UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

UC Master Gardener Program
Amador County

Today's program will be recorded and posted on our website and our Facebook page.

https://ucanr.edu/sites/Amador_County_MGs/

Look under "Classes & Events" then "Handouts & Presentations" from our home page. Today's handouts will also be posted here.

https://www.facebook.com/UCCEAmadorMG/

Look for "Facebook Live" during the meeting or find the video link on our feed.

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

UC Master Gardener Program
Amador County

Have a Gardening Question?

UC Master Gardeners of Amador County are working by phone and email to answer your gardening questions!

Phone: 209-223-6838
Email: mgamador@ucanr.edu
Facebook: @UCCEAmadorMG

Not in Amador County? Find your local Master Gardener program by doing a web search for “UCCE Master Gardener” and your county name.

The Amador County Master Gardener's will present their annual *"Grafting Class"*
9 am., Saturday, February 13, 2021

The class will be shown as "zoom"
so check our website:

https://ucanr.edu/sites/Amador_County_MGs/Calendar/

You should collect "grafting scion wood"
During dormancy (December – January)

Collection and Storage of Scion Wood

By: Dennis Miller
UCCE Master Gardener
Amador County CA

University of California
Agriculture and Natural Resources
UCCE Master Gardener Program

Collect dormant scion wood between December – January. Select one year old wood, between 1/4" – 3/4" in. in diameter.

New scion is reddish

Grape Scion

Angle cut tip ends

Flat cut base ends

Apple scion

Grape scion

Scion wood should have two or three buds per graft.

Wrap in newspaper and label the variety

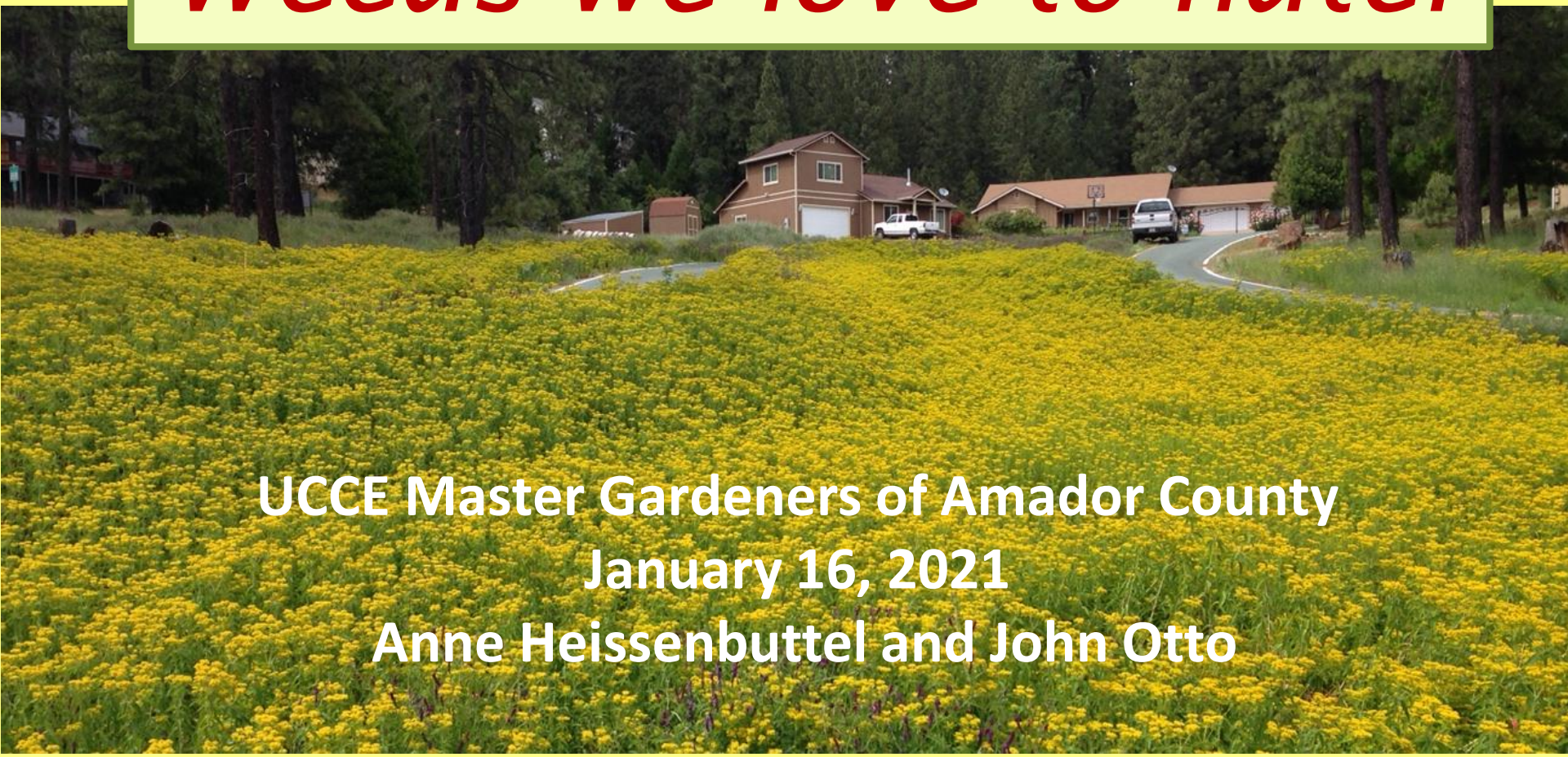
Wet the paper

Place in a bread or newspaper bag.

Refrigerate in the meat keeper

Do your "grafting" from dormancy through early spring.

Weeds we love to hate!



UCCE Master Gardeners of Amador County

January 16, 2021

Anne Heissenbuttel and John Otto

What are Weeds?

