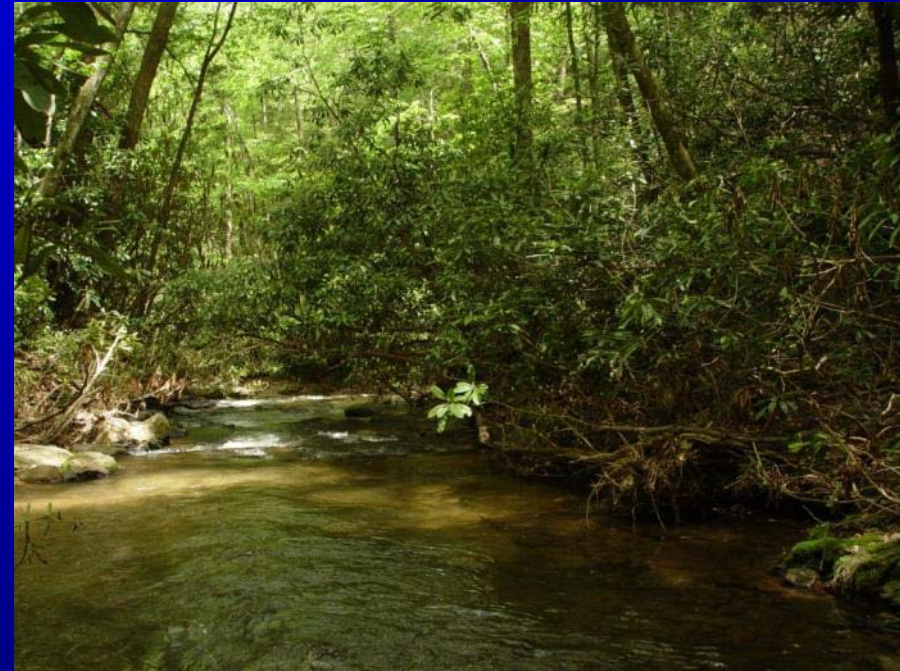


Early Detection of *Phytophthora ramorum* in US Forests



Steve Oak, Forest Pathologist
USDA Forest Service, Southern Region -FHP
Asheville, NC

