Yellow Starthistle

Biology, Mechanical and Cultural Control Methods

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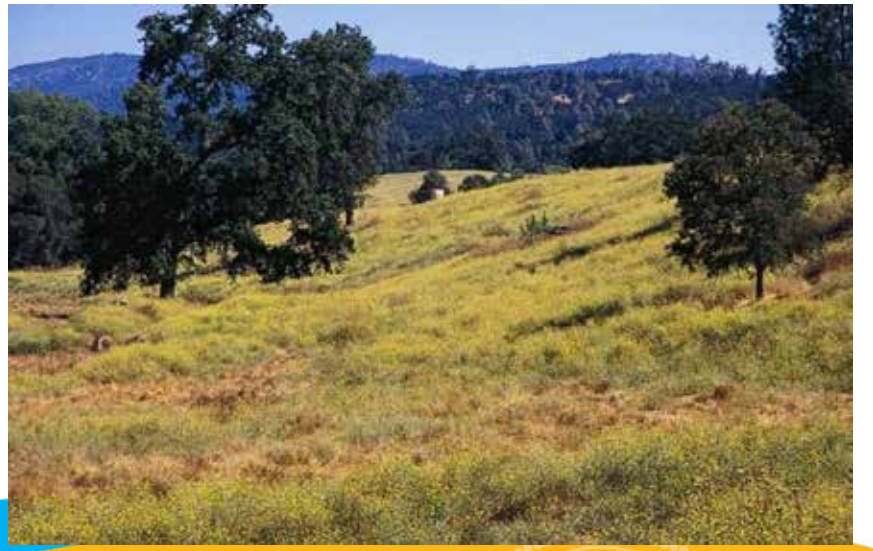

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Making a Difference for California

Yellow Starthistle

- Native to Eurasia
- Introduced in the 1850's
- Annual – reproduces from seed
- Seeds can lay dormant for 2-4 years

Yellow Starthistle - the Problem

- Reduces recreational values and access
- Toxic to horses
- Degrades animal and plant habitat
- Reduces plant diversity

How Invasive Weeds Spread

- Wind – seeds blown
- Spread by animals: birds, dogs, livestock, wildlife
- Plant parts moved in gravel, fill dirt
- Plant parts moved on equipment, tires, recreation vehicles
- Seeds carried on boots, pants

Seed production

- Large plants can produce over 100,000 seeds
- Heavy infestations may produce up to 144 million seeds/acre
- Winter annual spread only by seed

§ Seeds begin to germinate with fall rains and continue to germinate throughout the rainy season

Roots

- Extensive and deep root system
  - Uses up to 50% of soil moisture
  - Root growth rapid winter and spring
  - Roots 6 ft. down utilize water lower

Yellow Starthistle Life Cycle

Seedling

Rosette

Bolting Stage

Flowering

Yellow Starthistle

During bolting phase

- Waxy, grey coating reflects light
- Winged stems act as radiators
- Thrives under hot and dry conditions!