- A plant growing where it is not wanted
- Competitive, persistent, and pernicious

Characteristics include:

- seed dormancy
- long-term survival of buried seeds
- abundant seed production
- rapid population establishment
- multiple adaptations for spread

Impacts

- Detrimental to crop production, competing for space, water, nutrients, sunlight
- Some are parasitic (mistletoe, dodder and witchweed)
- Natural resistance to many pests
- Many are tolerant of heat, drought, and floods
- Some evolve resistance to herbicides
- Hosts for insect pests and pathogens
- Provide cover or food for vertebrate pests
- Common allergens for many people (hay fever, skin dermatitis)

Short List

Just some of the more than 30 weeds (invasives) found in the Central Sierra Nevada region

- Klamathweed
- Medusahead
- *Goatgrass*
- *Hedgeparsley*
- Puncture vine
- Scotch, French & Spanish brooms
- Tree-of-Heaven
- Spotted knapweed
- Himalayan blackberry
- ***Oblong spurge***
- ***Yellow Starthistle***

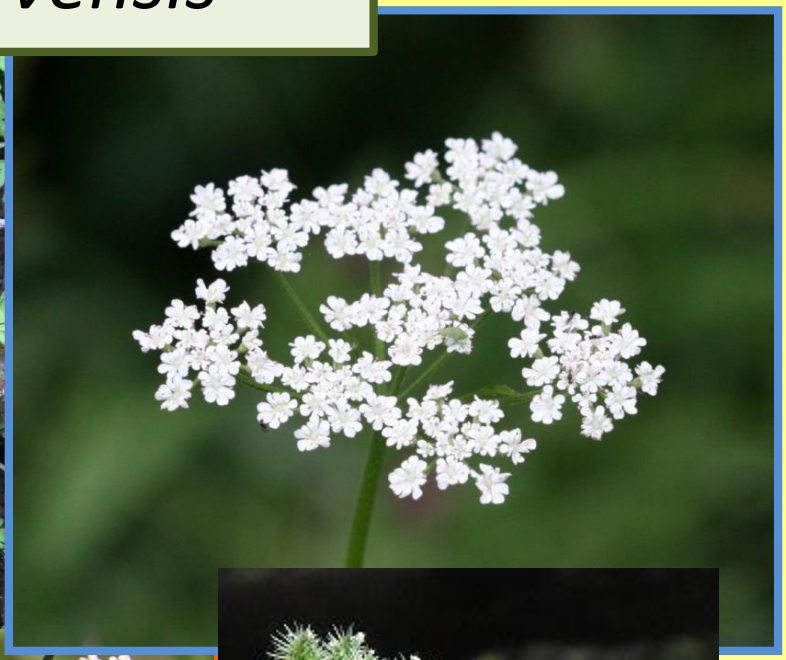
Klamathweed (St. John's Wort), *Hypericum perforatum*