Continental Forest Dialogue
San Francisco, CA
27-28 October 2009

Sudden Oak Death Distribution- North America October, 2009

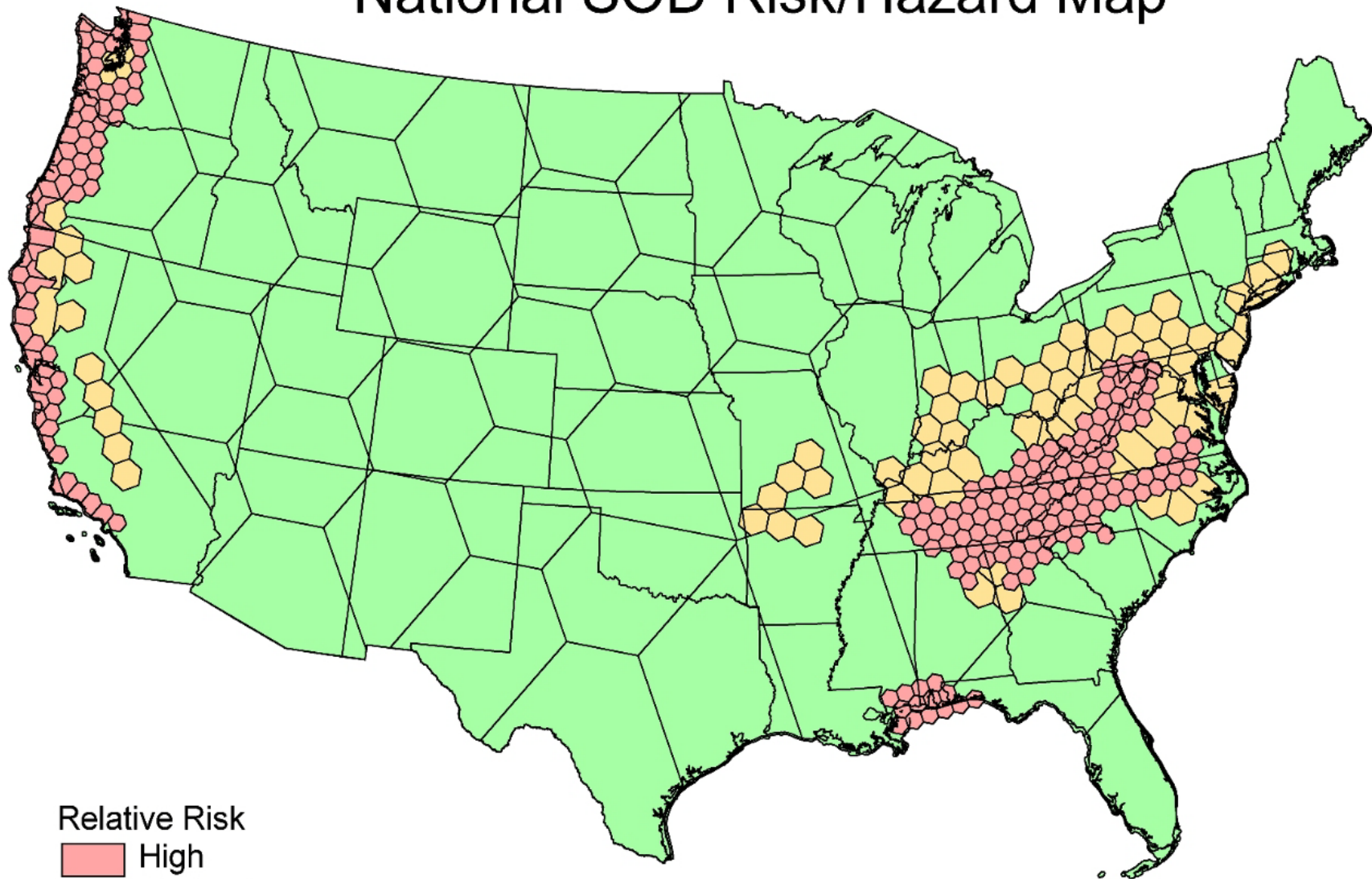
Tree-killing
disease in 14
Central Coastal CA
Counties
&
Curry County, OR



Worldwide *P. ramorum* Host & Associated Genera in Eastern Forests

- 
- *Abies* (fir)
 - *Acer* (maple)
 - *Aesculus* (buckeye)
 - *Arctostaphylos* (kinnikinick)
 - *Calycanthus* (sweet bush)
 - *Castanea* (chestnut)
 - *Corylus* (hazelnut)
 - *Euonymus*
 - *Fagus* (beech)
 - *Fraxinus* (ash)
 - *Gaultheria* (teaberry)
 - *Kalmia* (mountain laurel)
 - *Hamamelis* (witch hazel)
 - *Leucothoe* (doghobble)
 - *Lonicera* (honeysuckle)
 - *Magnolia*
 - *Maianthemum* (false Solomon's seal)
 - *Pieris* (fetterbush)
 - *Prunus* (cherry)
 - *Quercus* (oak)
 - *Rhamnus* (buckthorn)
 - *Rhododendron*
 - *Rubus* (salmonberry, blackberry)
 - *Salix* (willow)
 - *Toxicodendron* (poison oak, ivy)
 - *Vaccinium* (huckleberry, blueberry)
 - *Viburnum* (arrowwood)