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

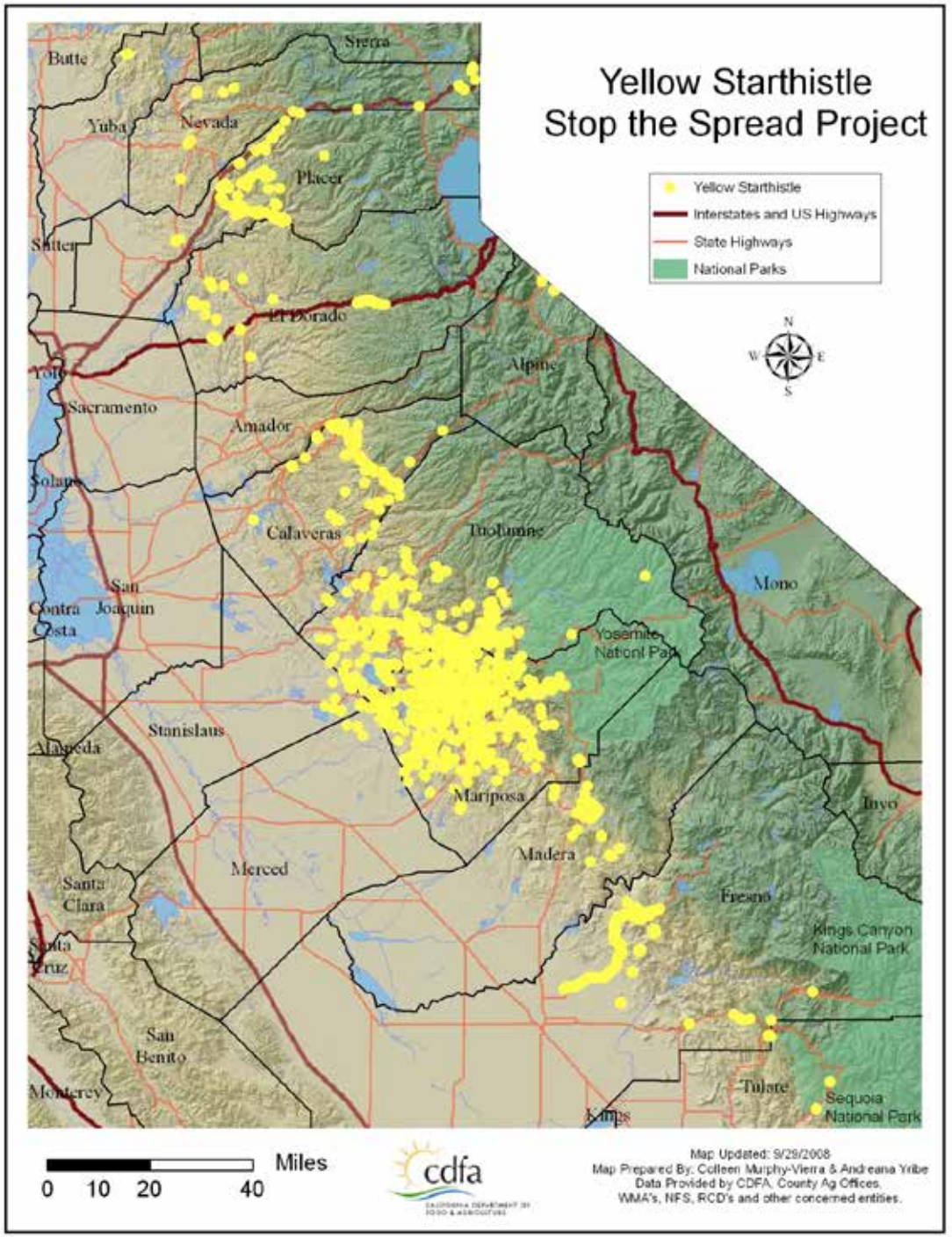
Early Detection and Eradication on a Regional Scale

Project Goals

- Identify a YST “no spread line”
- Coordinate efforts to stop eastern spread
- Eradicate outlier populations east of the line

