Yellow Starthistle Biology

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Yellow Starthistle

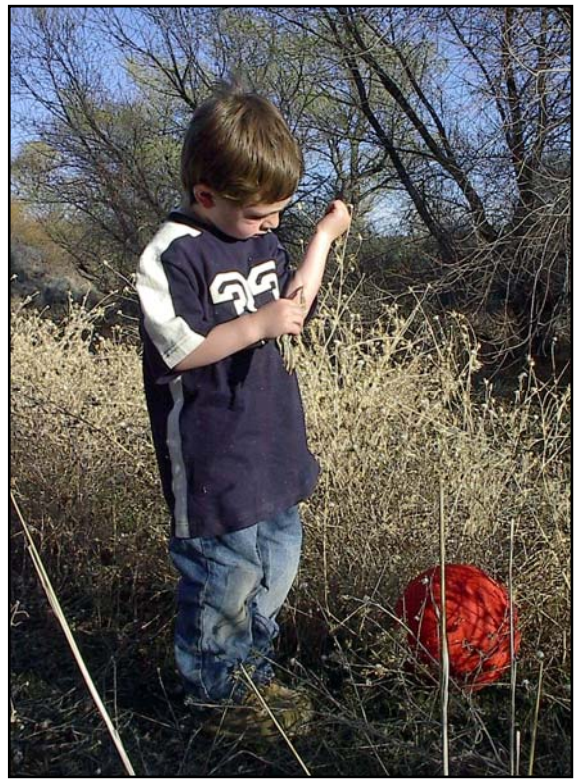
- Native to Eurasia
- Introduced in the 1850’s
- Annual
- Large plants can produce over 100,000 seeds
- Seeds can lay dormant for 2-4 years

Yellow Starthistle - the Problem

- Over 14 million acres in CA
- Reduces value and carrying capacity of rangeland
- Major consumer of groundwater

Yellow Starthistle - the Problem

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



Yellow Starthistle Life Cycle

Rosette

Bolting Stage

Flowering

Yellow Starthistle

- Loves sun; hates shade, competition
- Extensive and deep root system
  - Uses up to 50% of stored soil moisture
  - Root growth rapid winter and spring
  - Roots 6 ft. down utilize water lower

Yellow Starthistle

During bolting phase

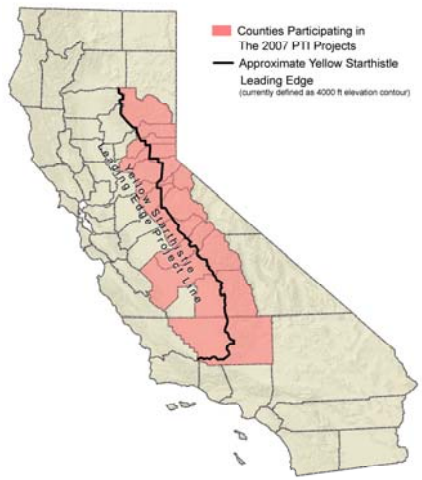
- Waxy, grey coating reflects light
- Winged stems act as radiators
- Thrives under hot and dry conditions!

Yellow Starthistle

- Seeds spreads via gravel, fill dirt in roadways and at disturbed sites
- Seeds carried on equipment
- Seeds only blow a few feet from the plant
- Spread by animals

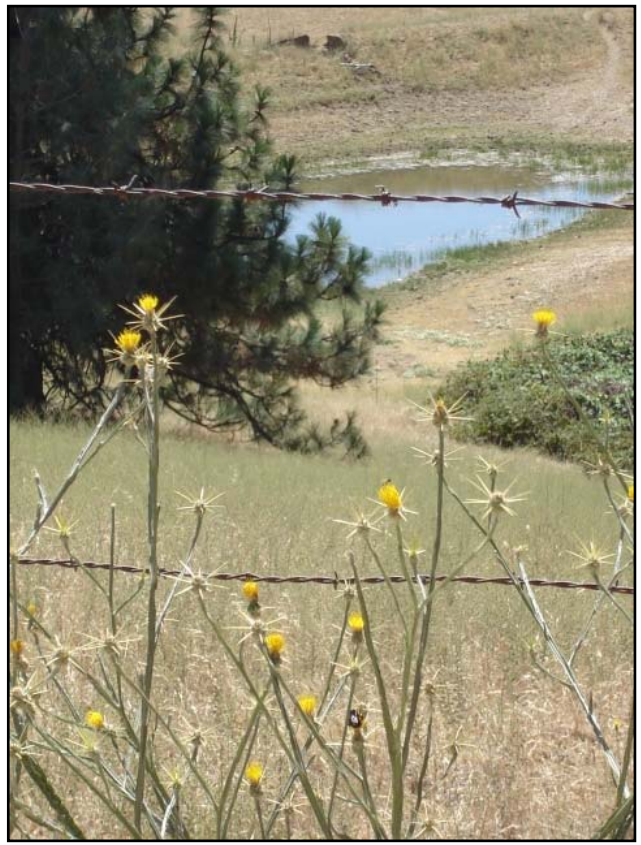
Control Project:
Stop the Spread of
Yellow Starthistle into the
Sierra Nevada Mountain Range

