



Firewood movement: A threat to California's forests

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Sidebar photographs courtesy of CA Dept of Food and Agriculture (CDFA)

Background

- ▶ Summer 2002: Interstate movement of firewood implicated in rapid spread of emerald ash borer in northern Midwest.
- ▶ November 2009: Forest Service Washington Office “encourages” Regions to investigate potential effects of firewood movement on forest health, need for policies, etc.
- ▶ April 2010: Pacific Southwest Region Forest Health Protection staff creates a firewood team to investigate the issue.
- ▶ May 2010: Firewood team drafts action plan, which includes conducting a risk assessment based on available data.



Risk Assessment Questions

- ▶ Determine how much firewood is entering the state.
- ▶ Determine from where the firewood is coming, and where it's going.
- ▶ Determine what potential forest pests have been intercepted on firewood entering the state and their origins and destinations.
- ▶ Investigate the potential threat to CA forests and parks from pests transported on or in firewood.





Data

- ▶ Firewood survey forms filled out at CDFA border stations whenever inspected, 2008-2010.
 - Quantity, origin, destination, presence of potential pests.
 - ID # of Pest Detection Report if filed.



- ▶ 1990-2010 Pest Detection Reports in CDFA database. Queried all border station records either referenced in firewood surveys, or where firewood named as host. Recorded taxon (identified to family), origin, destination.

Key Findings – Firewood Surveys

- ▶ Over 22 million pounds of wood recorded between 2008 and late-2010. Hornbrook, Alturas, Redwood Highway top entry points.
- ▶ Wood arrived from 43 states, Canada, and Mexico; 93% coming from OR, CA, Canada, NV.
- ▶ 85% of all wood bound for a CA destination.
- ▶ 6% of all wood was in commercial loads bound for Reno, NV.
- ▶ Wood in commercial vehicles generally travels further than wood in private vehicles within the state; 95% of private wood travels less than 200 miles whereas 46% of the commercial wood travels between 200 and 400 miles.



Key Findings – Firewood Surveys

- ▶ Out of 371 loads of firewood that generated a PDR, only 1 was in a commercial vehicle.
- ▶ A load of firewood arriving from out-of-state was almost 10 times more likely to generate a PDR, a statistically significant result ($X^2 = 116.88$; $df = 1$; $p = 0.000$)
- ▶ A load of firewood arriving from a non-adjacent state was over 3 times more likely to generate a PDR, also a statistically significant result ($X^2 = 139.51$; $df = 1$; $p = 0.000$)



