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

A case study showing how to navigate laws and regulations

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#### Euphorbia oblongata

- Oblong spurge, Egg leaf spurge, Balkan spurge
- Introduced from Turkey and Southeast Europe as an ornamental





## **Oblong Spurge**

- Forms dense monotypic stands and outcompetes native plants
- Plants contain a toxic milky sap that can irritate skin and cause eye injury
- Can irritate skin and internal soft tissue of livestock when ingested





Large corneal epithelial lesion with stromal edema and mild anterior uveitis – two days after exposure to *E. neriifolia* sap

#### 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



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#### Range & Legal Status

- Found in damp meadows, streambanks, shady woodlands, dry hillsides, roadsides and burned areas
- California
  - CDFA: Class B noxious weed
  - Cal-IPC: Limited
- Washington Class A
- Oregon Class A



#### Change in Suitable Range, 2010 - 2050





Climate change scenario: A2 Occurrence points used: 166 Minimum distance between occurrences: 0.008300 Area under the curve (AUC): 0.955000 Applied threshold (specificity equals sensitivity): 0.105000



#### Ownership

- East Bay Municipal Utility District
- Bureau Land Management
- Pacific Gas & Electric
- United States Forest Service
- Private landowners

#### 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



## **Current Control Strategies**

- Biological
  - 15 insects have been released for leafy spurge but none have activity on oblong
- Chemical
  - Picloram
  - Imazapic
  - 2,4-D

Not registered in CA

**Restricted Use Materials** 

- Dicamba
- Aminocyclopyrachlor
- Glyphosate
- Fluroxypyr
- Imazapyr



# How can we selectively control oblong spurge in theses sensitive habitats?



Common Name	Trade Name	Rate (oz product/acre or % v/v)
glyphosate	Roundup Pro <sup>®</sup>	32
		64
		25% directed spray
imazapyr	Chopper®	32
		64
		25% directed spray
triclopyr ester	Garlon 4 Ultra <sup>®</sup>	64
		128
		25% directed spray
fluroxypyr ester	Vista XRT <sup>®</sup>	12
		23
aminopyralid / triclopyr	Capstone®	64
		128
		25% directed spray
chlorsulfuron / Telar XP <sup>®</sup> /	Telar XP <sup>®</sup> /	1 / 64
aminopyralid / triclopyr	Capstone®	
sulfometuron methyl / chlorsulfuron	Landmark®	2
		4
aminocyclopyrachlor / chlorsulfuron	Perspective®	4
		8







#### Effect of Herbicide Application on Oblong Spurge (Euphorbia oblongata)



#### **June 2015**





#### **June 2018**





#### Low volume directed spray "drizzle"

#### Advantages of Drizzle

- Reduced weight
- Reduced time to treat
- Minimize drift
- Increased accuracy
- Increased versatility
- Increased safety



Applied at 1.6 gallons of spray solution per acre!





## 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
- June June 2021: public outreach about the project
- April September 2021: treat spurge countywide
- September 2021- June 2022: Revisit sites and retreat as necessary



#### The Treatment

- Imazapyr 4SL
  - For the control of undesirable vegetation in forestry sites, aquatic sites, grass pasture, rangeland, fence rows, maintenance of wildlife openings, and industrial noncropland areas including railroad, utility, irrigation and non-irrigation ditchbanks, roads, transmission lines, and industrial bare ground areas.
  - Provides post and preemergence control •
  - Caution
  - 24 oz/ac
- Hasten EA
  - Modified vegetable oil concentrate, NPE free and designed for use in both terrestrial and aquatic applications. ٠
  - Caution
  - 50 oz/ac
- Sprayed at 2 gpa





## 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



#### MIMPA

- 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.

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- 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



#### TREATED OBLONG SPURGE GROWING AMONGST GRAPEVINES GRAPES NOT SHOWING INJURY

The second second



#### Conclusions

- Controlling the invasive weed oblong spurge can be done selectively using the non-selective herbicide imazapyr
- Using a directed spray "drizzle" application can have many advantages:
  - Less weight
  - Quicker application time
  - Reduce drift
  - Reduce off-site movement
  - High accuracy
  - Lower risk of hitting non-target species