National SOD Risk/Hazard Map



Relative Risk

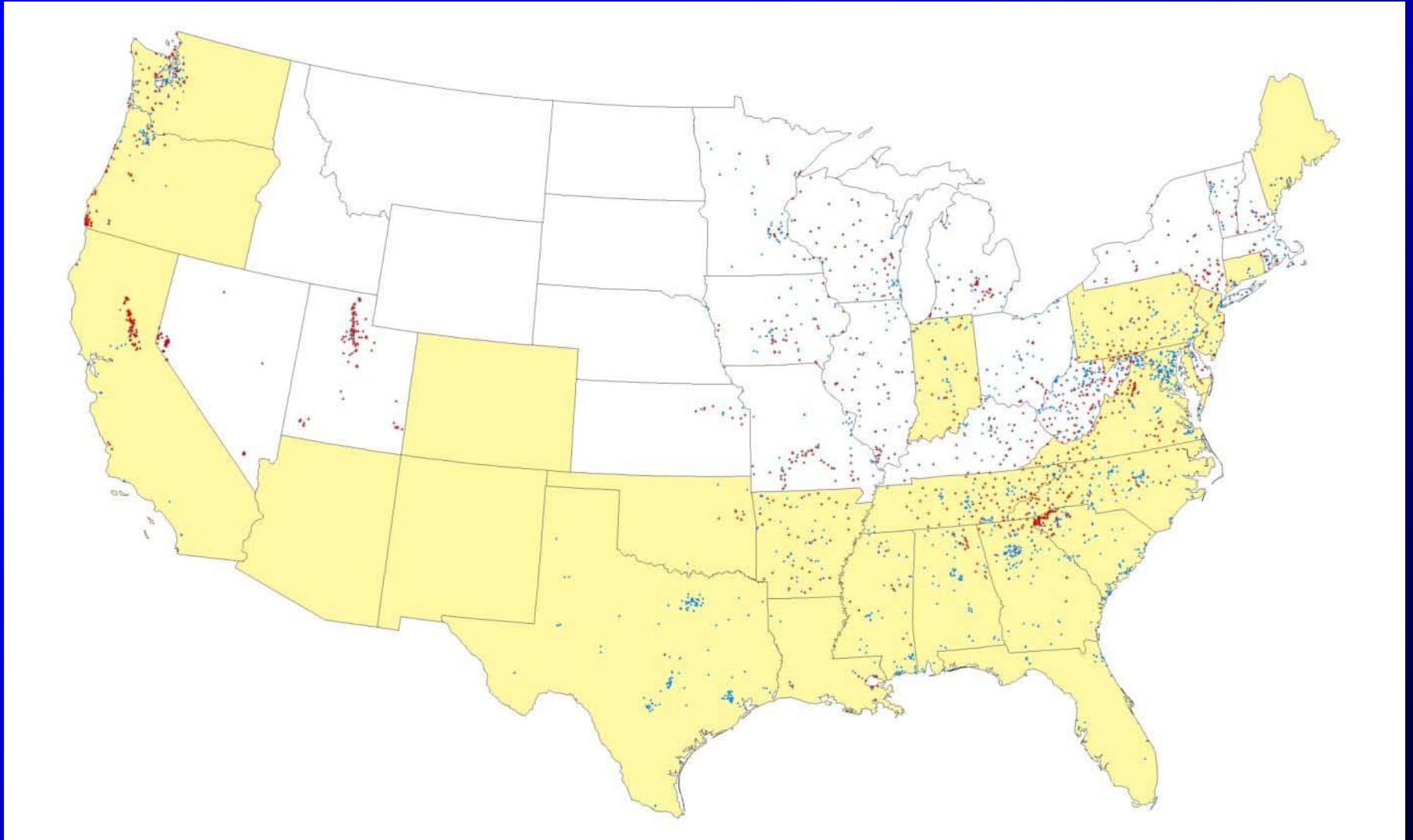
High

Moderate

Low

W.D. Smith
USDA Forest Service
National Forest Health Monitoring Research Unit
Research Triangle Park, NC