Early Detection and
Eradication
on a Regional Scale



Leading Edge Project Goals

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

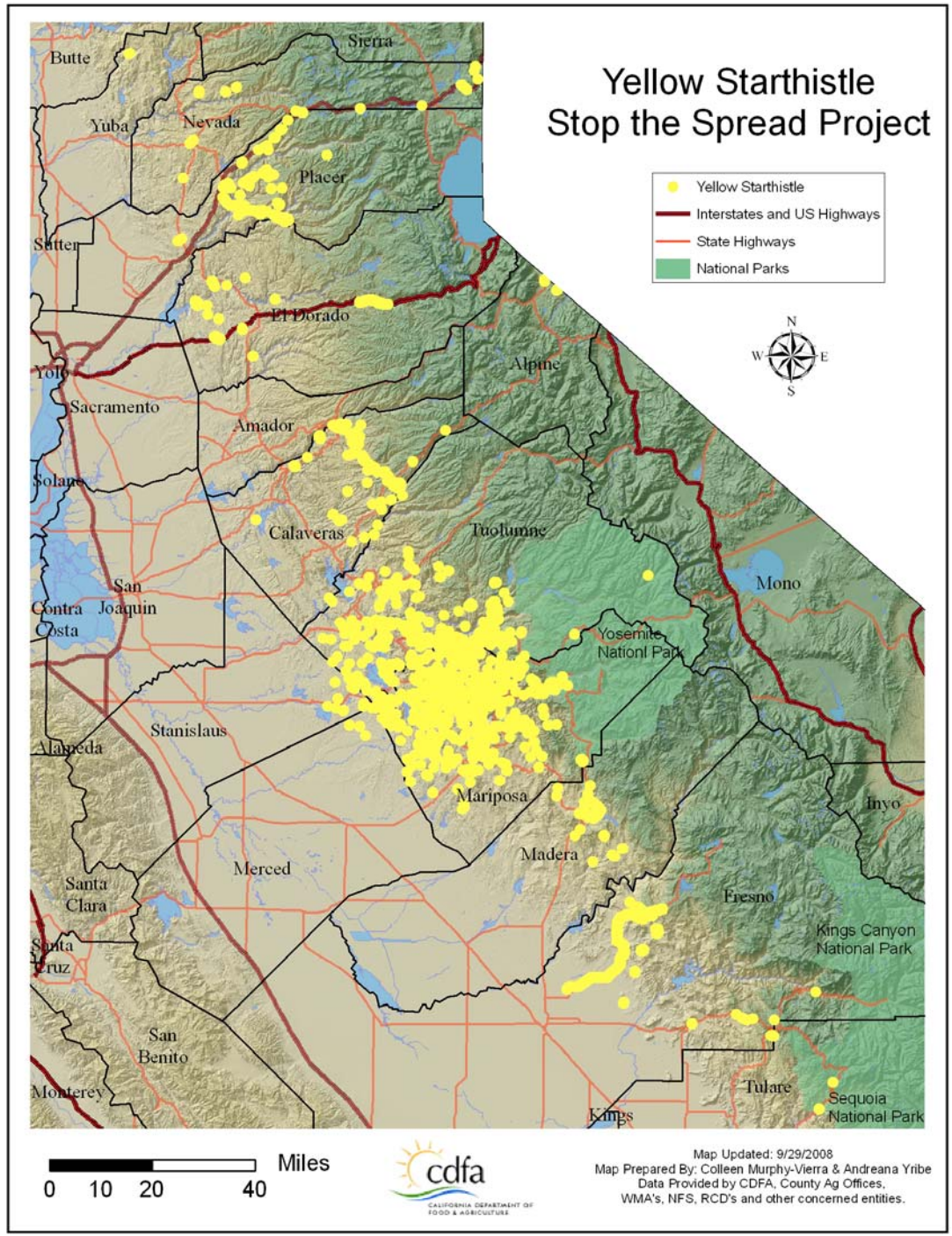


Why is this project important?