Medusahead, *Taeniatherum caput-medusae*

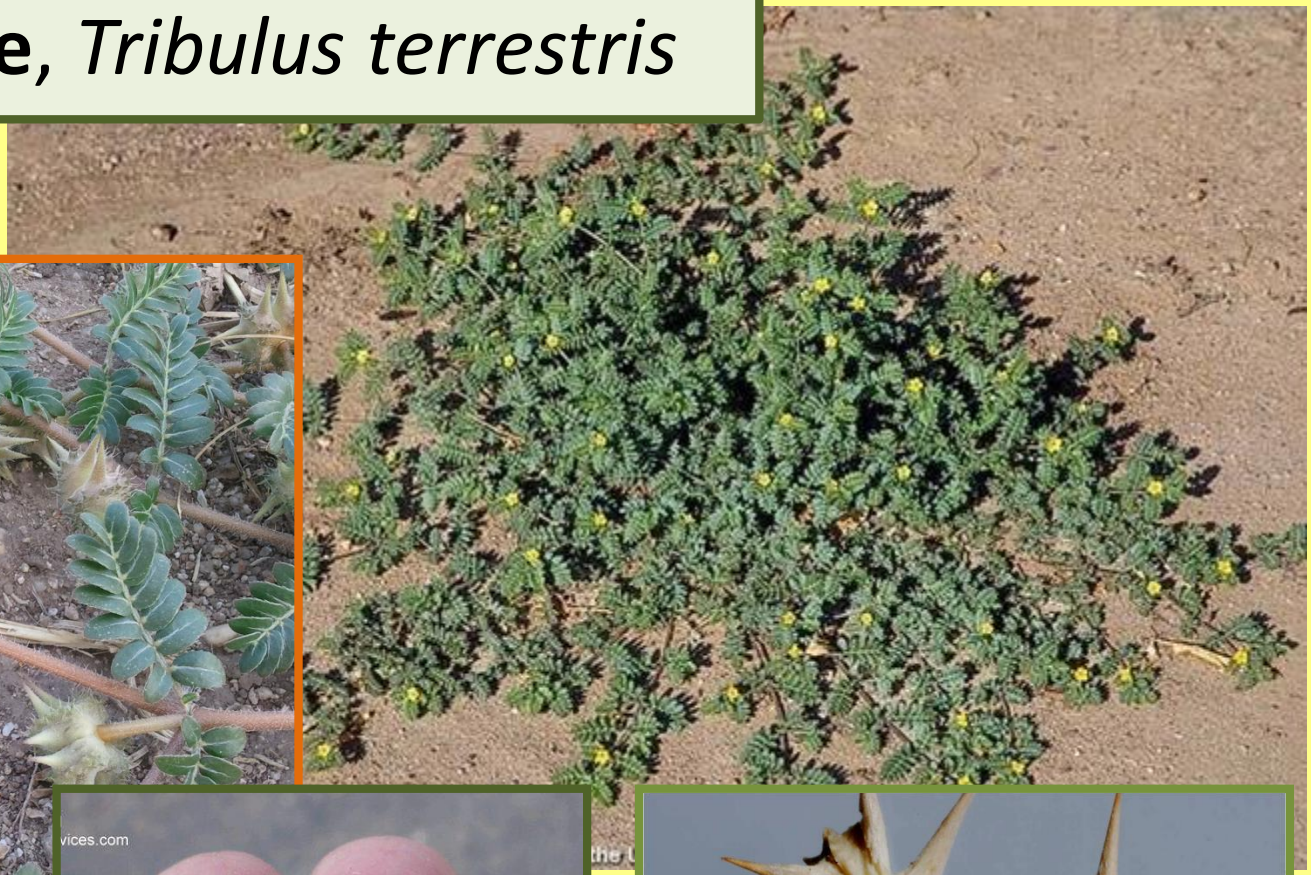
Goat grass, *Aegilops triuncialis*

Commonly known as
“barbed goat grass”

Hedge parsley, *Torilis arvensis*



Puncture vine, *Tribulus terrestris*



Scotch broom, *Cytisus scoparius*

French, *Genista monspessulana* & **Spanish**, *Spartium junceum* brooms are similar.

Tree of Heaven, *Ailanthus altissima*

Himalayan blackberry, *Rubus armeniacus*

California vs Himalayan blackberry

California blackberry, *Rubus ursinus*

- Three lobed leaves
- Long thin petals (5).
- Smaller thorns and thinner cane (stems)

Himalayan blackberry, *Rubus armeniaacus*

- Usually five lobed leaves
- Round petals (5).
- Large thorns on thick cane (stems)
- Typically larger fruit than the Calif. Blackberry

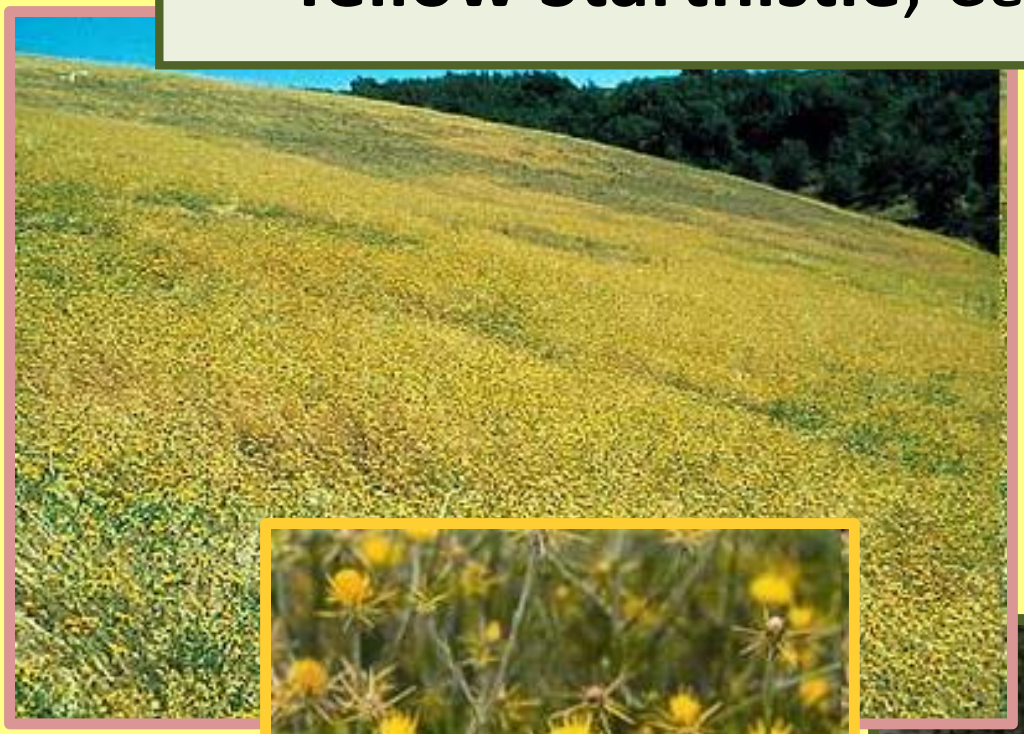
California blackberry fruit is typically smaller size and longer shape than Himalayan blackberry.