National *P. ramorum* Early Detection Vegetation Survey Locations 2003-2006



Shaded states have confirmed *P. ramorum* in nurseries

**National *P. ramorum* Early Detection Survey of US Forests
by Stream Baiting**



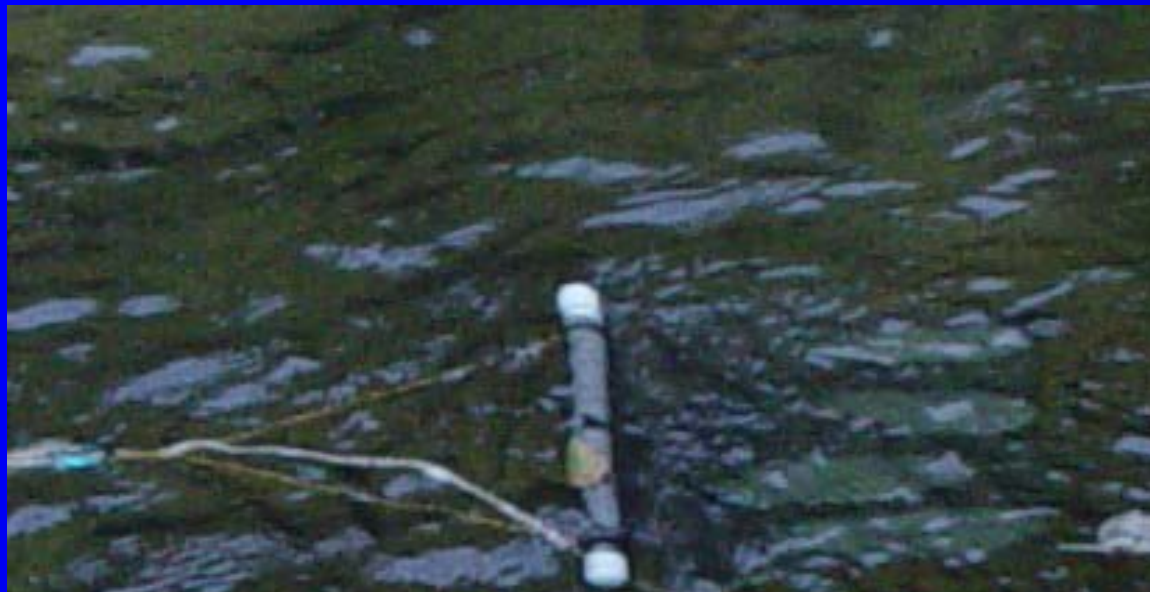
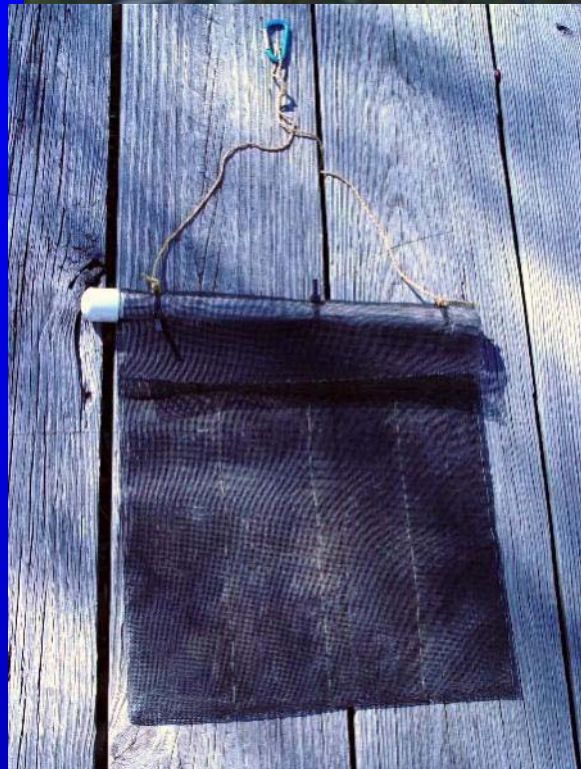


