Managing the Leading Edge

Landscape-level Control of Invasive Plant Spread

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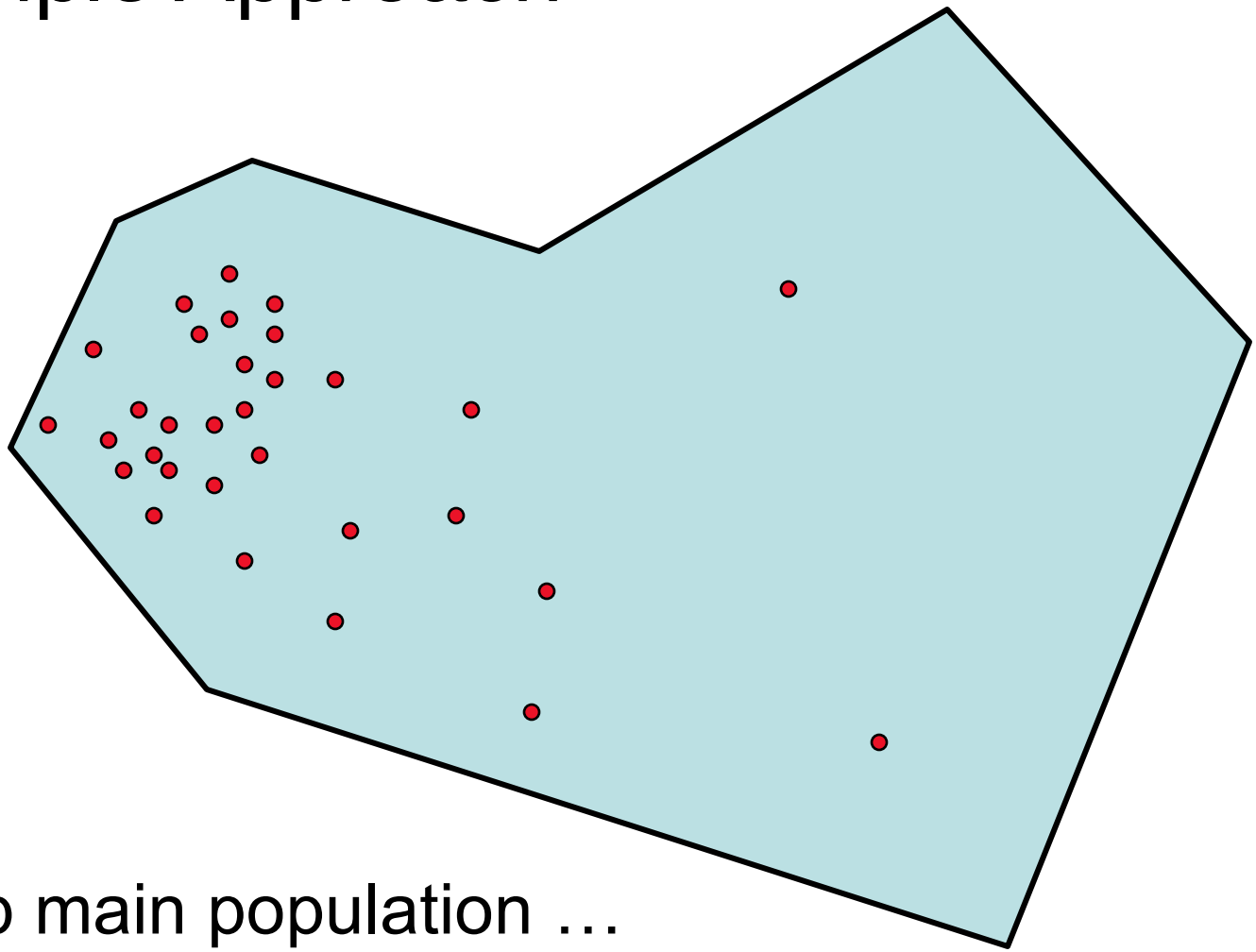
Weed control is spatial

The spatial distribution of a weed dictates our management approach:

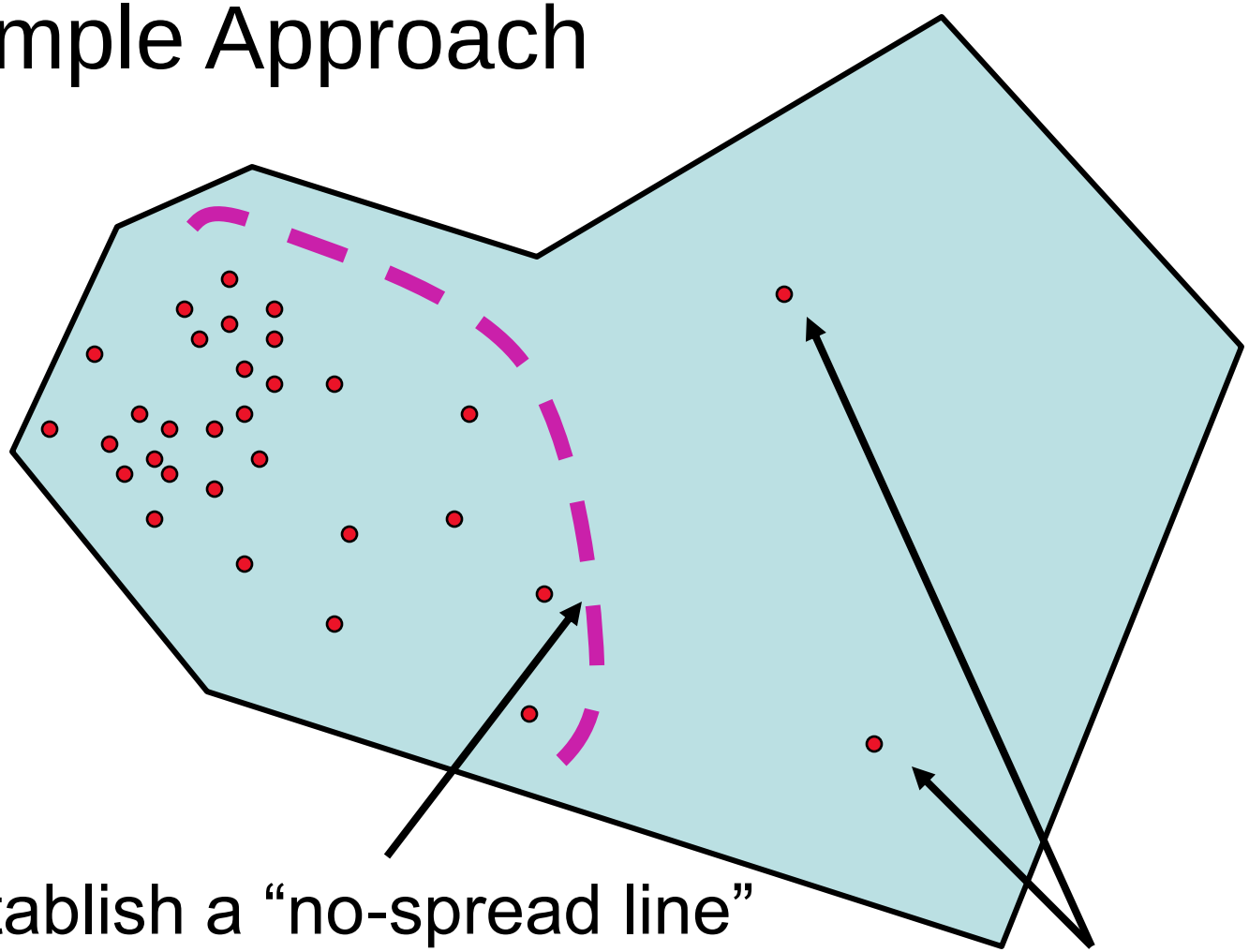
- If only a few populations of a weed ➔ eradication.
- If weed is widespread ➔ focus on protecting high-value sites.
- If there's a central, expanding population with outliers ➔ leading edge containment.