- FOCUSED effort to control YST
- Agency and landowner collaboration
- Regional approach can be used as a model
- Educational opportunity – early detection and rapid response
- Save $$$ by stopping the spread NOW!

Connect the "dots" across the region

Each county surveying and controlling



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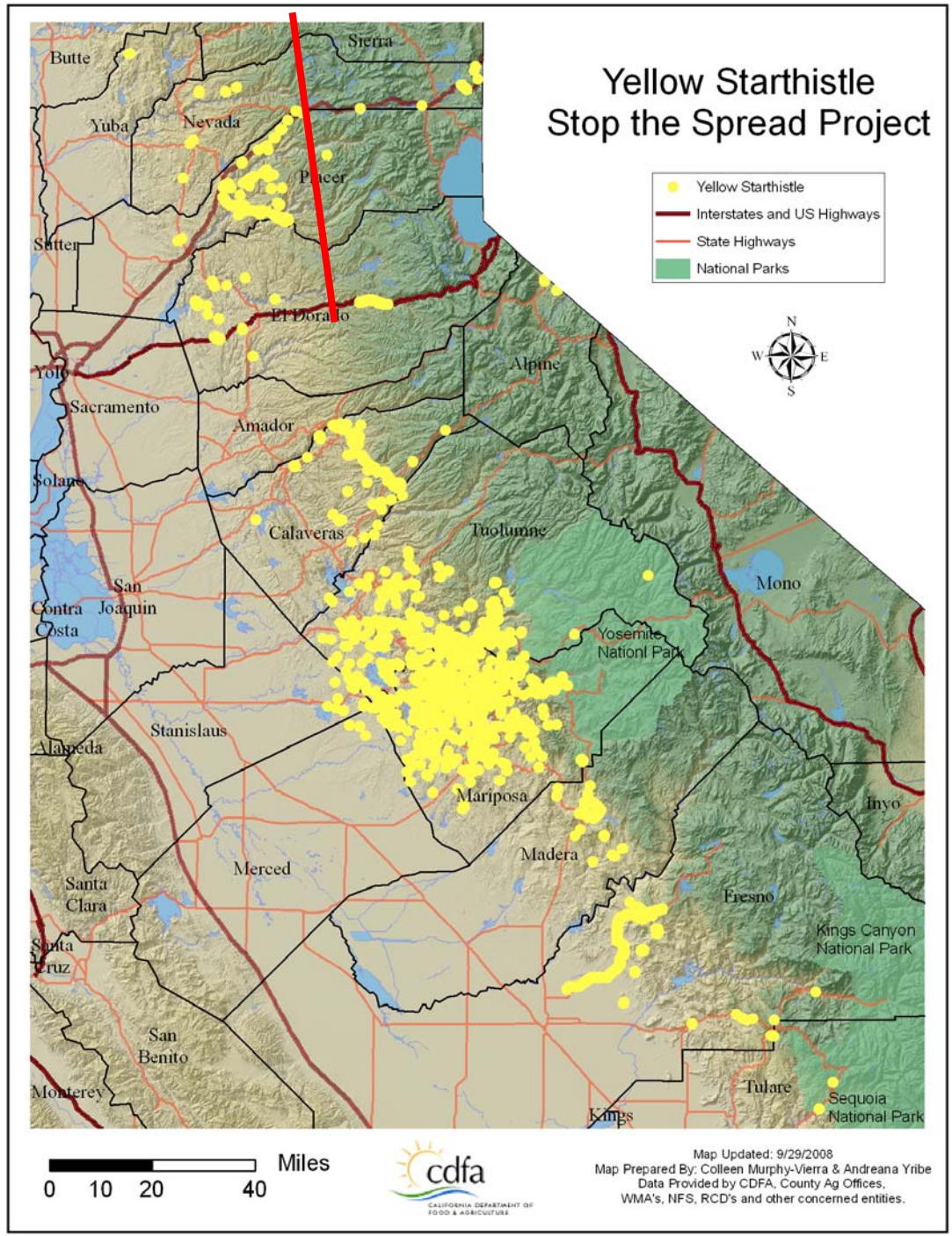

