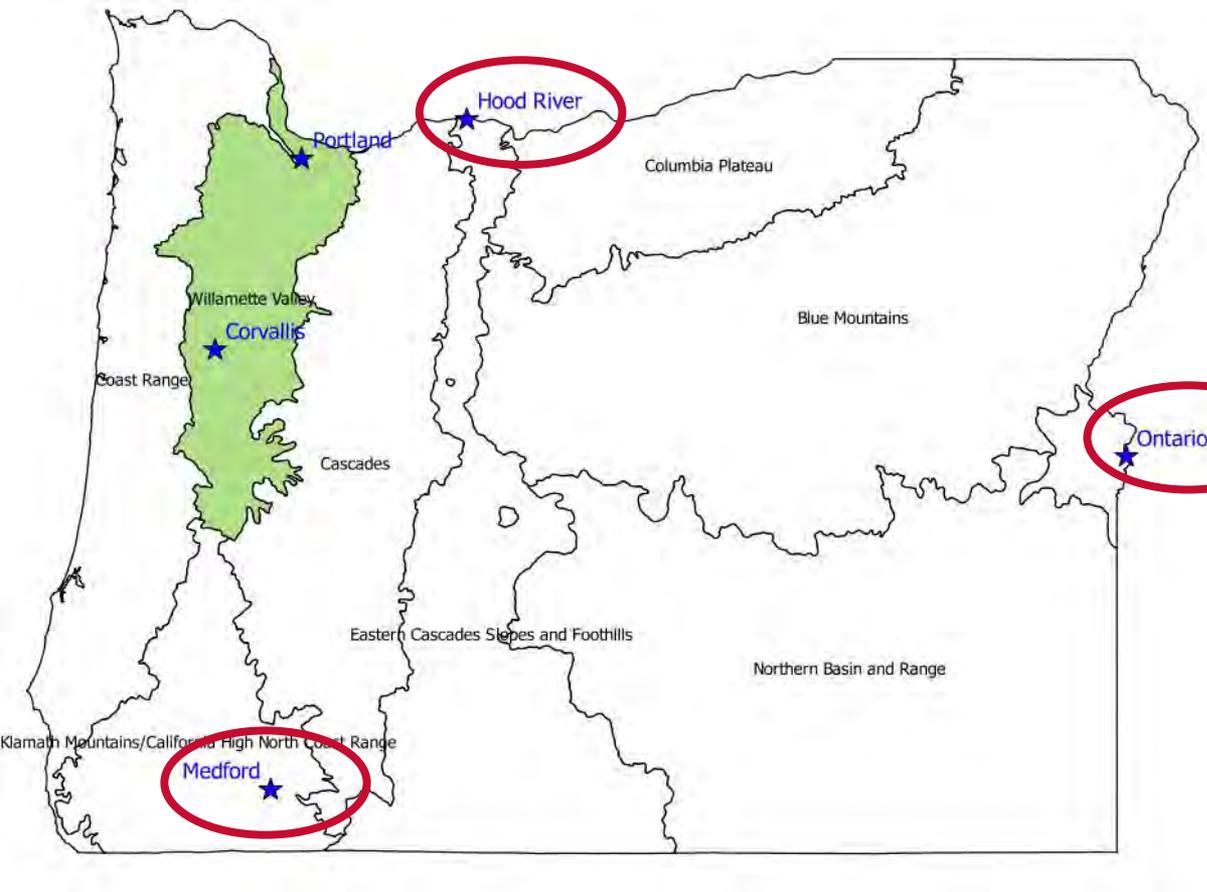
Report locations



- Citizen reports
- Concentrated in WV
- Increasingly rural



Oregon – BMSB Pest Status



- Established pest in hazelnuts in Willamette Valley
- Increasing damage to pears in the Mid-Columbia
- New cases of damage to pears in Medford area
- Documented population in Ontario, OR (borders Idaho)
- Presence, but not damage to grapes in WV