Key Findings – Pest Detection Reports

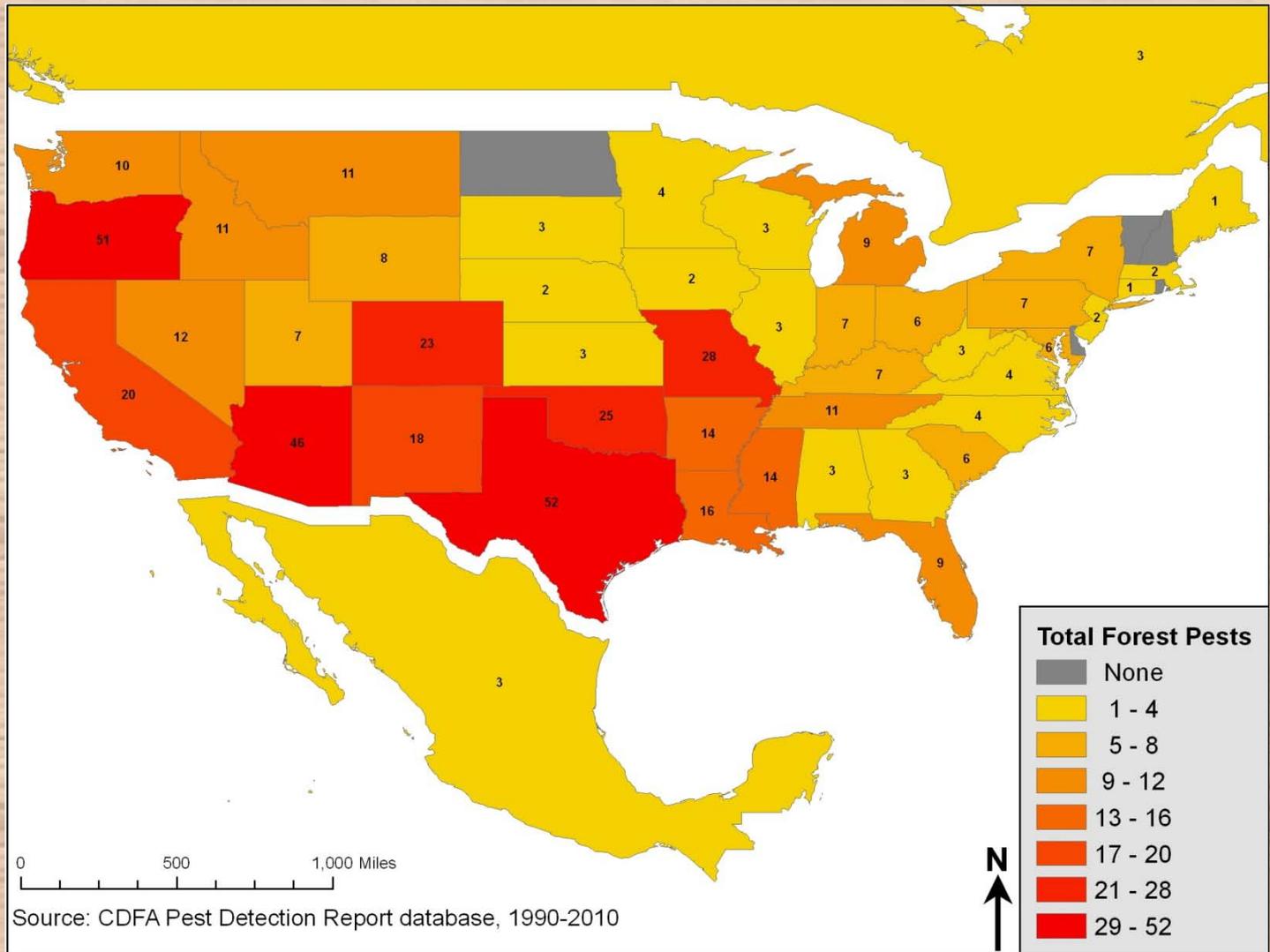
- ▶ PDRs generated on firewood from 46 states, Canada and Mexico.
- ▶ 497 potential forest pests were intercepted on firewood between 1990 and 2010; 79% of them in the last three years.

- ▶ 91% of the intercepted potential forest pests were beetles.

Potential Forest Pests	Total
COLEOPTERA (beetles)	
BUPRESTIDAE (wood borers)	105
CERAMBYCIDAE (longhorn beetles)	247
SCOLYTINAE (bark beetles)	93
HEMIPTERA (true bugs)	
MARGARODIDAE (scale bugs)	2
ISOPTERA (all families) (termites)	29
LEPIDOPTERA (butterflies and moths)	
LASIOCAMPIDAE (tent caterpillars)	7
LYMANTRIIDAE (gypsy/tussock moths)	12
TORTRICIDAE (leafrollers/budworms)	2
Total	497