Simple Approach



Map main population …

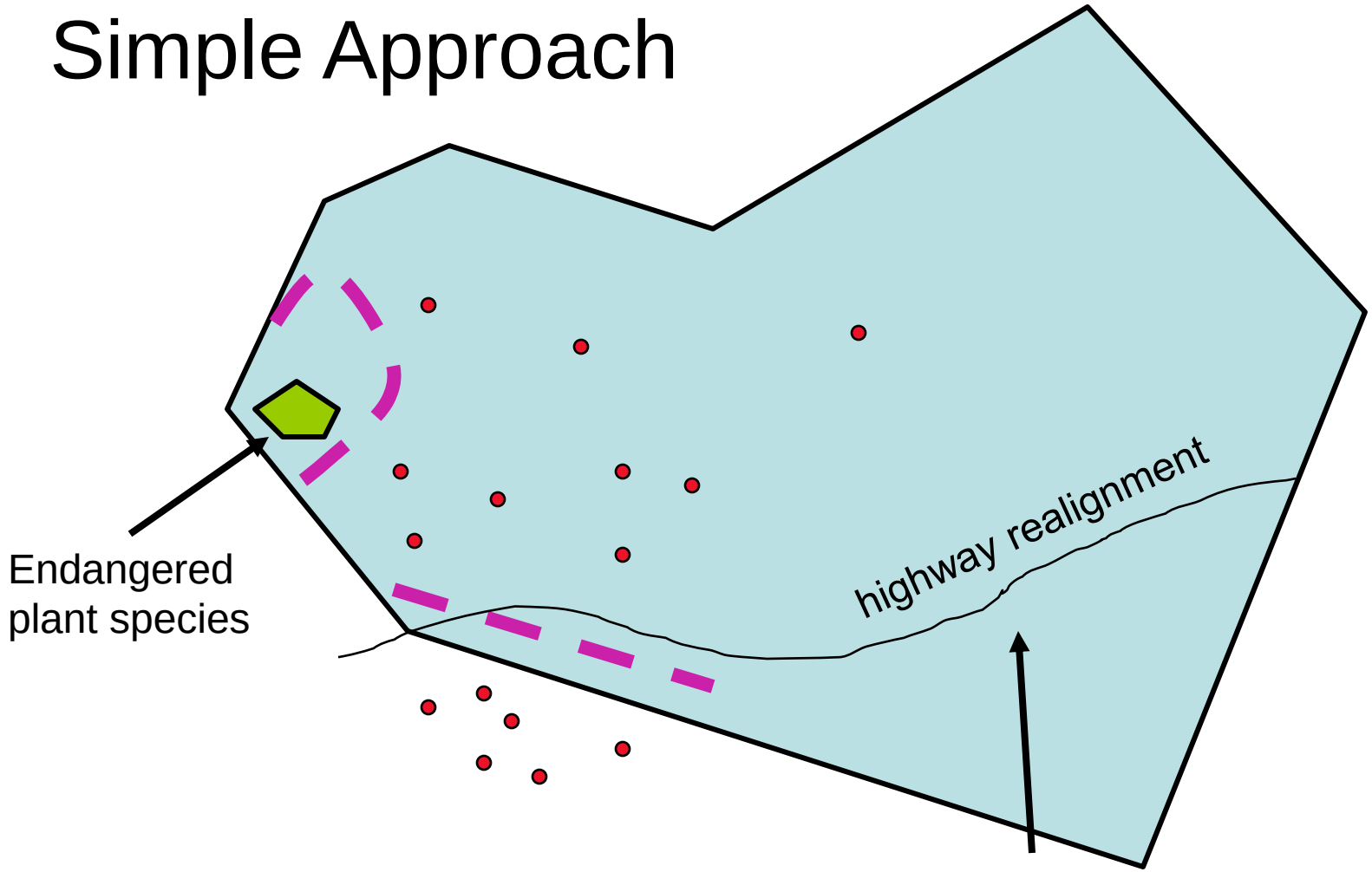
Simple Approach



….establish a “no-spread line”

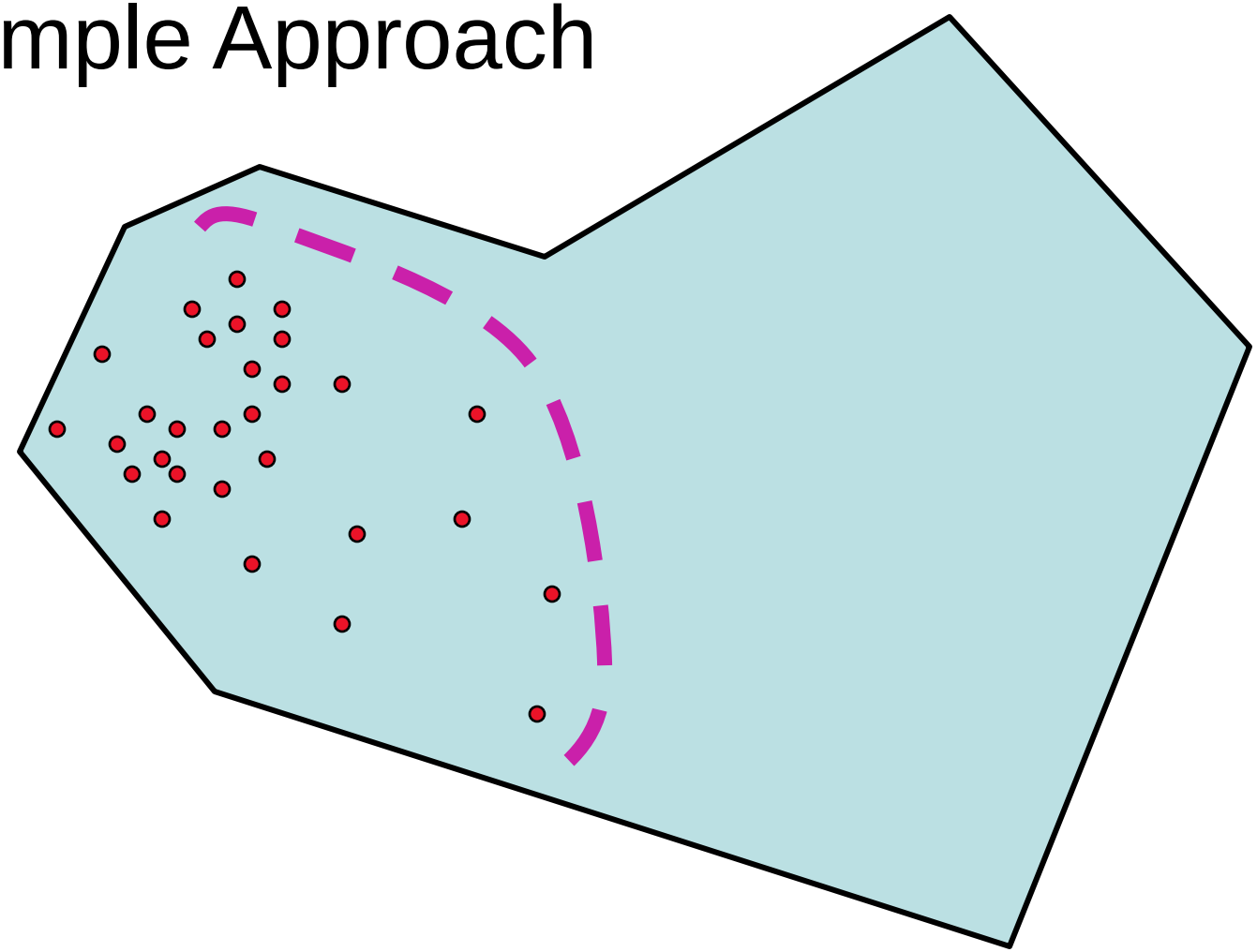
Eradicate outlier populations

Simple Approach



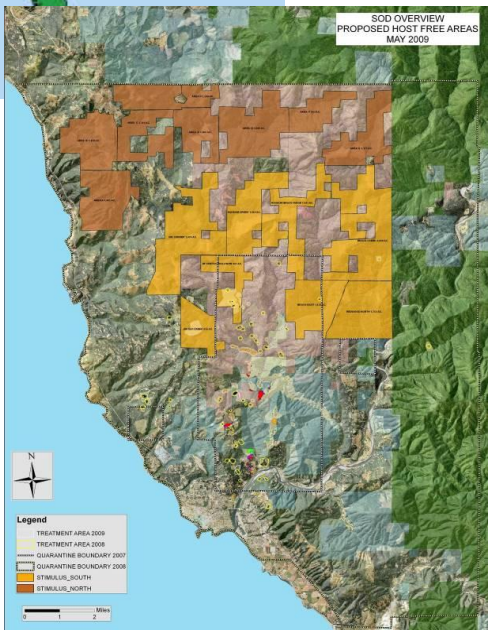
Monitor high priority areas along no-spread line including areas most likely to support spread (e.g. disturbed areas) and areas with high conservation value.