Connect the "dots" across the region

Each county surveying and controlling



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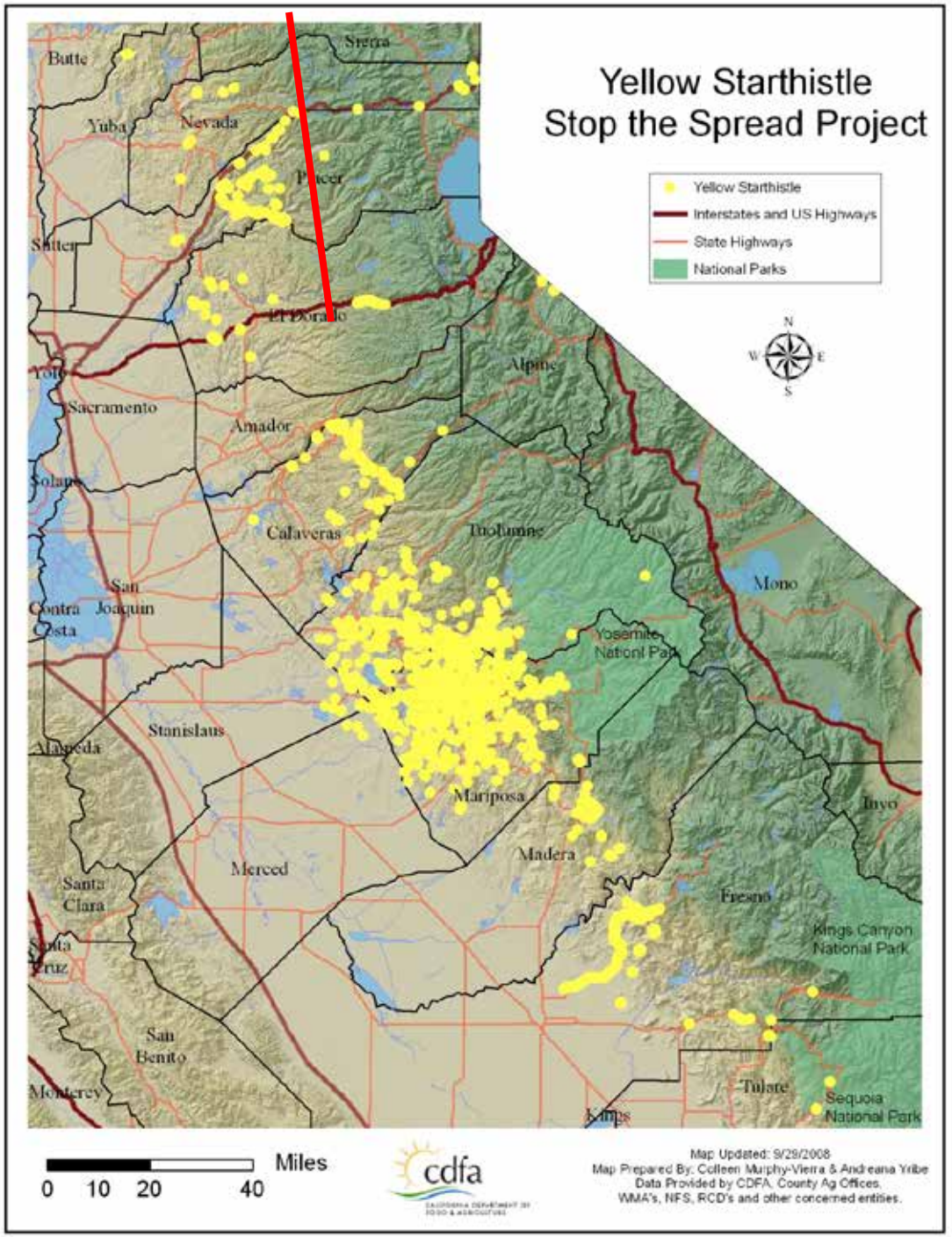