Photo credit- Dam Omdal



Stream Survey Totals By Region

	2006	2007	2008	Total	Unique Watersheds ¹
West Coast	37	32	39	108	75
South	33	64	71	168	137
North Central	0	20	15	35	28
Northeast	24	37	29	90	80
National Total	94	153	154	401	320

¹ *Some watersheds surveyed in multiple years*

Stream Baiting Survey 2006-09

West Coast Central

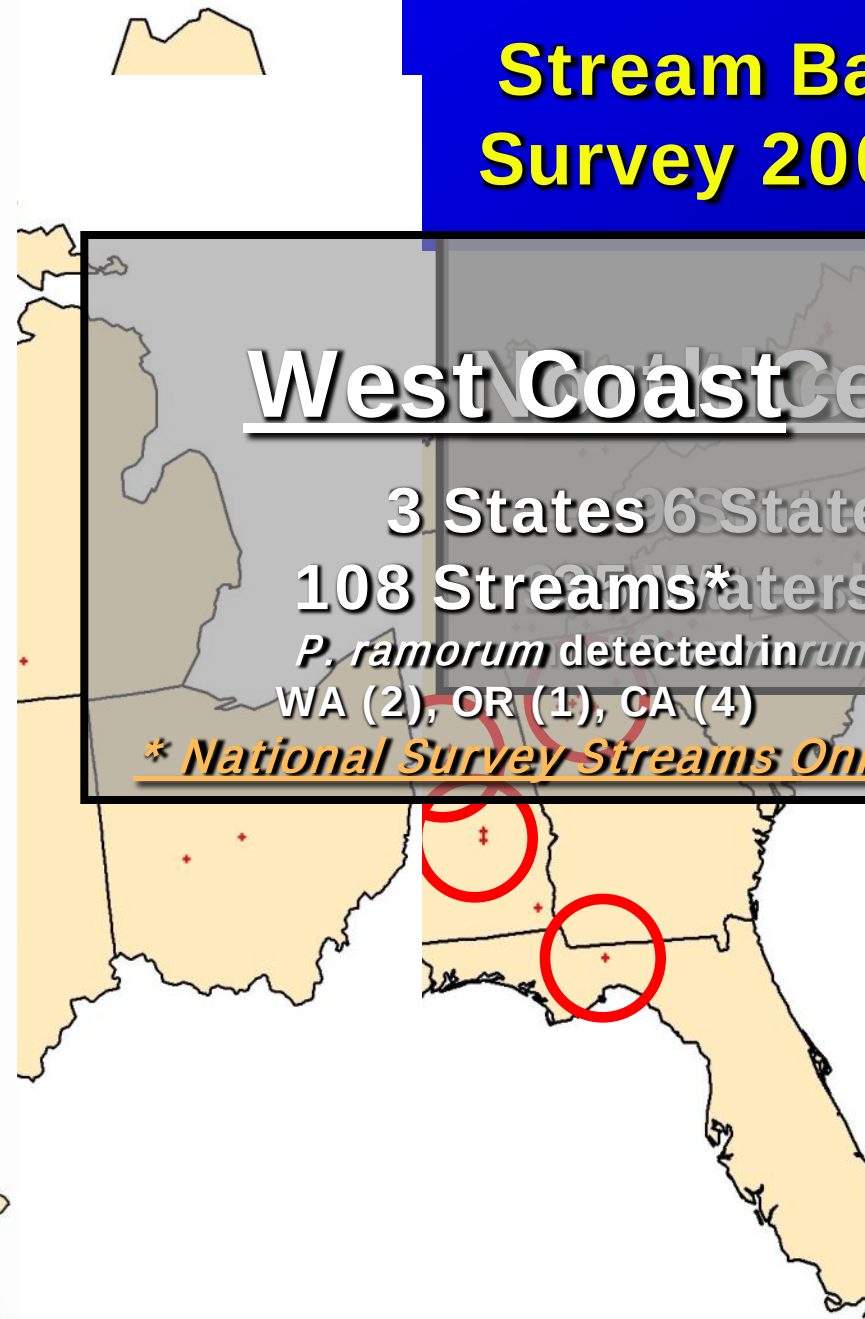
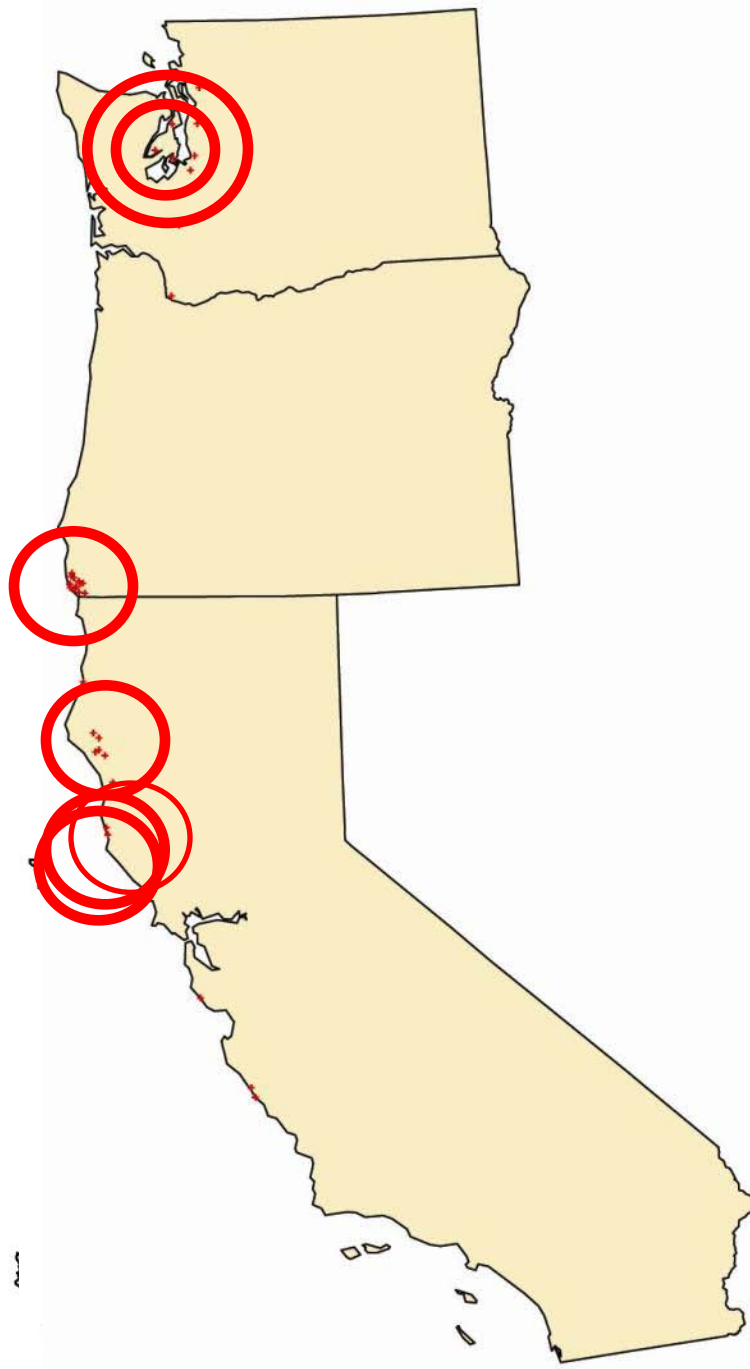
3 States 6 States