Simple Approach



Annual surveys and treatment to prevent any spread beyond the no-spread line.

Case Study Evaluation



Melaleuca Management in South Florida

- Multiple introductions 1906-1930's (wood, windbreaks, ornamental)
- By 1987, invaded 7.7 million acres in 10 counties south of Lake Okeechobee with 46,793 acres of monoculture

Melaleuca Management in South Florida

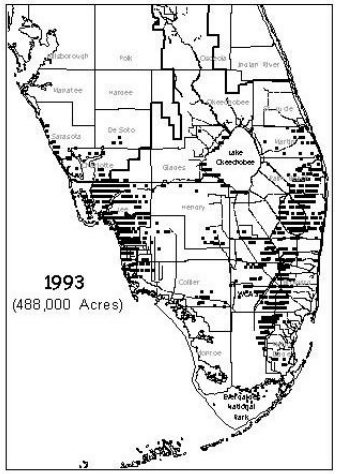
- 1990: FLEPPC est. multi-agency Melaleuca Task Force
- Result: Melaleuca Management Plan
- Subsequent plans in 1994, 1998

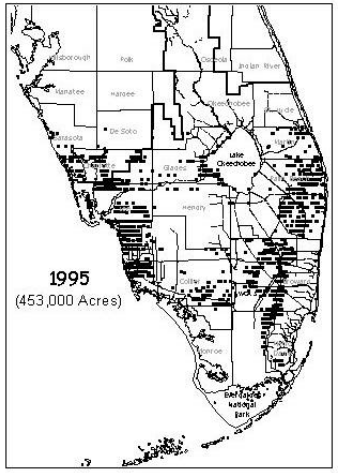
Melaleuca Management in South Florida

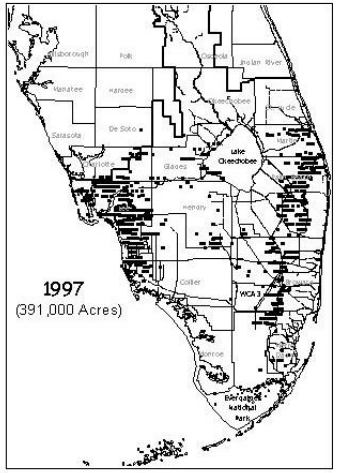
- “Leading edge” at south rim of Lake Okeechobee
- Strategy I: Focus on outlying trees and work toward center
- Strategy II: Establish Melaleuca-free buffer zone and encourage removal in the zone

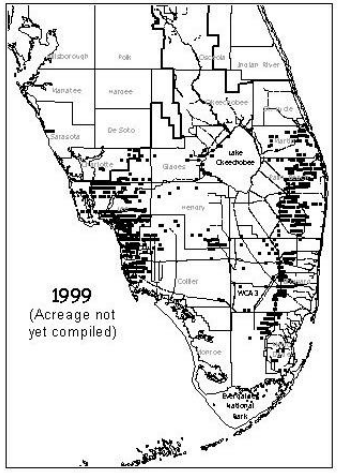
Melaleuca Management in South Florida

- >78 million stems treated
- Decrease of ~ 100,000 acres of Melaleuca in managed areas documented.
- Cost: $25,000,000 to date
- Failing to act would ultimately cost the region $161,000,000 annually in lost revenues.









Melaleuca Management in South Florida

- First truly integrated effort of its kind involving federal, state, and local agencies
- First large-scale Integrated Pest Management program to include biological control agents
- First large-scale management by working on “the edge”

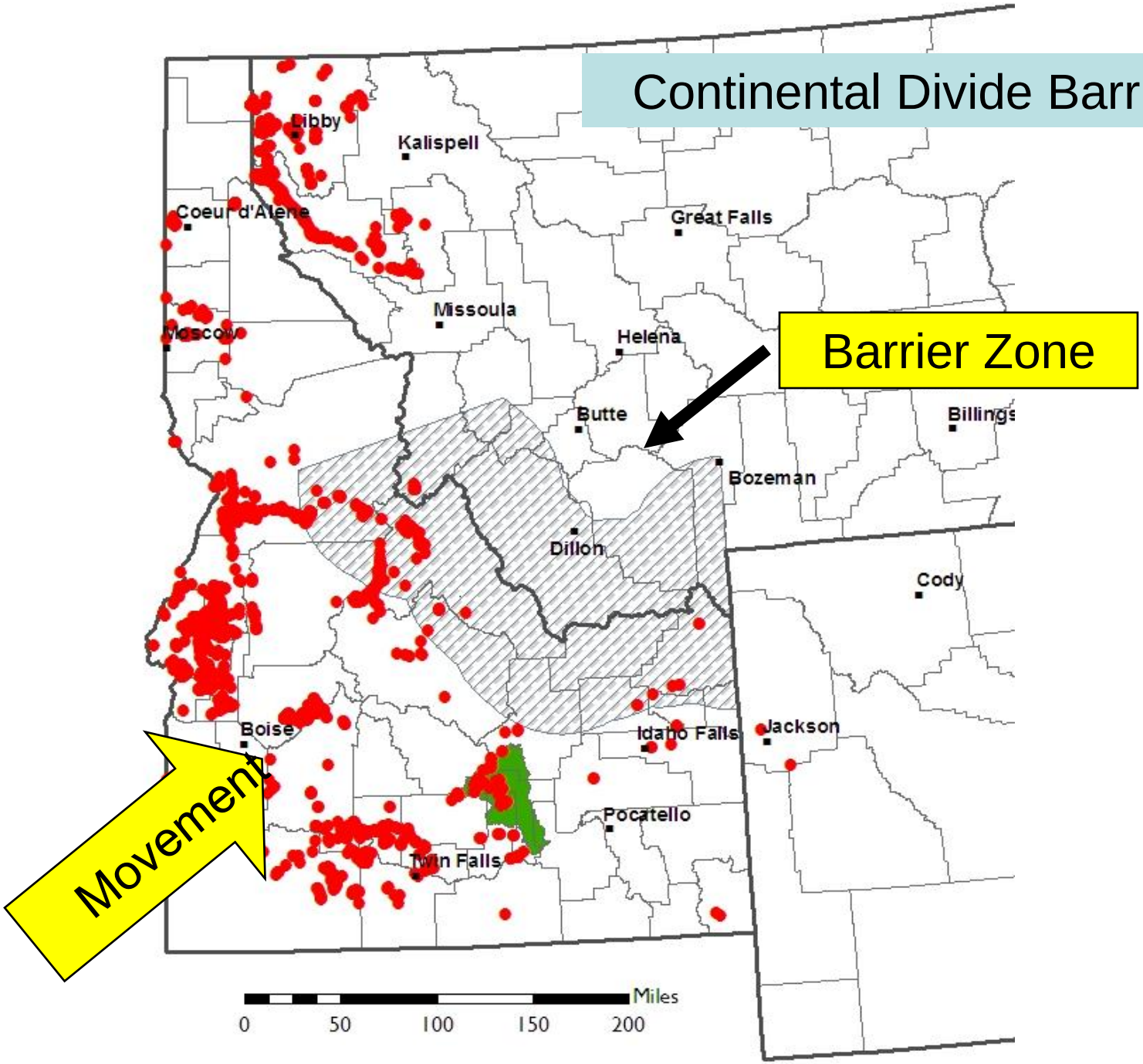
Continental Divide Barrier Zone

Idaho and Montana working together to stop the spread of Rush skeletonweed

Key components include:

- Accurate **landscape-scale mapping** of existing populations including digital aerial sketch mapping and ground surveys.
- **Susceptibility models** that incorporate solar angle, wind, cover, etc.
- **Passive monitoring** by user groups to supplement formal surveys

Continental Divide Barrier Zone



100th Meridian Initiative

A cooperative effort between state, provincial, and federal agencies to prevent the westward spread of zebra mussels and other aquatic nuisance species in North America.