California blackberry,
Rubus ursinus

Himalayan blackberry,
Rubus armeniaacus

Oblong Spurge, *Euphorbia oblongata*

Yellow Starthistle, *Centaurea solstitialis*



Oblong Spurge, *Euphorbia oblongata*

Also called Egg leaf spurge, Balkan spurge

Introduced from Turkey and Southeast Europe as an ornamental

Identification

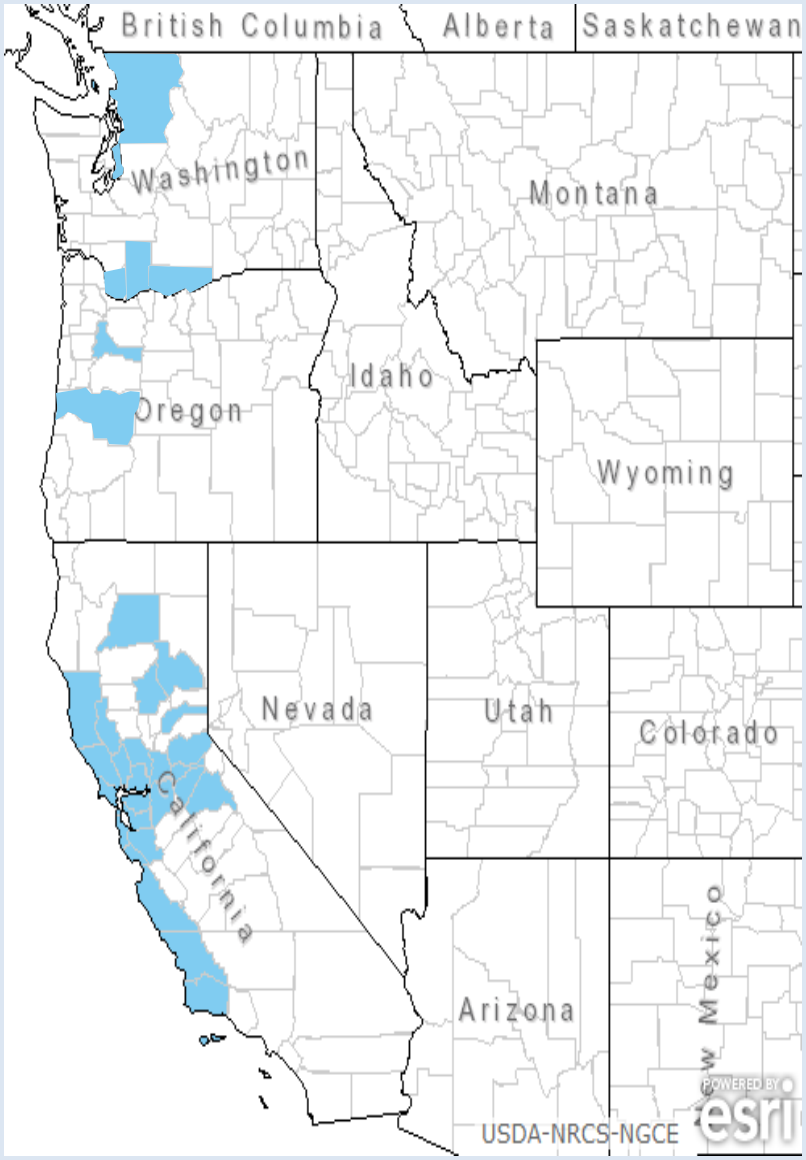
- Flowers are produced in clusters at branch tips (April – Sept)
- Reproduces by seed and vegetative buds from the root crown
- Seeds are ejected up to 16’ when ripe
- Seeds can remain viable for 8 years in the soil

Range & Legal Status

- Found in damp meadows, streambanks, shady woodlands, dry hillsides, roadsides and burned areas

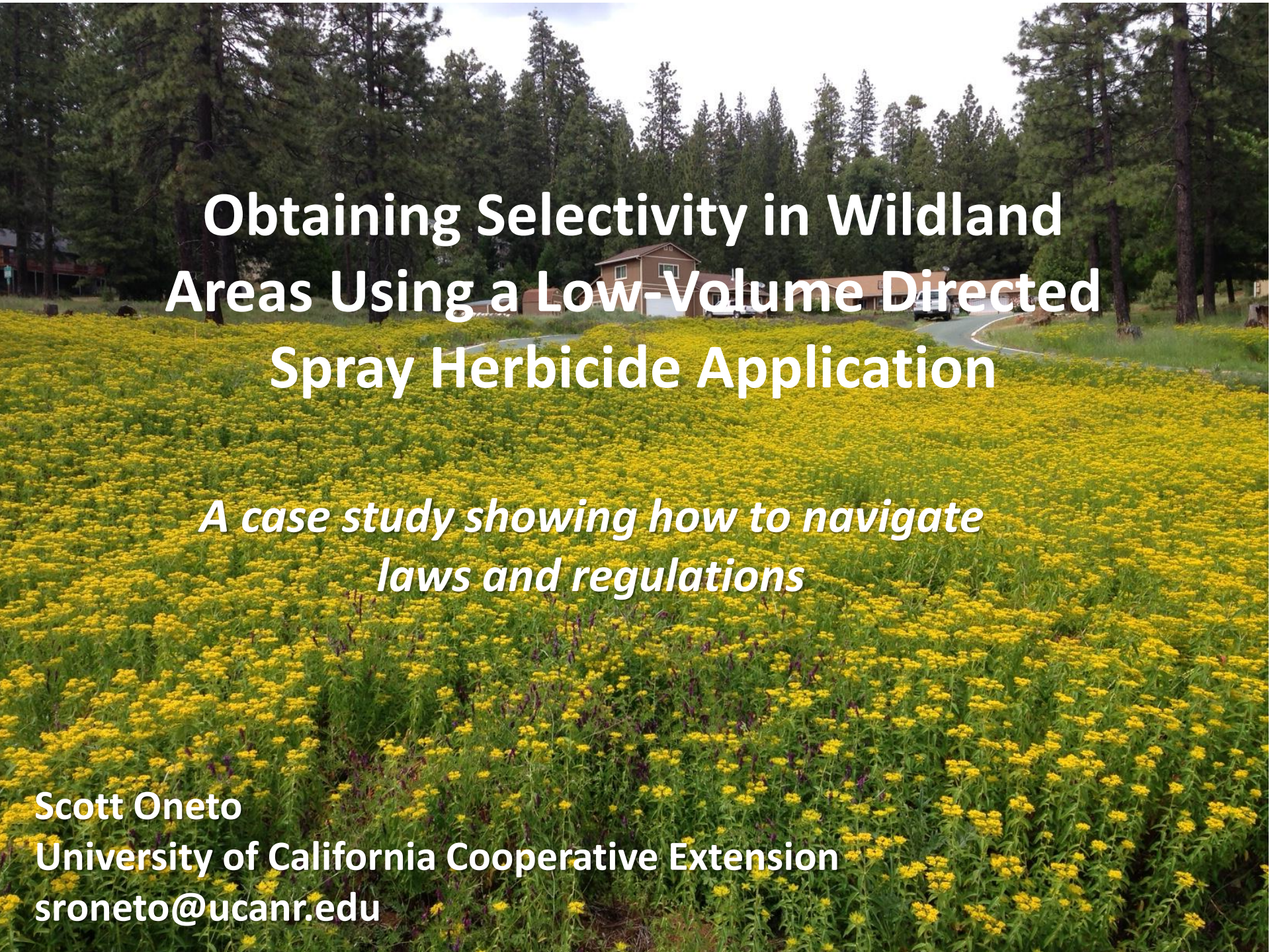
- California
  - CDFA: Class B noxious weed – *Counties may undertake control, eradication efforts*
  - CA Invasive Plant Council: Limited – *Species distribution may be generally limited statewide, but locally persistent and problematic*