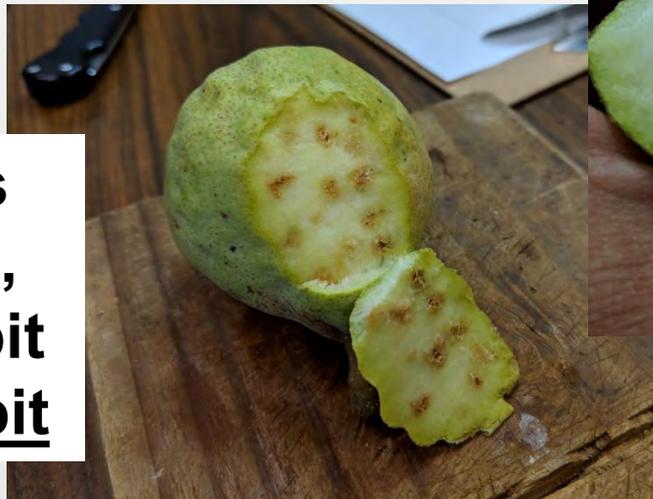


BMSB in Southern Oregon

BMSB damage from a block at the SOREC Research Orchard – 2018



This deep damage is often extremely hard, can seem like stony pit — but it is not stony pit



BMSB damage from a block at the SOREC Research Orchard – 2018

<u>Cultivar</u>	% stink bug damage		
	<u>severe</u>	<u>minor</u>	<u>Total</u>
Bartlett (n=800)	9.3	3.1	12.4
Anjou (n=500)	15.8	13.6	29.4
Bosc (n=100)	9.0	15.0	24.0
Comice (n=55)	3.6	3.6	7.3
All other orchard blocks (n=1900)	0.7	0.7	1.4



...and if you thought BMSB was bad...



