

COMMUNITY CHALLENGES TO THE USE OF HERBICIDE FOR CONSERVATION

in Laguna Beach, California
Part 2

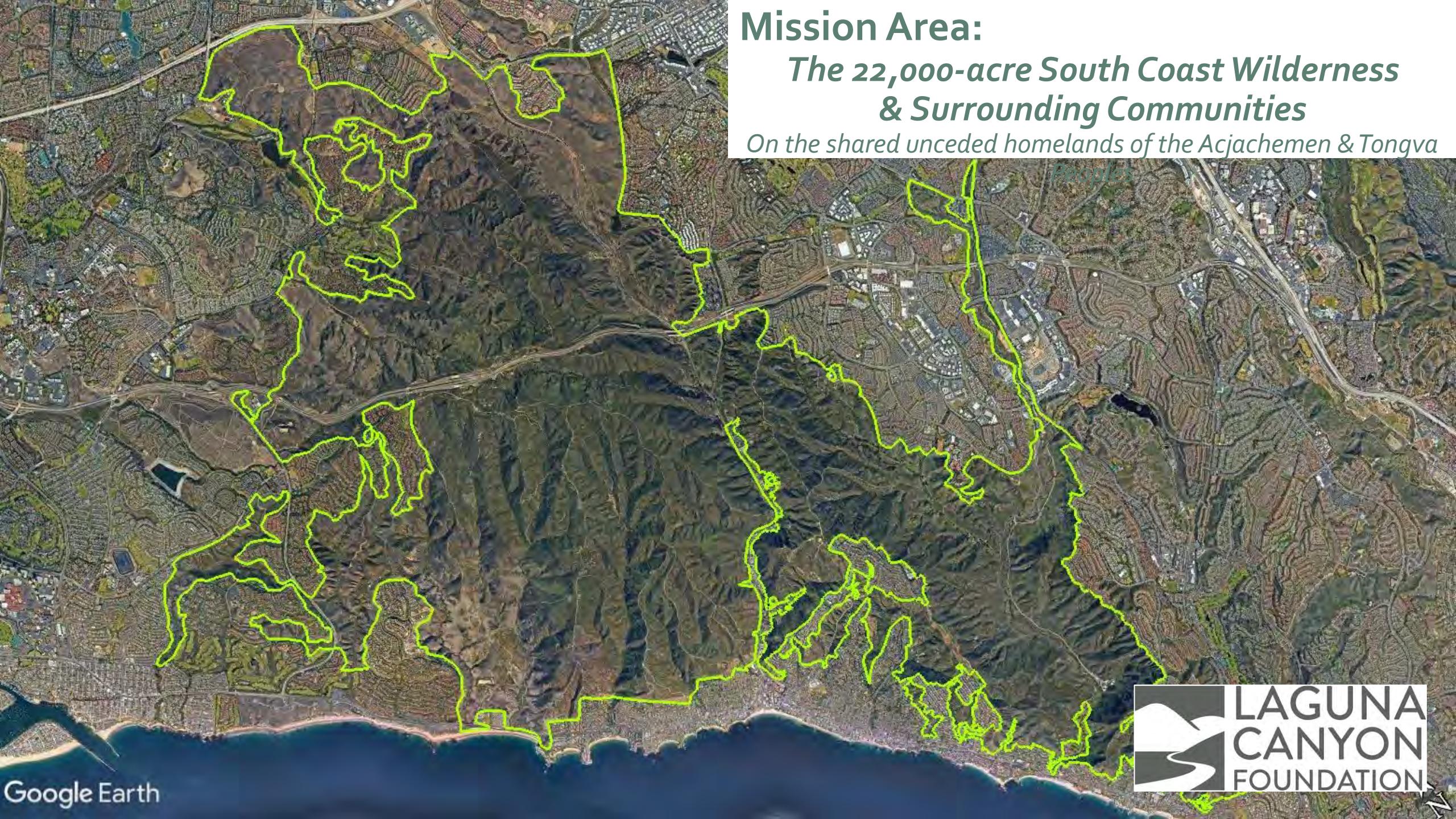
Cal-IPC Symposium, November 2025



Presentation Overview

- **Summary of Part 1:**
 - Intro to LCF & Background
 - Community Concerns & Challenges
 - Lessons Learned
- **LCF Actions**
- **Laguna Beach Policy Update**
- **Lessons Learned, Part 2**





Mission Area:

*The 22,000-acre South Coast Wilderness
& Surrounding Communities*

*On the shared unceded homelands of the Acjachemen & Tongva
Peoples*

Google Earth



Background

- Founded in 1990 as a Land Acquisition Org
- Began habitat restoration in 2012, first fuel modification in 2015
- Registered as a Pest Control Business with the CA DPR & OC Agricultural Commissioner since 2017
- Completed 10 habitat mitigation & restoration projects comprising over 120 acres
 - Currently working on over 30 sites covering over 400 acres including:
 - Restoration
 - Mitigation
 - Fuel modification
 - Monitoring & maintenance
 - Targeted invasive control



Hand Crew Fuel Modification Program

"This is the most environmentally sensitive fuel modification program I've seen in the State... it should be used as a model across the State, in my opinion".