- WA, OR: Class A – *Mandated to be targeted for containment, eradication and quarantine.*



Impacts

- Brought to the U.S. in the early 1900s, it escaped cultivation and is spreading into natural habitats
- Toxic to humans and animals (including cattle and horses)
- White sap is caustic to skin and may cause severe eye injury
- Plants are spreading along riparian areas, including the W&S Mokelumne River and along Jackson Creek
- Becoming more widespread on dryer sites, including annual rangelands, roadsides, and the area within the Butte Fire



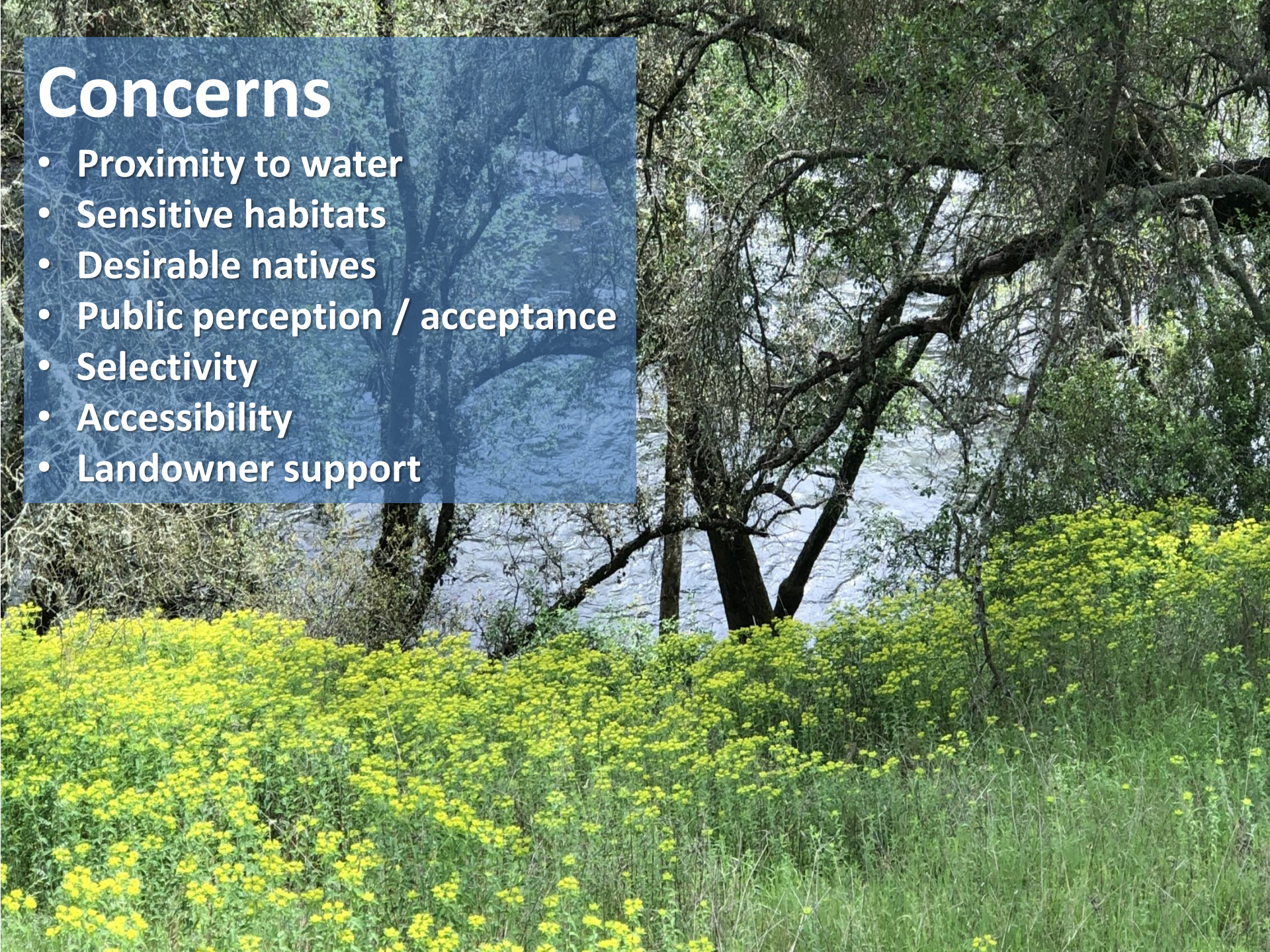
Obtaining Selectivity in Wildland Areas Using a Low-Volume Directed Spray Herbicide Application

A case study showing how to navigate laws and regulations

Scott Oneto
University of California Cooperative Extension
sroneto@ucanr.edu

Case study in Amador County:

- Evaluate control methods suitable on different land ownerships (public, private) in wildland settings
- Seek effective control of oblong spurge while minimizing impact on other plant species
- Ensure compliance with applicable laws & regulations
- Goal: Stop the spread and eradicate spurge wherever possible


Concerns
• Proximity to water
• Sensitive habitats
• Desirable natives
• Public perception / acceptance
• Selectivity
• Accessibility
• Landowner support