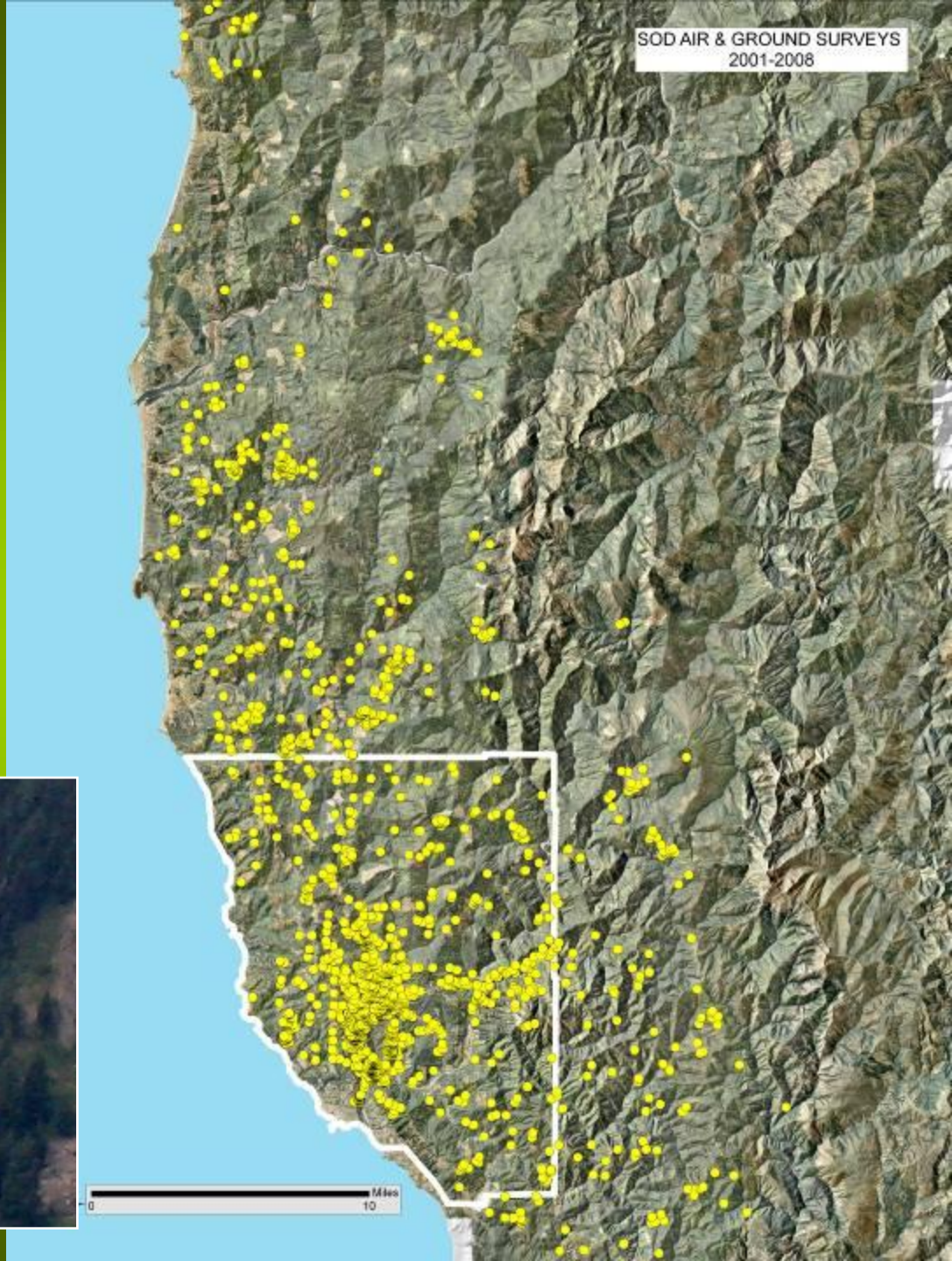
100thmeridian.org

100th Meridian Initiative

Managing Sudden Oak Death in Southwest Oregon Forests: 2001-2009

Aerial surveys and ground checks

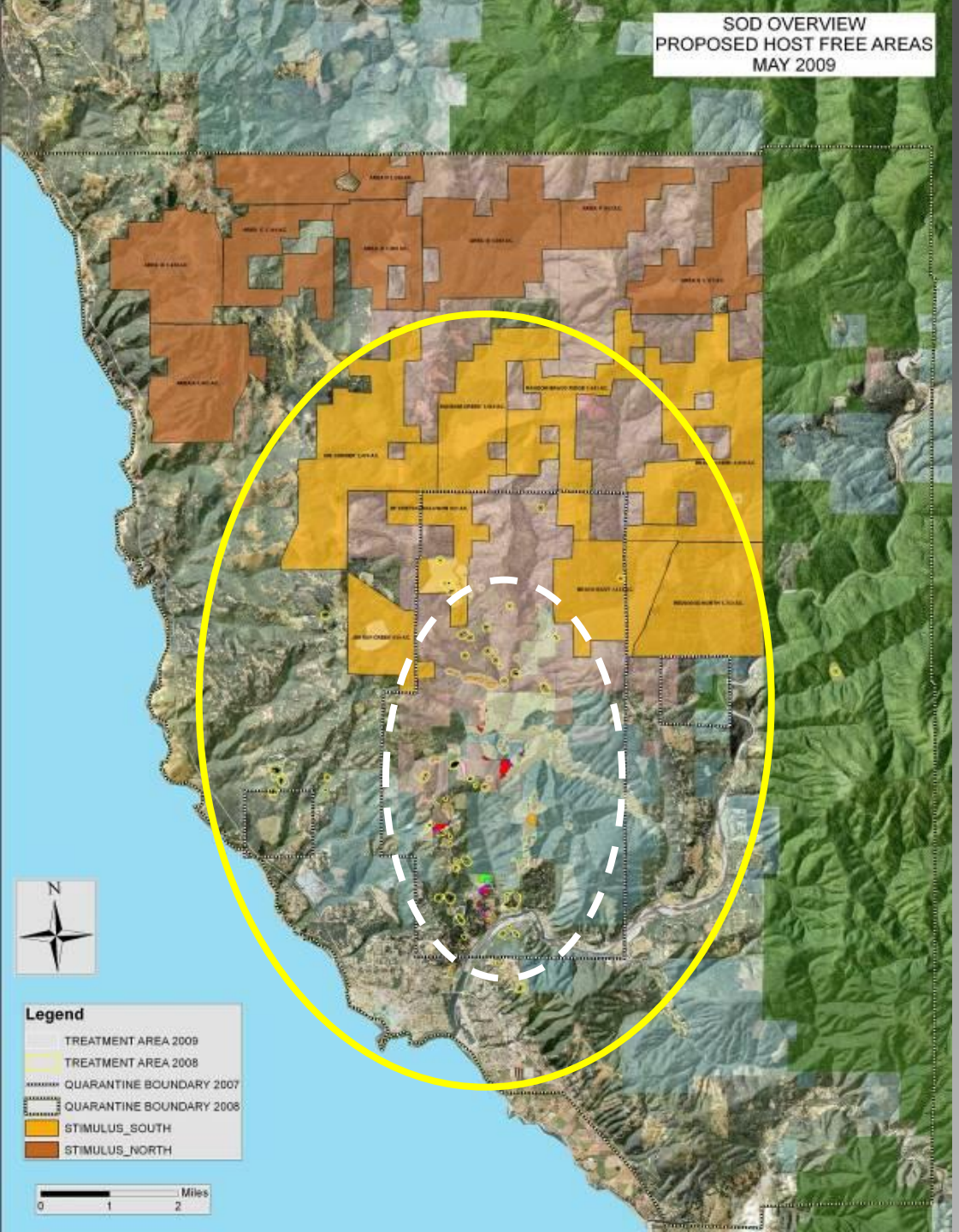
4 per year:
2001-2009



Delimiting Treatment area

Treatment

1. Hack & squirt tanoak to prevent stump sprouting (except on BLM land)
2. Cut tanoak, rhododendron, huckleberry, sometimes myrtle.
3. Burn (piles or broadcast)
4. Plant, follow-up treatments