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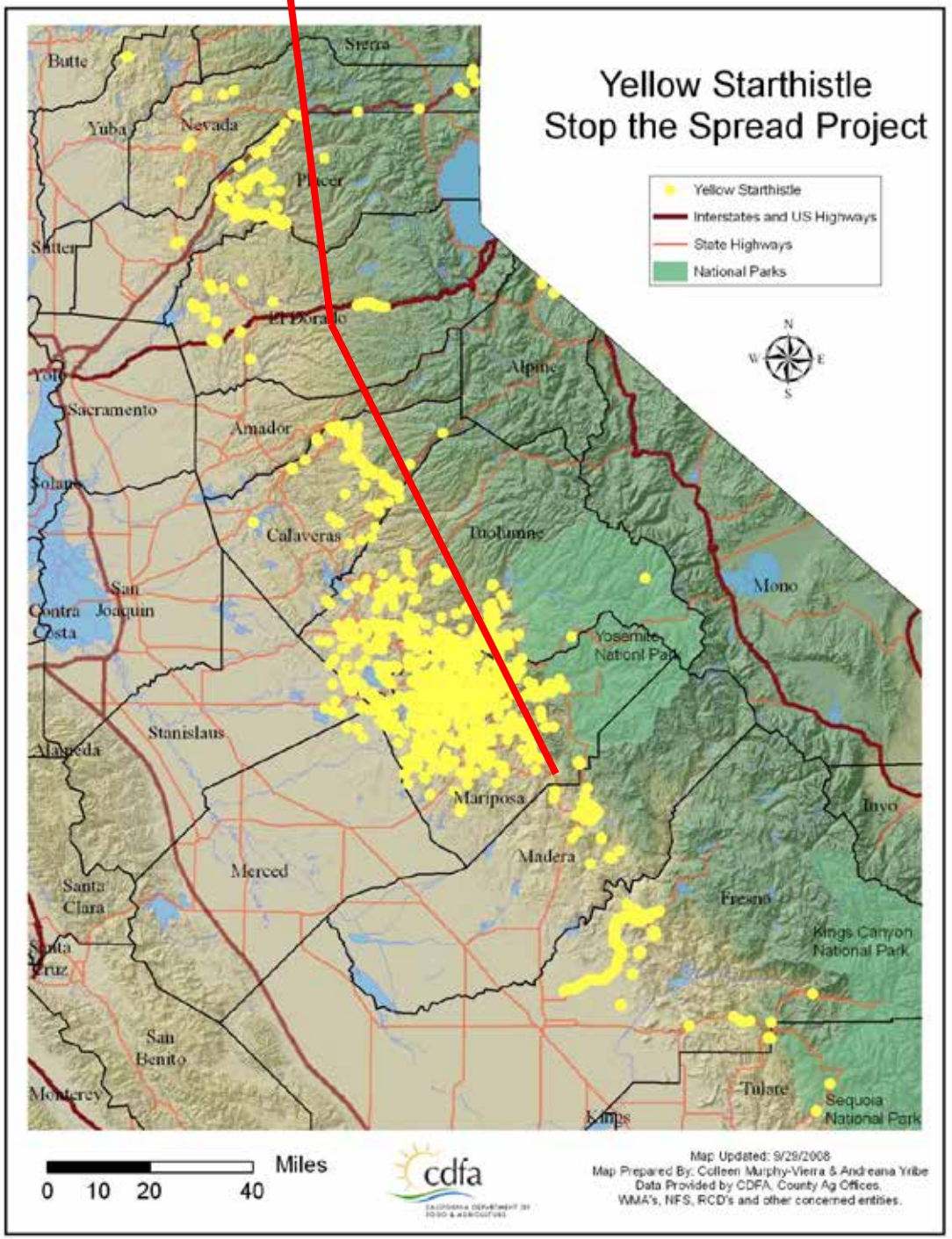
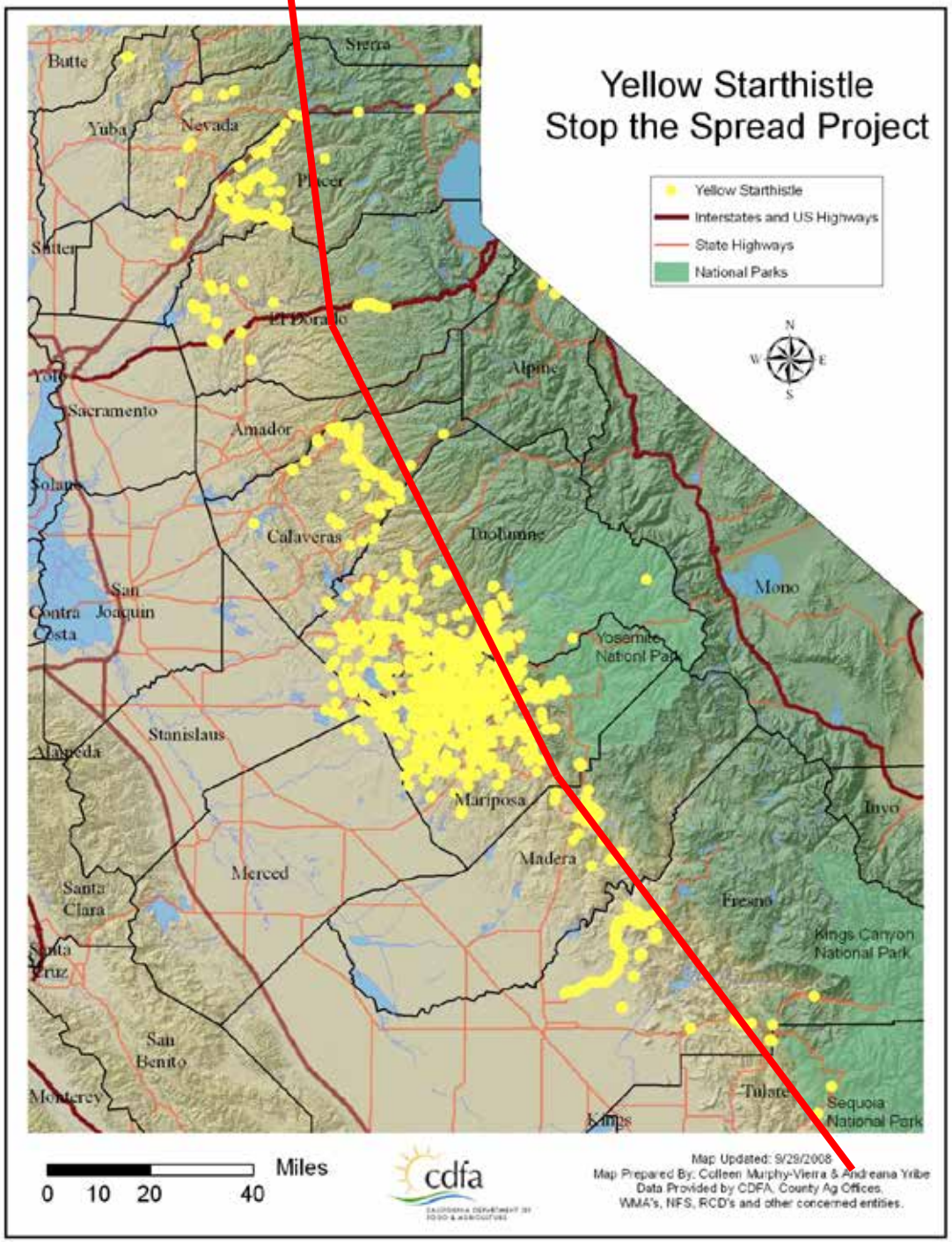