Current Control Strategies

Strategies are derived from work on leafy spurge

- Mechanical
  - Hand pulling or grubbing can be effective on small populations if repeated
  - Mowing is not effective and caution should be taken
  - Cultivation can be partially effective if repeated multiple times or in combination with herbicides
  - Grazing can be effective with sheep or goats at high intensity
- Cultural
  - Fire alone is not effective – stimulates root sprouting

Current Control Strategies

- Biological
  - 15 insects have been released for leafy spurge but none have activity on oblong
- Chemical
  - Picloram (Not registered in CA)
  - Imazapic (Not registered in CA)
  - 2,4-D (Restricted Use Materials)
  - Dicamba (Restricted Use Materials)
  - Aminocyclopyrachlor
  - Glyphosate
  - Fluroxypyr
  - Imazapyr

How can we selectively control oblong spurge in these sensitive habitats?

June 2015

June 2018

The Plan – Oblong Spurge Control Project

- 2019/20: Map spurge countywide
- 2019/20: Applied & received funding through CDFA
- 2019/20: Collaborated with agency partners to get herbicide approval
- June 2020 trained Ag biologists on application technique
- January – June 2021: ***public outreach***
- April – September 2021: treat spurge countywide
- September 2021- June 2022: Revisit sites and re-treat as necessary

The Treatment

by certified applicators

- Imazapyr 4SL
  - For the control of undesirable vegetation in forestry sites, aquatic sites, grass pasture, rangeland, fence rows, and maintenance of wildlife openings, and industrial noncropland areas.
  - Post and preemergence control
  - Caution
  - 24 oz/ac
- Hasten EA
  - Modified vegetable oil concentrate, used in both terrestrial and aquatic applications.
  - Caution
  - 50 oz/ac
- Sprayed at 2 gpa

Study Conclusions:

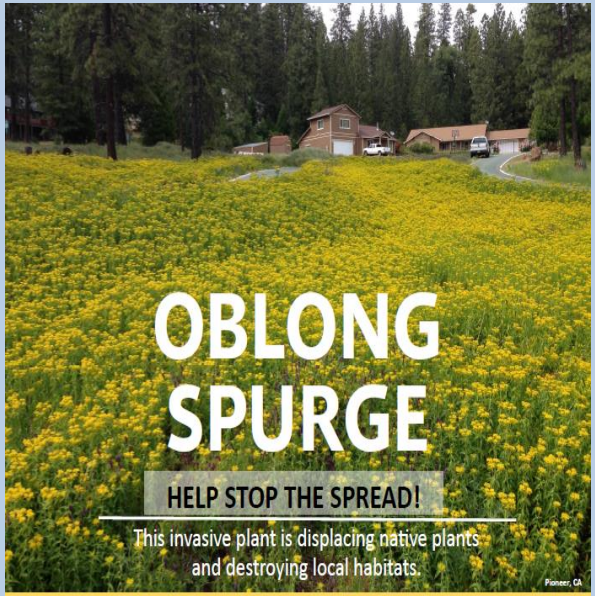
- Controlling the invasive weed oblong spurge can be done selectively using the non-selective herbicide imazapyr.
- Directed spray “drizzle” application has advantages over broadcast spray:
  - Reduce drift, off-site movement
  - High accuracy
  - Lower risk of hitting non-target species


June 2020


July 2020


TREATED OBLONG SPURGE GROWING AMONGST GRAPEVINES
GRAPES NOT SHOWING INJURY

Public Outreach



This plant has been spotted in your neighborhood and we need your help slowing the spread.

If you have this plant on your property contact the Amador County Department of Agriculture at:

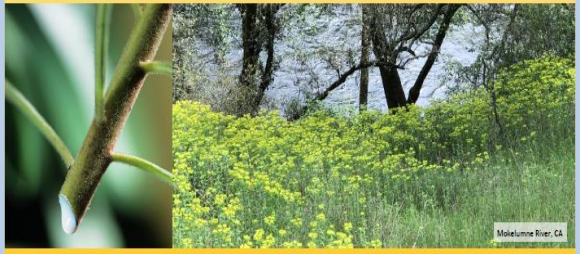
209-223-6487

agriculture@amadorgov.org

IMPACTS

- Brought to the U.S. as an ornamental in the early 1900's. The plant has escaped cultivation and is spreading into native habitats.
- Toxic to animals.
- Plants exude white sap that can be caustic to skin and cause severe eye injury.
- Plants are spreading along riparian areas including the Wild & Scenic Mokelumne River and along Jackson Creek.
- More recently the plant is starting to become more widespread into dryer sites including annual rangelands, roadsides and the area within the Butte fire.

Easy to identify when flowering (May-August)



- To combat the spread the Amador County Department of Agriculture and University of California Cooperative Extension have received a state grant to help slow the spread of oblong spurge.
- If you have oblong spurge on your property call us immediately so that we can get permission to treat this invasive weed and slow its spread in the county. Treatments will take place between May - September 2020.
- Please return the enclosed permission form ASAP. Work cannot be done without permission. Forms can be returned by mail or email: Amador County Dept of Agriculture, 12200B Airport Rd., Jackson CA 95642 agriculture@amadorgov.org
- This project will be at no cost to landowners but we can't stop it unless you contact us. ***Call Today!***
- ***For more information: https://storymaps.arcgis.com/stories/1a1604aeae1e4c9891f8d040710e1bb4***

Help Slow the Spread of Oblong Spurge!