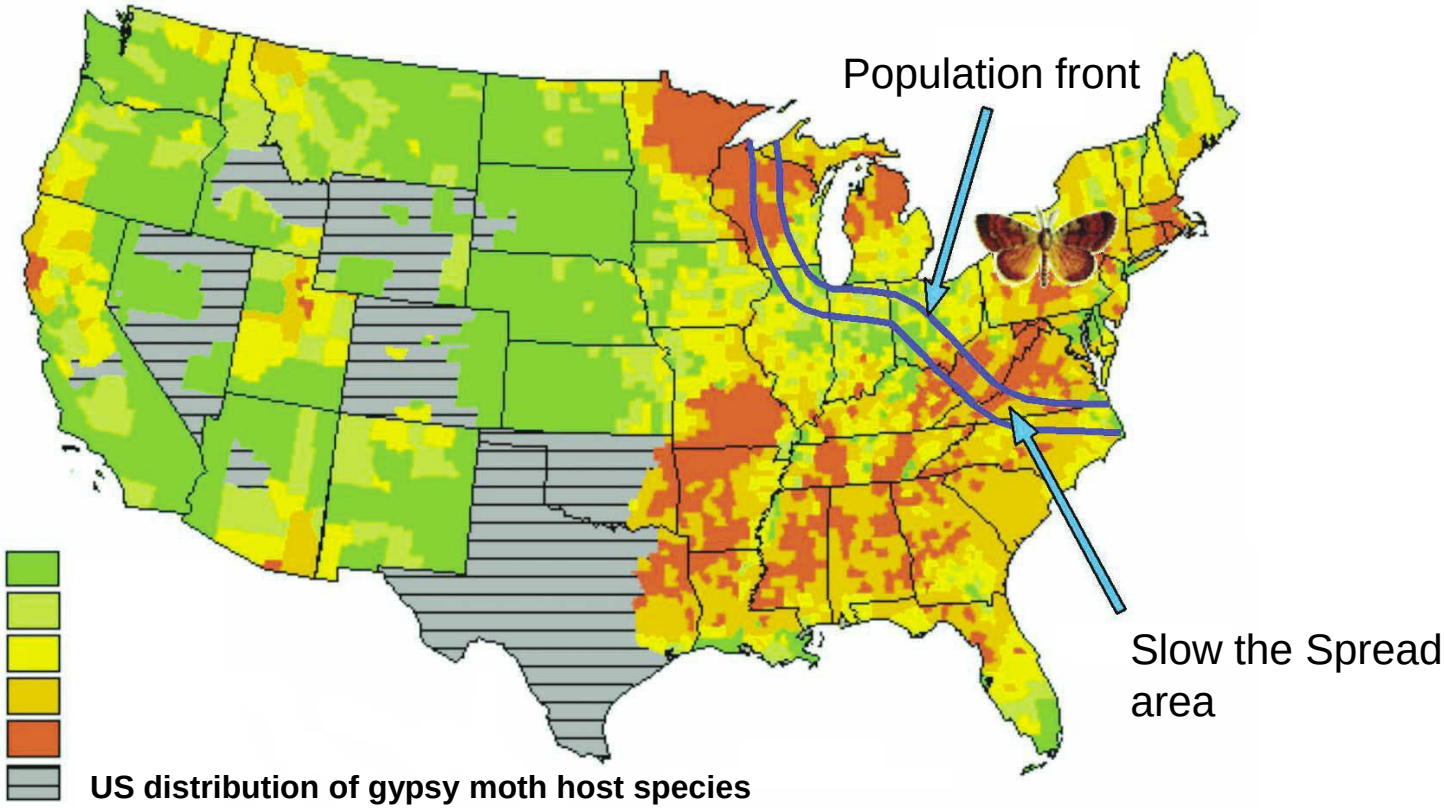
Host Reduction in pathway areas: Stimulus Project 2009

Host reduction Zone – “leading edge” of management

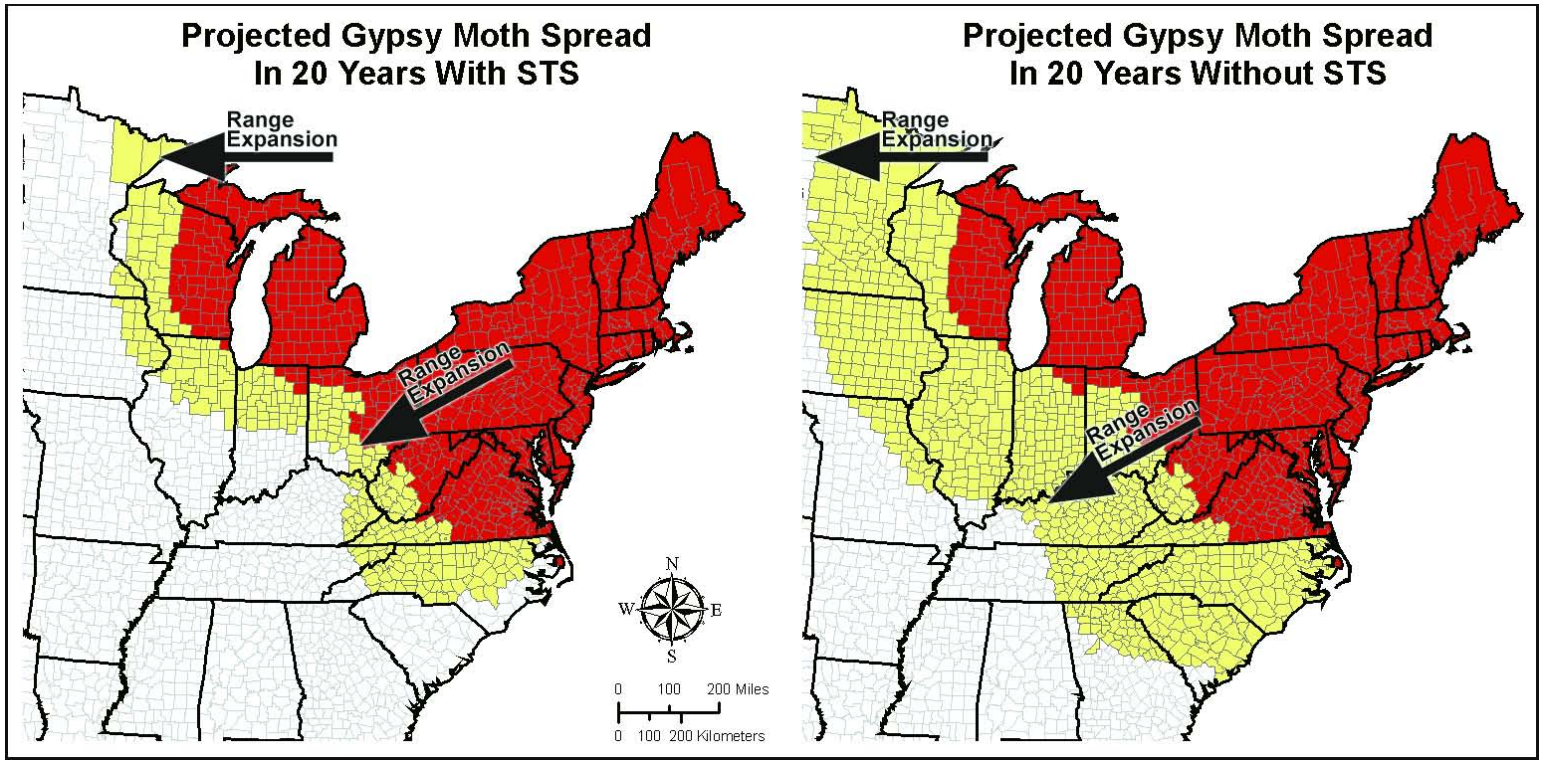
General area of most previous infestations