Yellow spotted stink bug
Ethesina fullo
18-23 mm

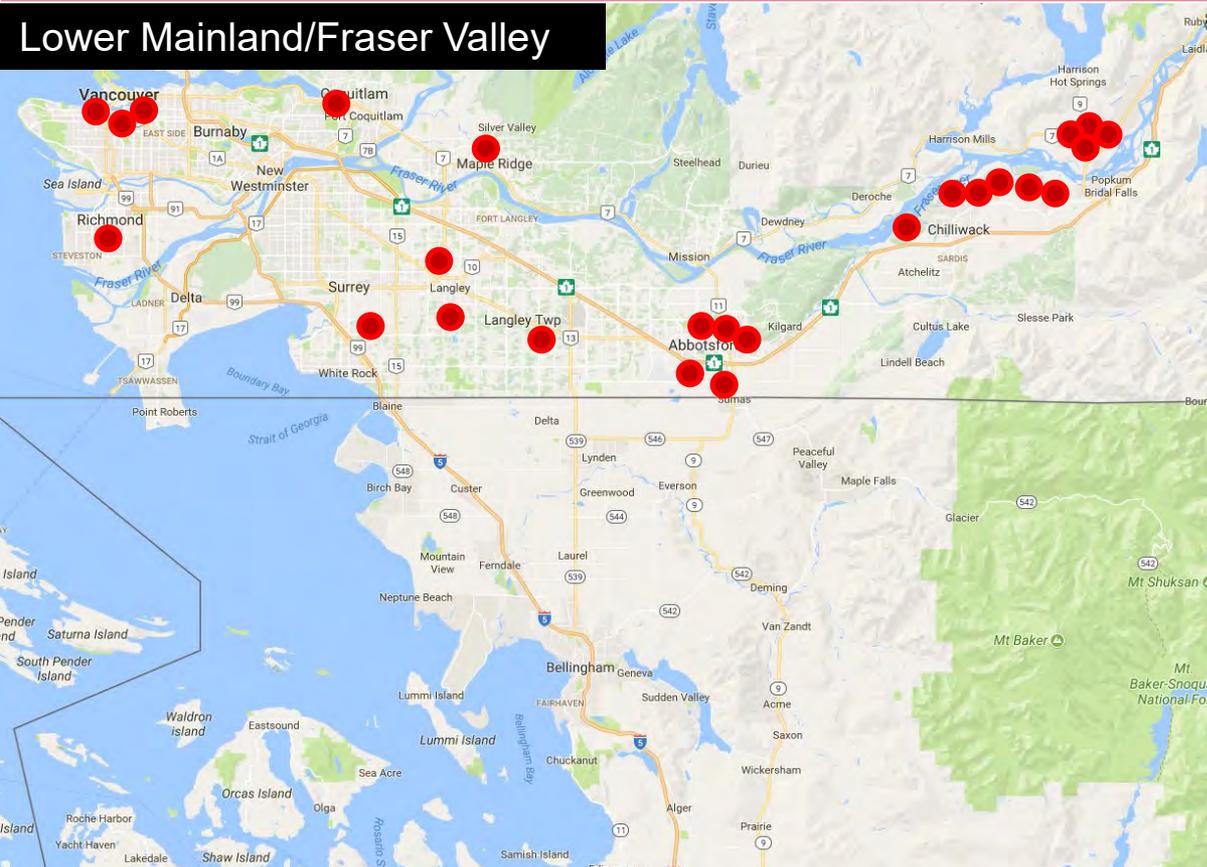
BMSB



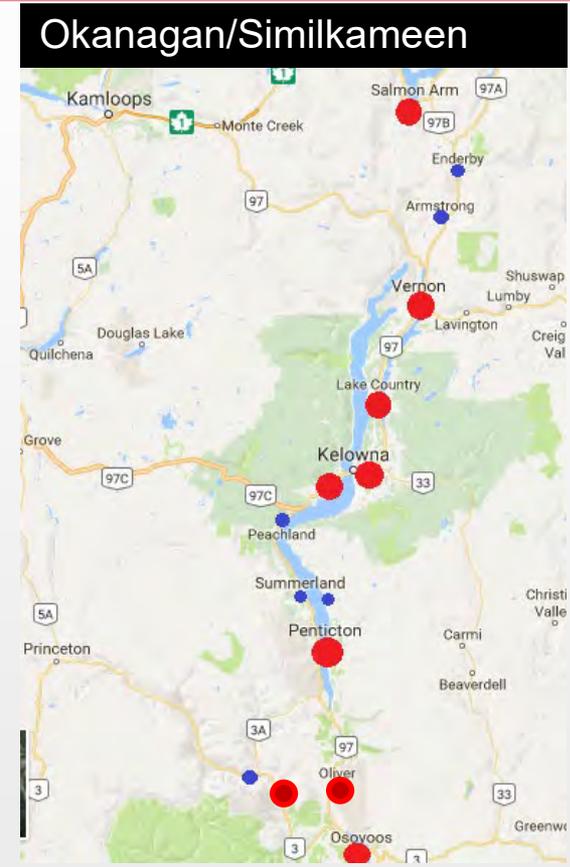
Bonus! BMSB in British Columbia

Brown marmorated stink bug in British Columbia (detections from 2015-2018)

Lower Mainland/Fraser Valley



Okanagan/Similkameen



Survey work by Tracy Hueppelsheuser and Susanna Acheampong (BC Ministry of Agriculture)

Info courtesy of Paul Abram, Ag Canada



Funding



United States
Department of
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Specialty Crop Research Initiative

Collaborating Institutions



NC STATE UNIVERSITY



PennState



UNIVERSITY OF
MARYLAND



UNIVERSITY OF
GEORGIA

Northeastern
IPM
Center

WASHINGTON STATE
UNIVERSITY



Cornell University



Utah State University

RUTGERS
UNIVERSITY



THE OHIO STATE
UNIVERSITY



University of
Kentucky

UCDAVIS



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OF MINNESOTA



VirginiaTech



Berkeley
UNIVERSITY OF CALIFORNIA

MICHIGAN STATE
UNIVERSITY

UCRIVERSIDE
UNIVERSITY OF CALIFORNIA

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Research Emphasis

1. Biological control
(*T. japonicus*)
2. Cultural control
(exclusion nets)
3. Alternative use of pesticides
(insecticide-infused netting, A&K)
4. Landscape Ecology/Risk
(native plants)



Photo: A. Marshall