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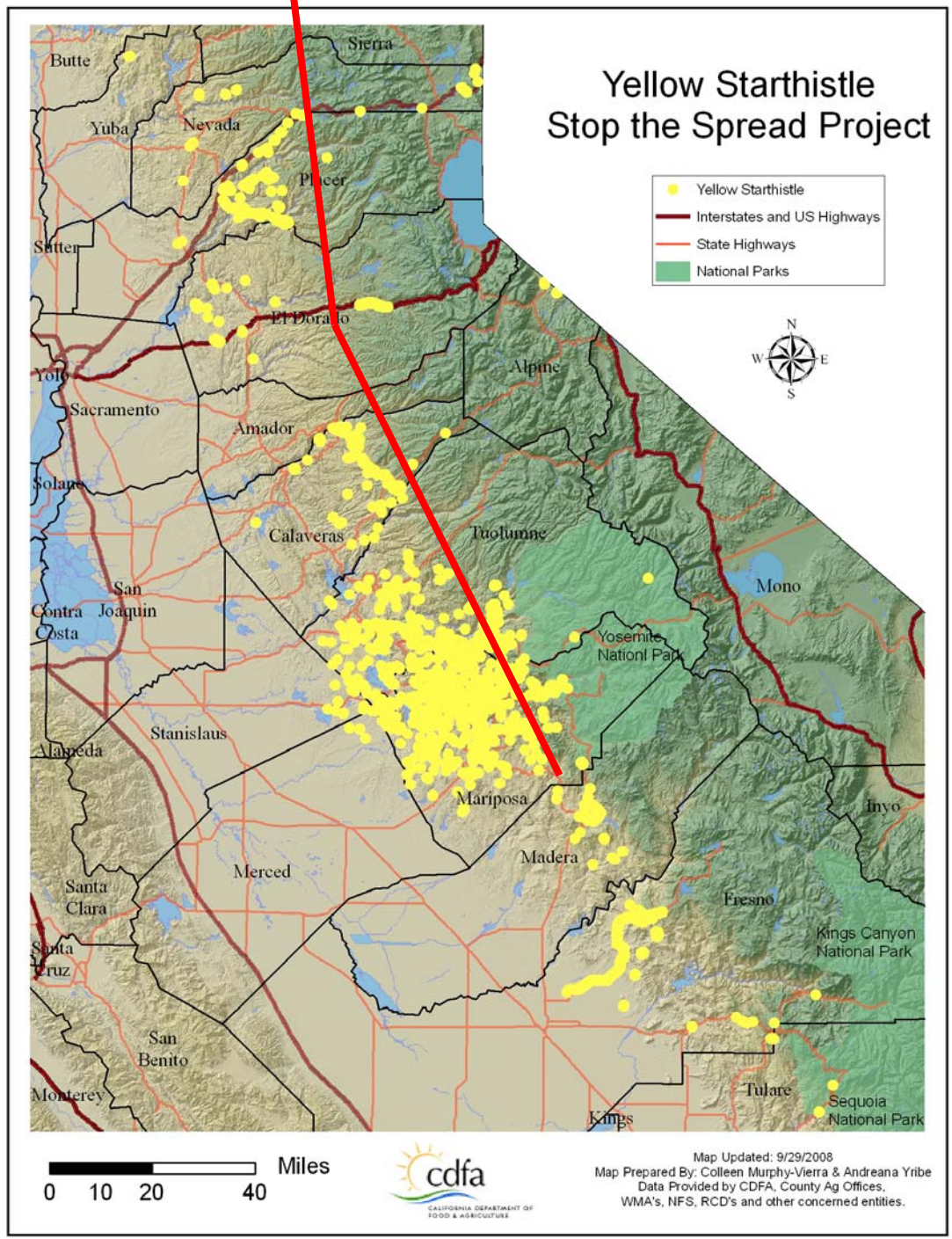
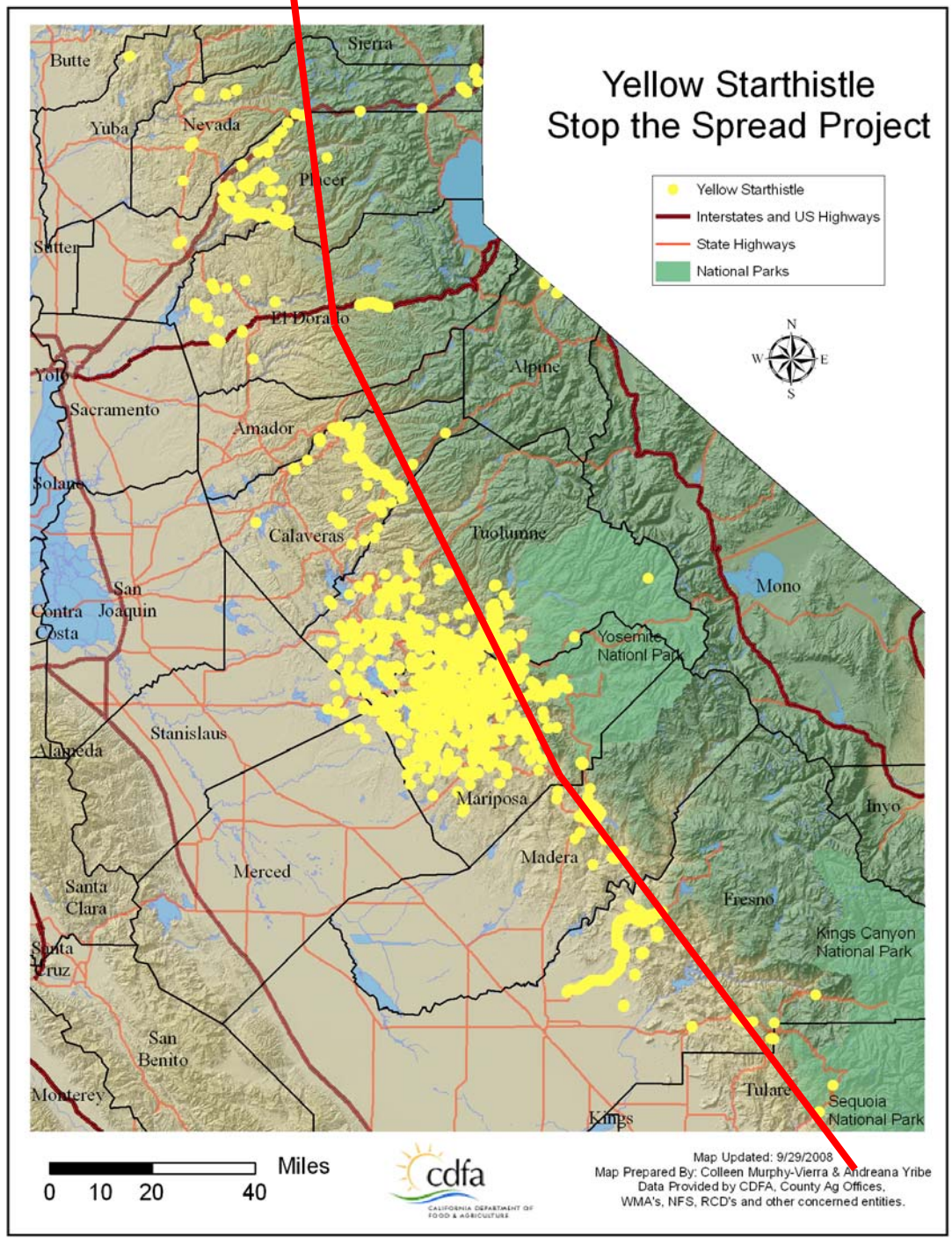