Slowing the Spread of Gypsy Moth

Slowing the Spread of Gypsy Moth



Slowing the Spread of Gypsy Moth

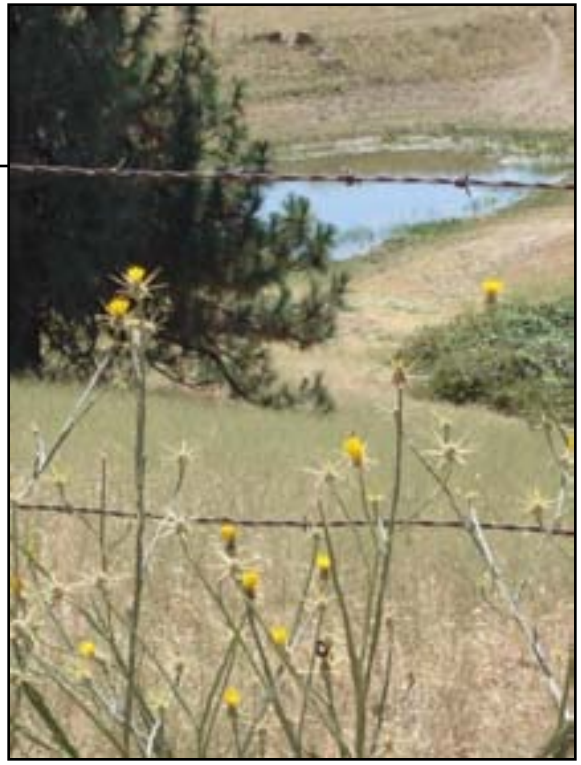


Stop the Spread of Yellow Starthistle into the Sierra Nevada Mountain Range

A Project of the California Department of

Food and Agriculture

Project Goals



- Identify a YST “no spread line” across the Sierra foothills
- Coordinate efforts to stop eastern spread
- Eradicate outlier populations east of the line
- DO THE DOABLE!

Why is this project important?

- FOCUSED effort to control YST
- Agency collaboration – statewide
- Protect the important assets of the Sierras –recreation, timber, wildlife habitat and threatened species
- Educational opportunity – early detection and rapid response
- Save dollars by stopping the spread NOW!

Coordination with Land Managers

Engaging at the local, regional and state levels:

- Bureau of Land Management - three districts
- Two National Parks
- Six National Forests
- Utility districts
- Caltrans, local road departments
- Private landowners
- Weed Management Areas

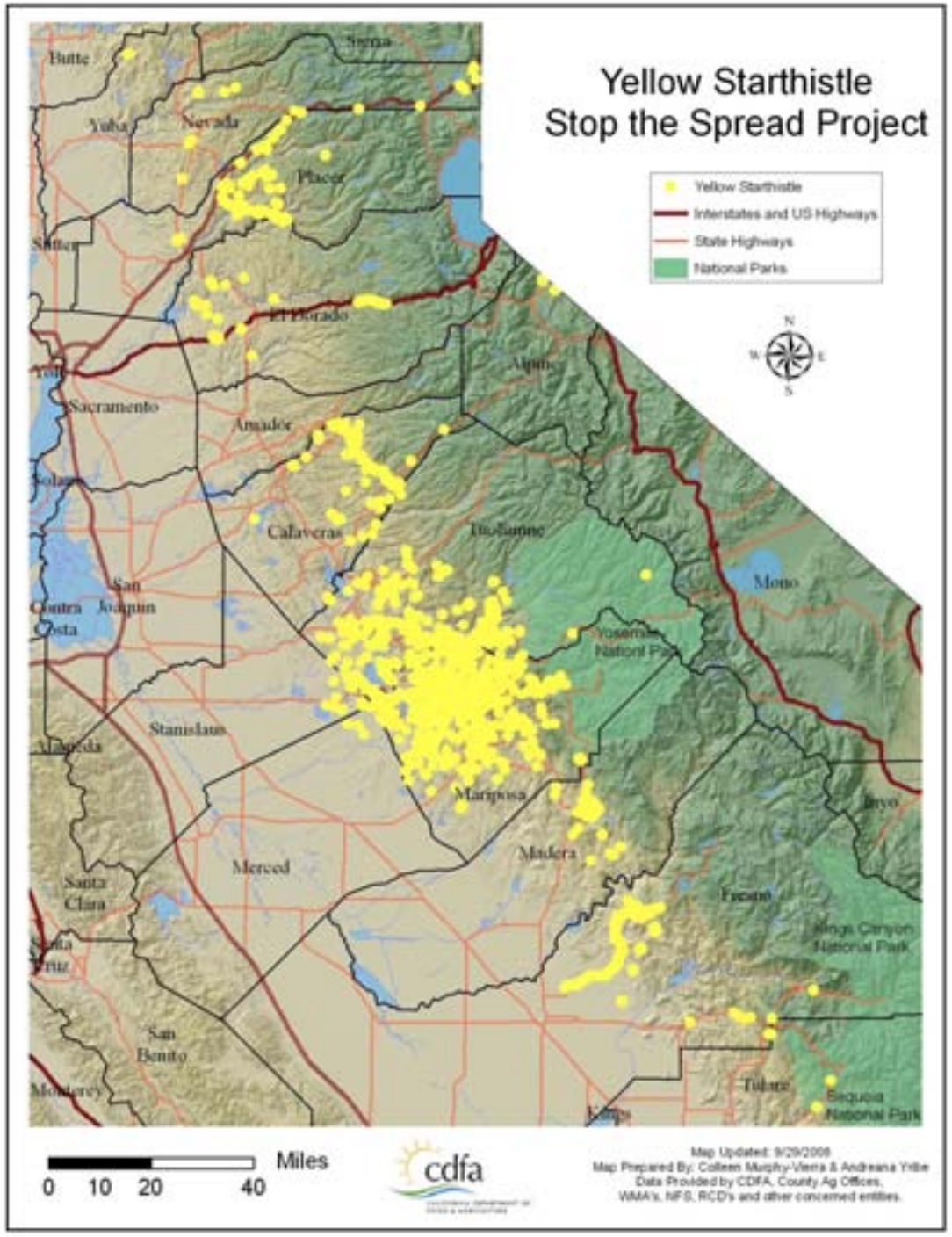
Detection Surveys

- 24,700 gross acres
- 2,950 miles of roadway

2007-2008 Treatment

- Hand pulled:
  - 24 acres and along 41 miles of roadway
- Herbicide treatment:
  - 137 net acres