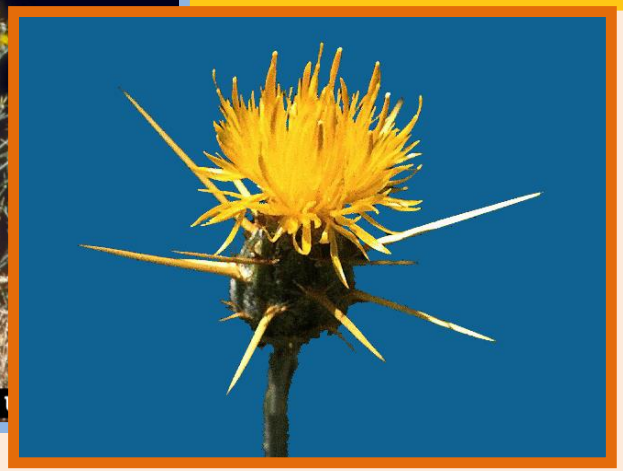
- The Amador Co. grant will fund treatments by the Agriculture Dept. with landowner permission and at no cost to the landowner

- Landowner contacts begin this winter, mailing the public outreach flyer and a consent form to landowners in neighborhoods where oblong spurge occurs

Help Slow the Spread

- Landowners with questions should contact the Amador Co. Dept. of Agriculture at (209)223-6487 or at agriculture@amadorgov.org
- Other counties, contact your local Department of Agriculture
- To help map weed locations, go to the Calflora website at https://www.calflora.org/

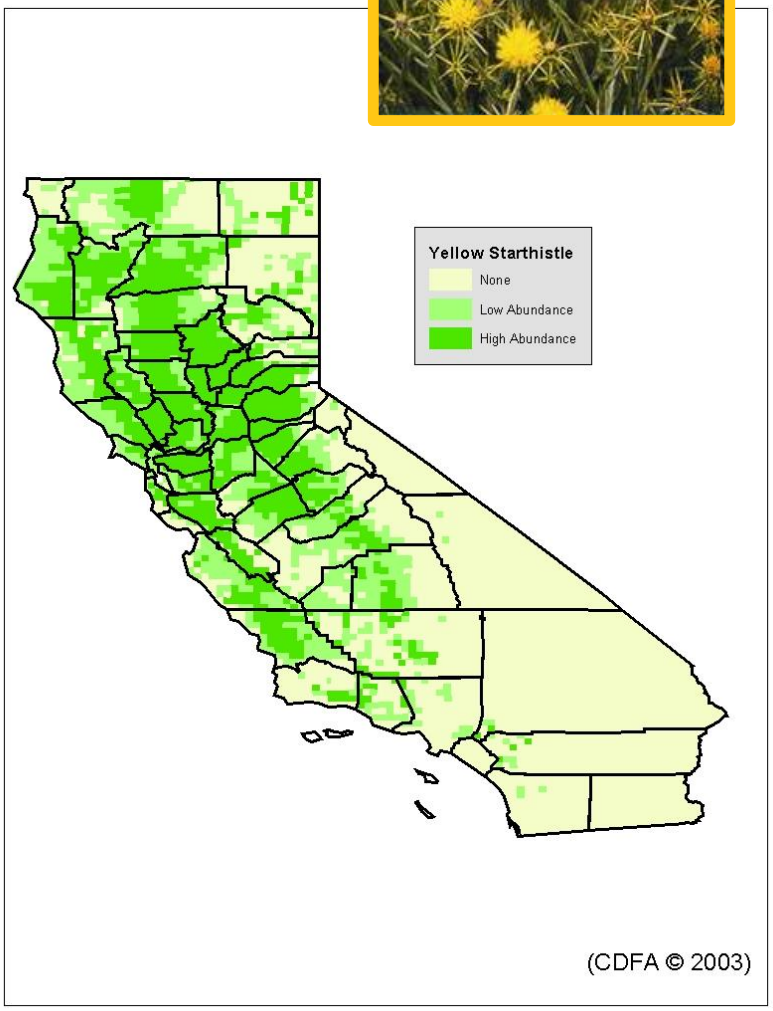
Yellow Starthistle, *Centaurea solstitialis*



- **What is it?**
- **Why do we care?**
- **What to do about it?**
- **When to do it?**

What is it?

- Yellow Starthistle, *Centaurea solstitialis*
- Member of the sunflower family, native to Eurasia, introduced to California around 1850's
- In Calif. infesting over 15 million acres. (likely 18 million by 2020)
- Also a major invasive in Oregon, Washington and Idaho.
- A long lived annual. Mature plant produce as many as 30,000 seeds per square meter, each bloom.
- Most seeds germinate in one year, but can be viable in soil (latent) for more than 3 years.
- Long growing season, germinating after every water event.
- Deep roots (up to 6 ft.), steal water.



What is it? Cont'd.

- Gray-green to blue-green foliage
- Bright yellow flower, with sharp spines at base. Flowering late May through September.
- Rigid upright, blue green winged stems.
- Large lower leaves, and smaller upper leaves (catch lots of water).
- At maturity 4 to 5 feet high - still flowers even if mowed low.
- Likes the sun and water. has deep tap roots.

Why do we care?

- Invasive – huge economic impact to agriculture and recreation.
- Eliminates grazing lands.
- Infestation of crop lands.
- Eliminates recreation land use.
- Reduce plant diversity
- Toxic to horses (is addictive and causes a neurological disorder “chewing disease” (brain lesions, mycosal ulcers,and ultimately death).

Why do we care? Cont'd.

- Thirsty tap root – as deep as 6 ft.
- Depletion of soil moisture. Impact streams and ground water.

  Loss of 15 to 25% of annual precipitation.

  2004 estimate approx.
  46,000 acre ft.
  (15 billion gallons)
  of water loss in just the Sacramento River watershed alone.

What to do about it?

- Primarily spread by human activity (road work). Clean all equipment.
- Also spread by animals.
- Two to three year effort required to control.

Controls?