108 Streams* Watersheds

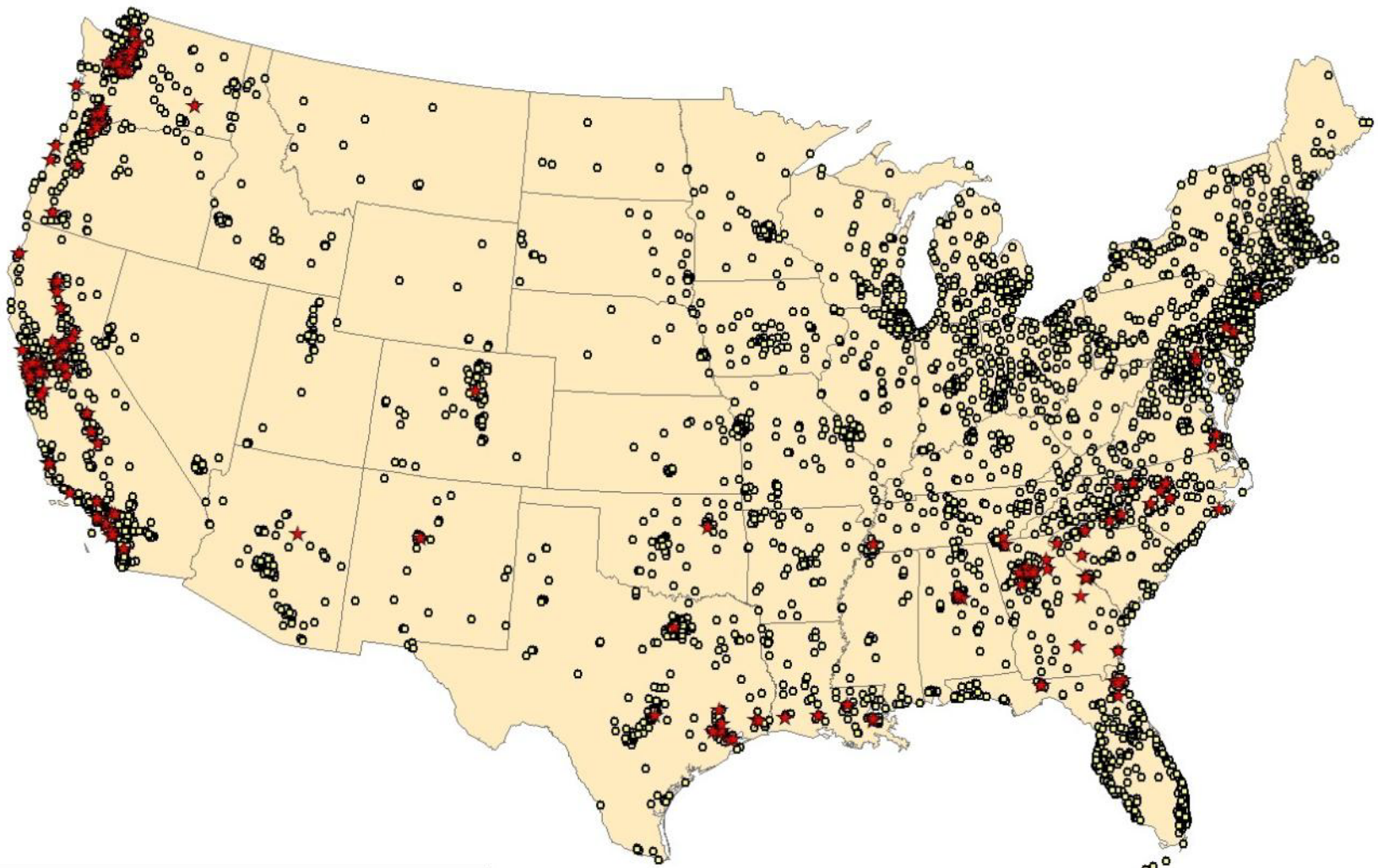
P. ramorum detected in *rum* detected

WA (2), OR (1), CA (4)

* National Survey Streams Only



2003-4 *P. ramorum* Nursery Stock Introductions Trace Forward Zip Codes





PROBLEMS

NO MATTER HOW GREAT AND DESTRUCTIVE YOUR PROBLEMS MAY SEEM NOW,
REMEMBER, YOU'VE PROBABLY ONLY SEEN THE TIP OF THEM.