Connect the "dots" across the region



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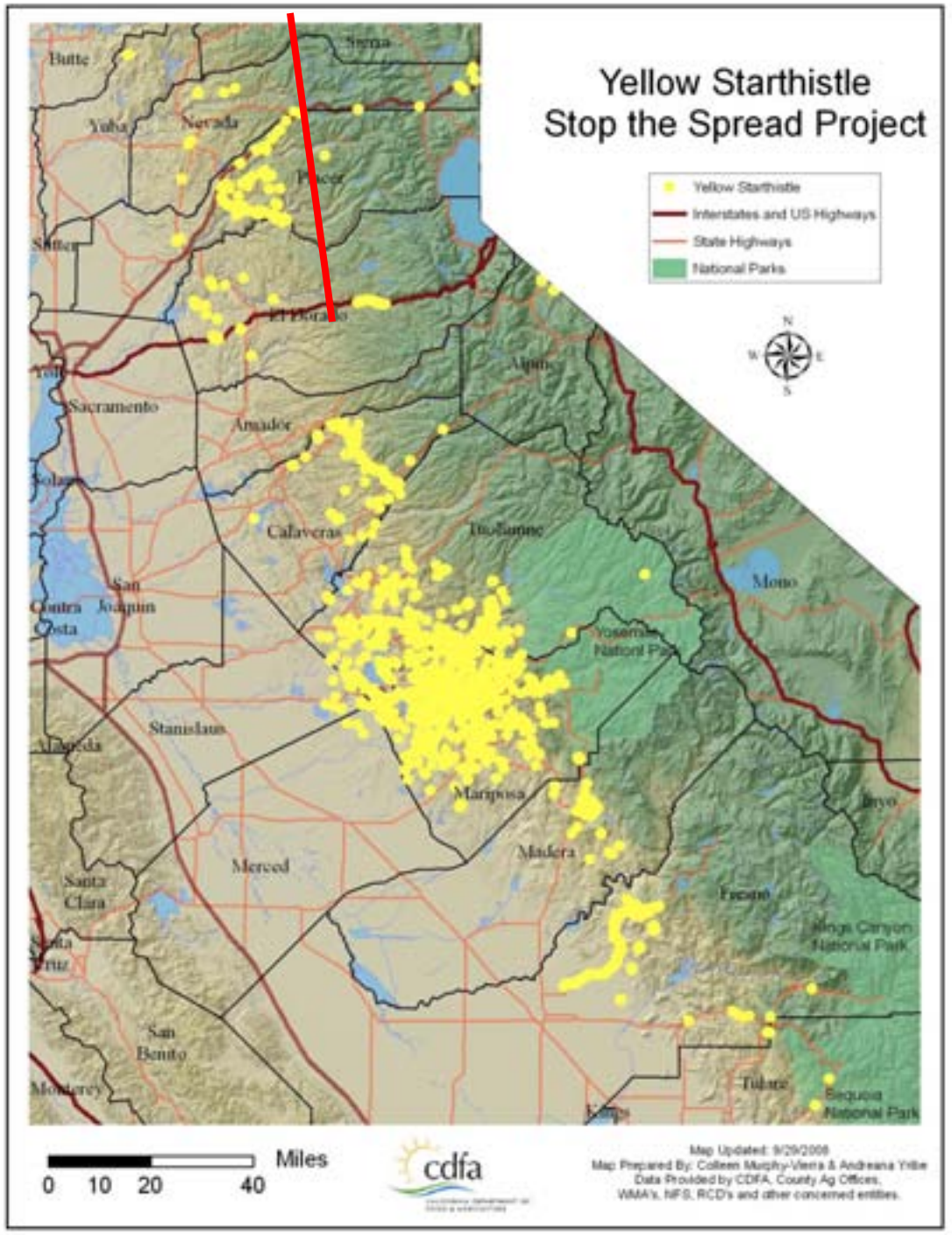

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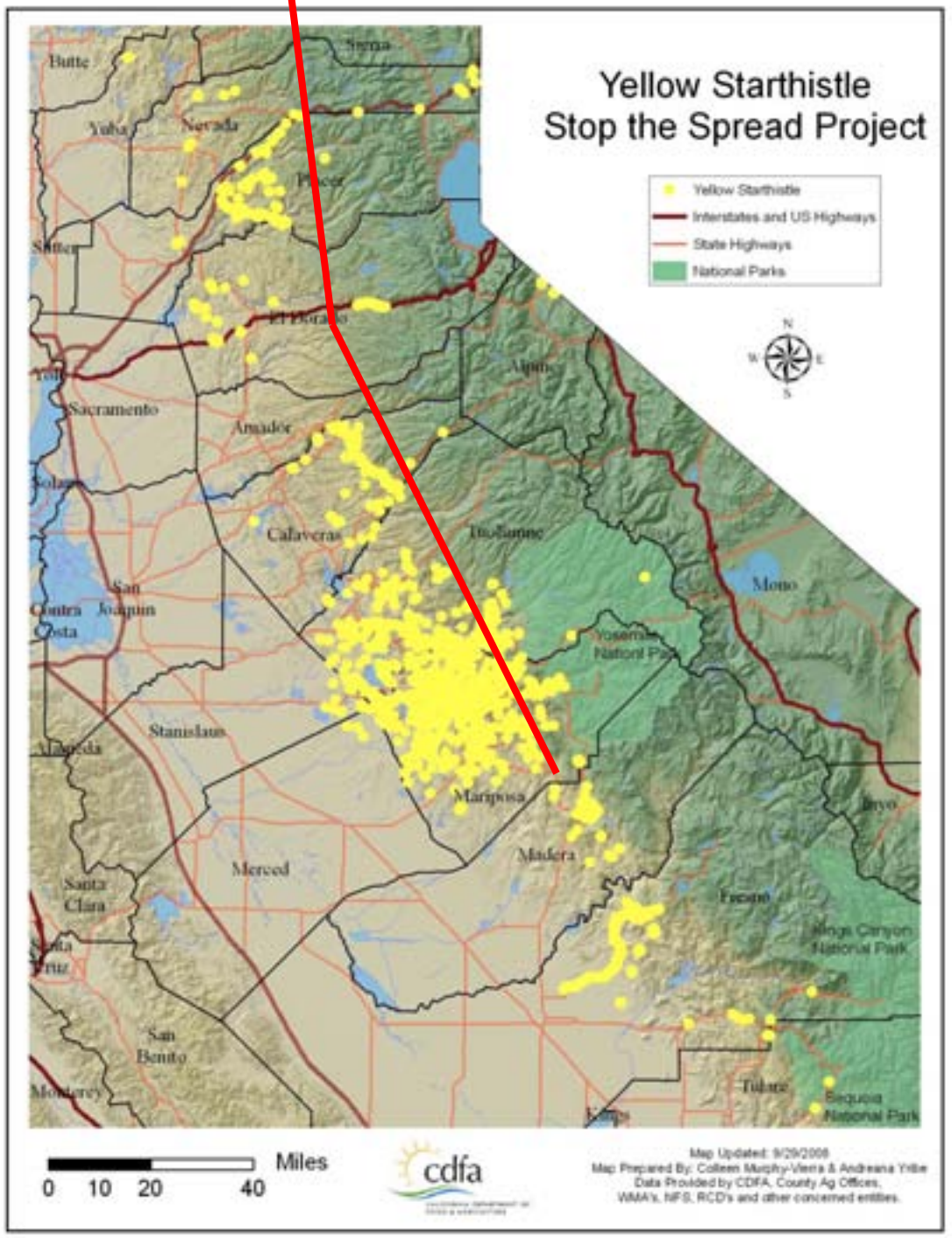