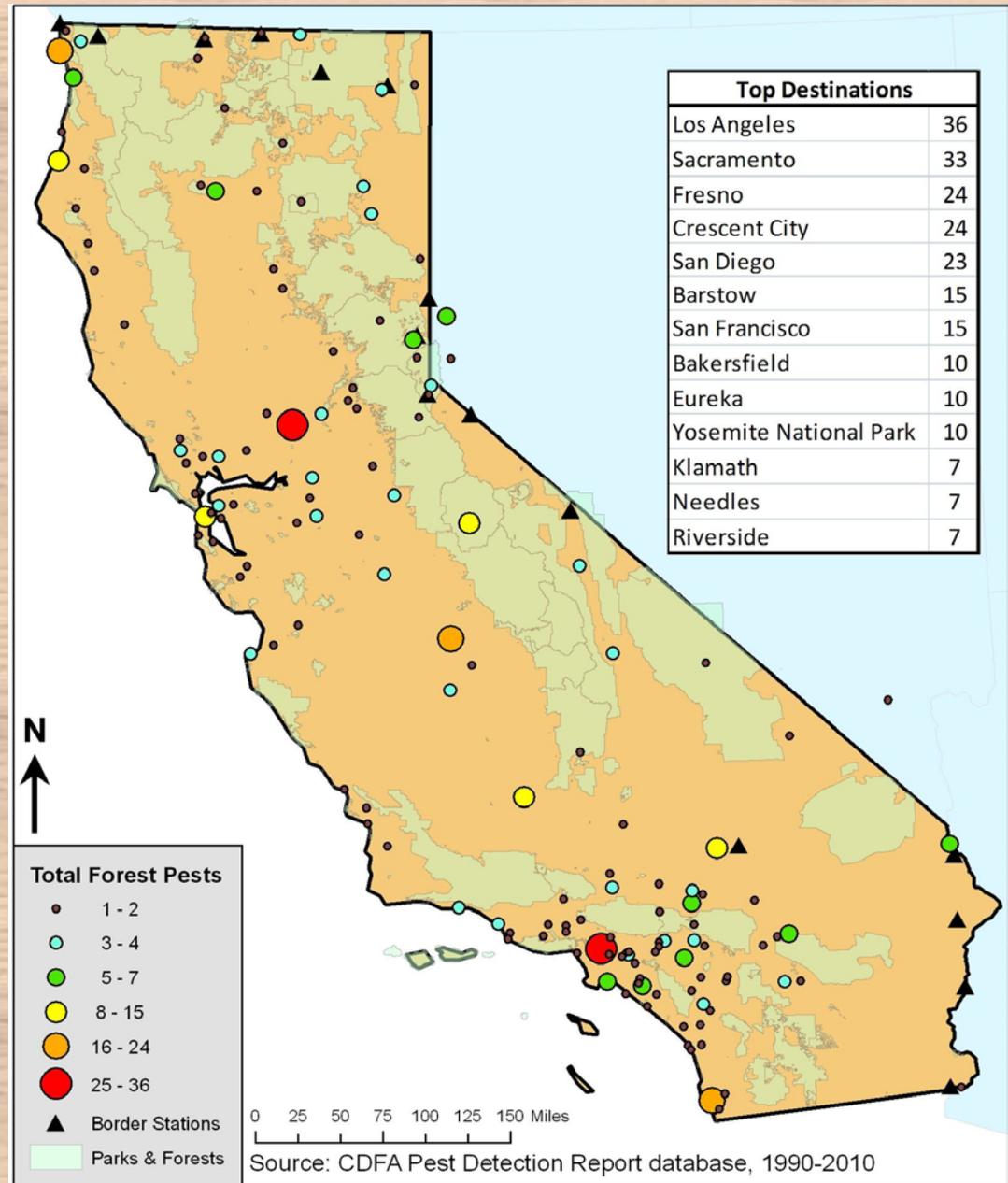
Key Findings – Pest Detection Reports

Potential forest pests came from 43 states, Mexico and Canada; 49% of them entered the state at Needles.



Key Findings – Pest Detection Reports

Firewood with potential forest pests was traveling to 155 different destinations. Major CA cities and Yosemite NP were among the most common.



Potential threat to CA forests and parks from pests transported on or in firewood

99.8% of California's land area is within 50 miles of a National or State Park or Forest.

Any forest pest that enters the state is a potential threat to our parks and forests!