- ***Mechanical***
- ***Cultural***
- ***Biological***
- ***Chemical***

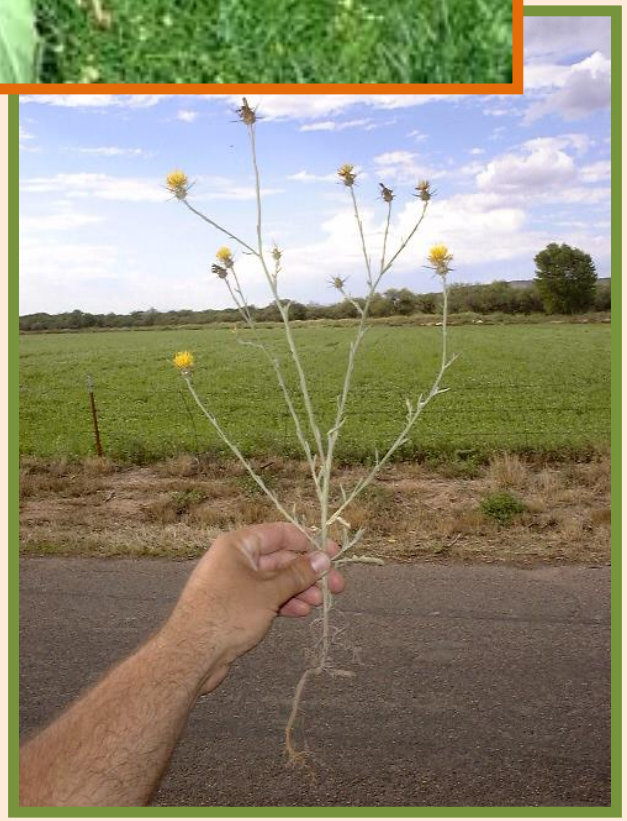
What to do about it?

Life Cycle

What & When?

Mechanical Control:

- Most effective for small patches
- **Hand pull, hoe:**
  - After bolting May
  - Before seeding June/July
- **Rototilling:**
  - Must detach roots
  - Early summer - before viable seed
  - Not the best results!
- **Mowing, or weed whack:**
  - After spiny stage May
  - Before flowering June/July
  - Twice per year recommended



What & When? Cont'd.

Cultural Control:

- Grazing:
  - Cattle - NOT HORSES
  - Sheep, goat preferred
  - Marginal success
  - Non-selective
  - Impacts all vegetation
  - At bolting stage before the spiny stage.
  - Grazing too early will increase starthistle population

- Burning & revegetation:
  - May thru June
  - Limited success and wrong time of the year. Fire season.
  - Previous years seeds still viable. Air pollution.
  - Not selective.

What & When? Cont'd.

Biological Control:

- Insects and pathogens have been studied with marginal success. Very expensive.
- Most weevils attack the thistle head, but a Rosette weevil, *Trichosirocalus horridus* is being studied which attacks the rosette and roots at their stem.

Bud weevil, ***Bangasternis orientalis***

Flower weevil, ***Larinus curtus***

Hairy weevil,
Eustenopus villosus

Rosette weevil,
Trichosirocalus horridus

Egg in the seedhead

What & When? Cont'd.

Chemical Control: *3 year treatment*

- Many useful herbicides are <u>not</u> available to homeowners. Consult with local Agriculture Dept.
- Homeowner choices include "glyphosate" and "clopyralid" herbicides.

- **"Glyphosate"** - Roundup and other names.
  - ***Post emergent*** **-** Apply at bolting, spiny and early flowering stage. April thru June
  - Non-selective, kills everything including grasses.

What & When? Cont'd.

Chemical Control:

"Glyphosate" – Many brands.

- Post emergent - Non-selective, kills most plants including grasses.
- Apply at bolting, spiny and early flowering stage.
- Spot treatments after the last spring rain. March/April
- Broadcast treatment after annual grasses and legumes die, but before Yellow starthistle flowers. *June / July*
- Rate: approx. 6 – 24 oz. product per acre depending on plant size

Unique fluted stem

What & When? Cont'd.

Chemical Control:

"Clopyralid" - Transline [commercial], and Yellow Starthistle Killer [homeowner]

- "Starthistle Killer" by Monterey is sold in ½ pint concentrate, which is enough for a 2 acre application.
- **Pre emergent** growth regulator.
- Apply at seedling and rosette stage. *January thru March*
- Selective – does not kill grasses or most other broadleaf plants.

Herbicide Safety

- Read the label.
- Read the label again and follow the directions.
- Wear personal protective equipment
- Avoid sensitive areas (water bodies, non-target plants)
- Avoid drift

References

GENERAL:

- Pest note: http://ipm.ucanr.edu/PDF/PESTNOTES/pninvasiveplants.pdf
- Field Guide: http://cecentralsierra.ucanr.edu/Resources_Publications/Internet_Resources/Weeds_Invasive_Plants/

OBLONG SPURGE:

- Euphorbia oblongata Profile – California Invasive Plant Council (cal-ipc.org)
- Cal-IPC newsletter, 18_4_Cal-IPC_News_2011Winter-6.pdf (cal-ipc.org) – article on spurges in CA

YELLOW STARTHISTLE:

- Centaurea solstitialis Profile – California Invasive Plant Council (cal-ipc.org)
- Pest note: Yellow Starthistle Management Guidelines--UC IPM (ucanr.edu) or ipm.ucanr.edu/PMG/PESTNOTES/pn7402.html
- Extensive video (>1.5 hours) Yellow Star Thistle presented by Dr. Joseph DiTomaso - Bing video

Help Us Grow!

Our follow-up survey provides us the tools we need to grow and improve the quality of our program.

Click on the link below:
http://ucanr.edu/survey/survey.cfm?surveynumber=32748

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