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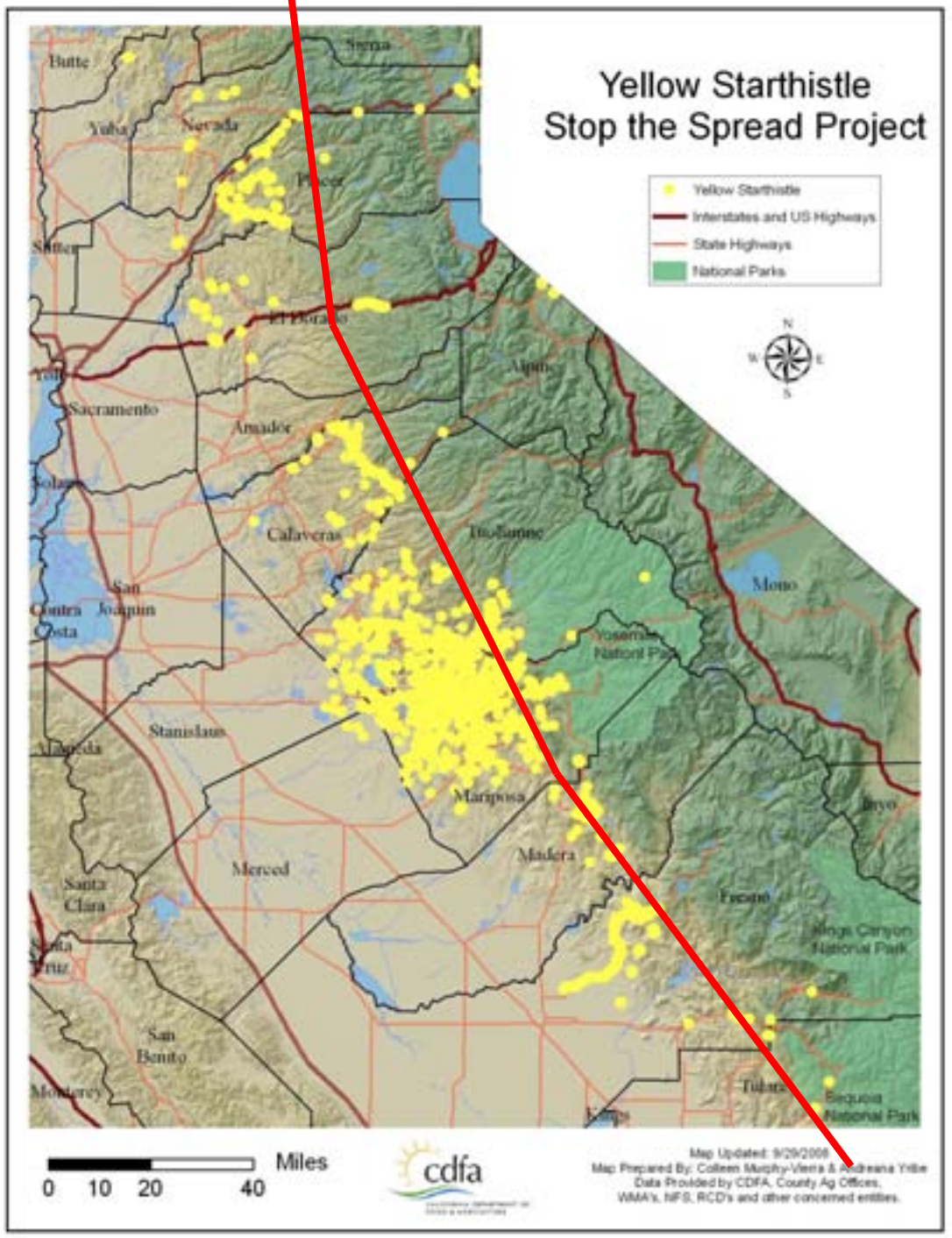
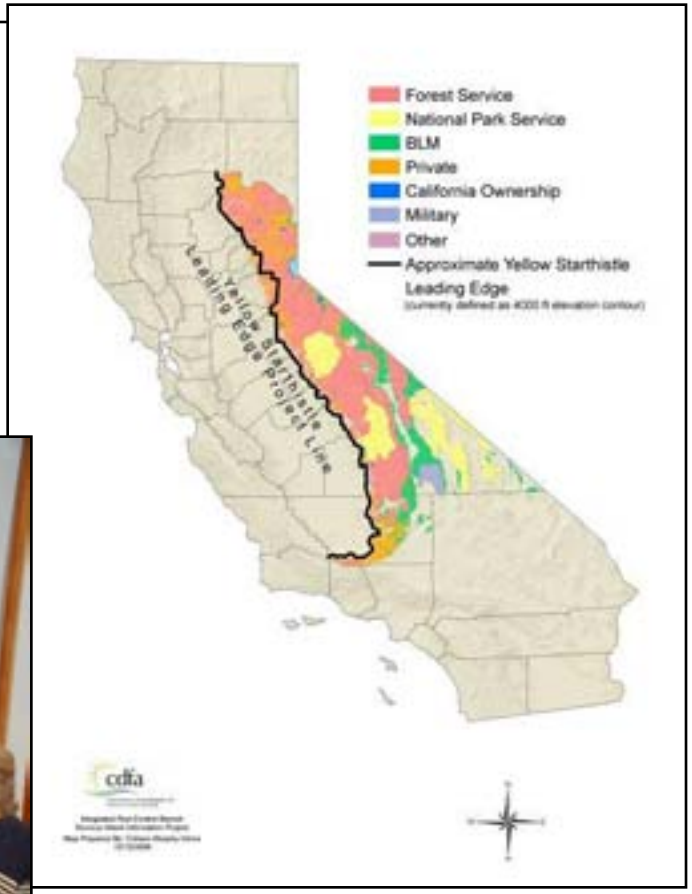


Common Leading Edge Elements

Detection surveys, mapping and long-term monitoring

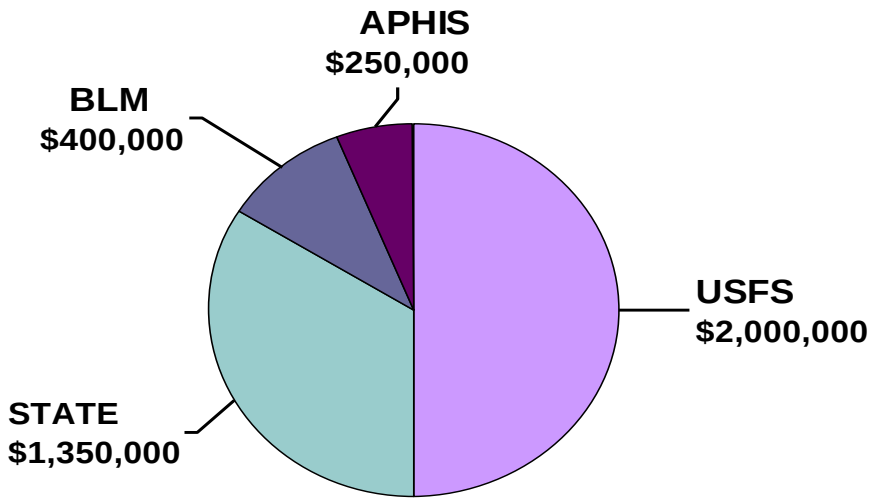
Common Leading Edge Elements

Coordination structure



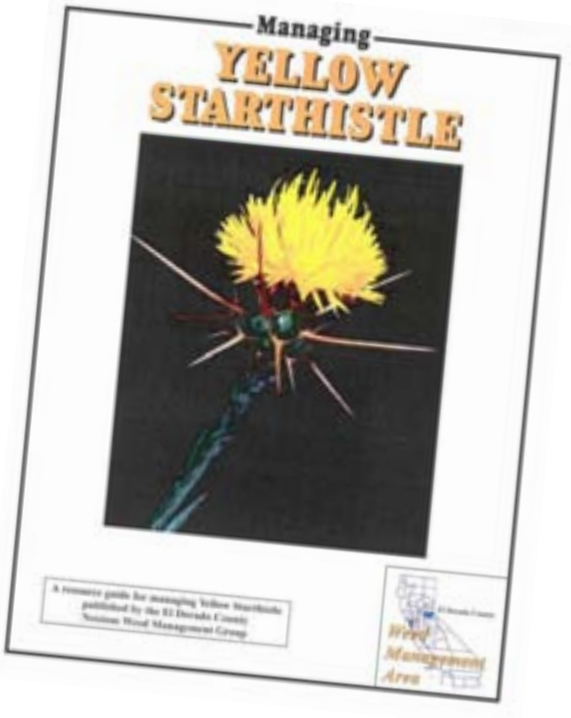
Common Leading Edge Elements

Funding - sustainability and flexibility

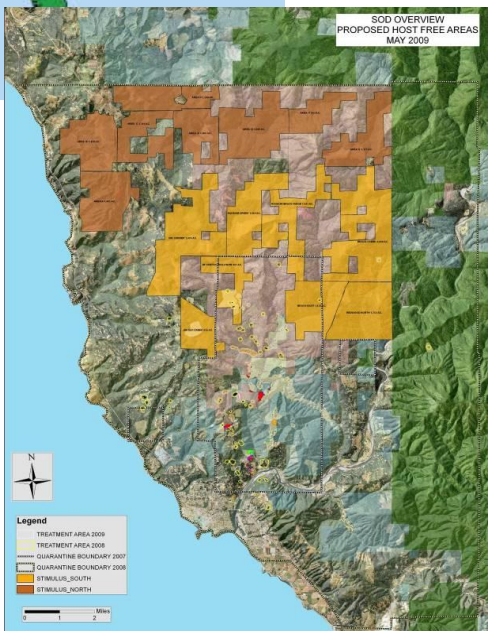


Common Leading Edge Elements

Prevention outreach and educational campaigns



Managing the Leading Edge



Thank You!

- Alan Kanaskie - Oregon Dept. of Forestry
- Kim Goodwin, Montana State University
- Francoise LaRoche - South Florida Water Management District
- California Department of Food and Agriculture
- Gypsy Moth Slow the Spread Foundation, Inc.
- Doug Johnson, Cal-IPC
- Elizabeth Brusarti, Cal-IPC
- Cheryl McCormick, Cal-IPC Board Member