Connect the "dots" across the region

Continue work to eradicate outliers



Yellow Starthistle Control - Integrated Pest Management

Cultural Control

- Grazing
- Burning
- Revegetation

Mechanical Control

- Mowing
- Hand pulling and hoeing

Biological Control


Grazing
UC Davis Weed Science Program
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Photo by Craig Thomson

Grazing

- Time the grazing to damage YST when it's most vulnerable
  - at bolting (May-June) reduced growth and ability to set seed (reproduce)
- Control the behavior of the animals
  - intensive, time-controlled can minimize grazers ability to avoid YST
  - overgrazing can encourage YST

Prescribed Burning

- Timing

Revegetation

- Seeding to compete with YST
  - Broadcast seeding
  - Drill seeding
  - Dry land - best in late fall just before winter rains begin
  - Or irrigate

Mowing

Rotary mower

Flail mower

Growth form of YST affects mowing success

Best at spiny to early flower stage

Hand pulling or hoeing

- Goal: stop seed production!
- Can be very effective
- How to dispose of plant
- Use on small populations or isolated infestations

Biological Controls

Hairy weevil
Eustenopus villosus

False Peacock Fly
Chaetorellia succinea

Impact of biocontrol agents on yellow starthistle seed production

Stage	Uninfested	Infested	% reduction
Early season	29	14	52
Mid-season	29	18	38
Total	29	16	45

Questions

Thank You!