Connect the "dots" across the region

Continue work to eradicate outliers



Yellow Starthistle Control - Integrated Pest Management

Cultural Control

- Grazing
- Burning
- Revegetation

Mechanical Control

- Mowing
- Tillage – ag settings
- Hand pulling and hoeing

Biological Control


Grazing

Grazing

- Time the grazing to damage YST when it's most vulnerable
  - at bolting (May-June); doesn't have the energy reserve to regrow and set seed that year
- Control the behavior of the animals
  - intensive, time-controlled can minimize grazers ability to avoid YST
  - overgrazing can encourage YST

Prescribed Burning

Critical factors for success:

- Timing
- Temperature

Revegetation

- Seeding to compete with YST
  - Broadcast seeding
  - Drill seeding
  - on dry land settings - best in late fall just before winter rains begin

Mowing

Growth form and stage affects mowing success

- Best at late bolting, spiny, early flower stage
- 90% control with two timely mowings per year over three years
- Success linked to growth form

Growth Forms

Best growth form

Hand Pulling
Hoeing

- Goal: stop seed production!
- Can be very effective
- Bag and/or burn plants with seeds
- Use on small populations or isolated infestations

Biological Controls

Hairy weevil

Eustenopus villosus

False Peacock Fly
Chaetorellia succinea

Questions?

Thank You!