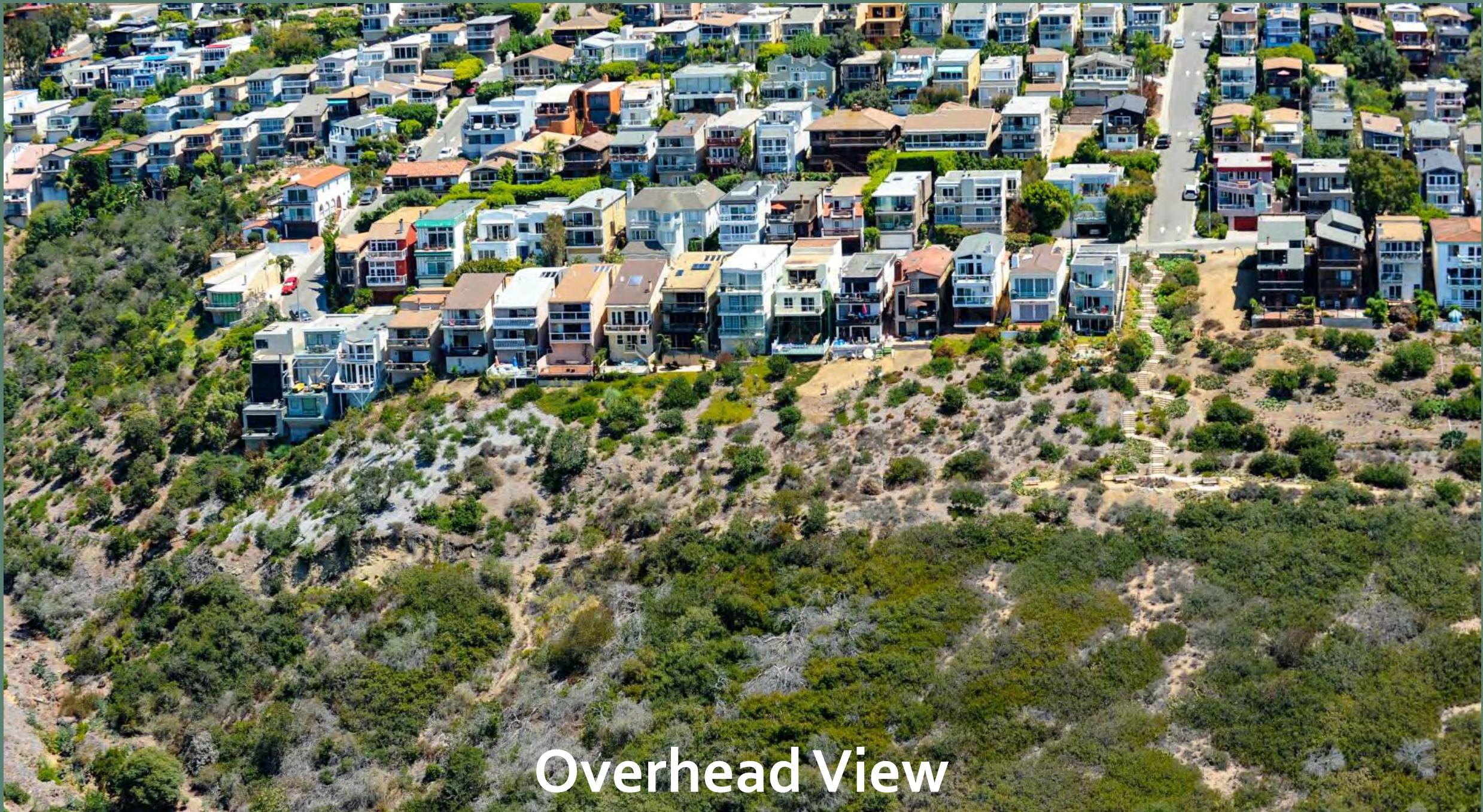
-- Jack Ainsworth, Executive Director, California Coastal Commission

March 9, 2022





Ground View



Overhead View



Valido Trail Fuel Modification

The Perfect Storm...

February 2023

Valido Trail Fuel Modification

- Conversion of goat-grazed FMZ to hand crew treatment
- No significant native cover
- Wet year led to high weed cover
- First treatment
- Along popular trail in County Wilderness Park
- Highly Visible Location
- Vocal neighborhood group
- Cut-slope stability concerns



February 2023

Community Responses



- Phone calls
- Letters
- Petition
- Social Media Comments
- Environmental Sustainability Committee
- Public Comments at City Council Meetings
- Complaints to Agricultural Commissioner
- Personal attacks

Challenges (part 1):

- Misunderstandings
- Jumping to conclusions
- Misinformation
- Disinformation
- Cherry-picking data
- Confirmation Bias
- Dunning-Krueger Effect
- Binary Thinking
- Shotgun Arguments
- Correlation vs Causation



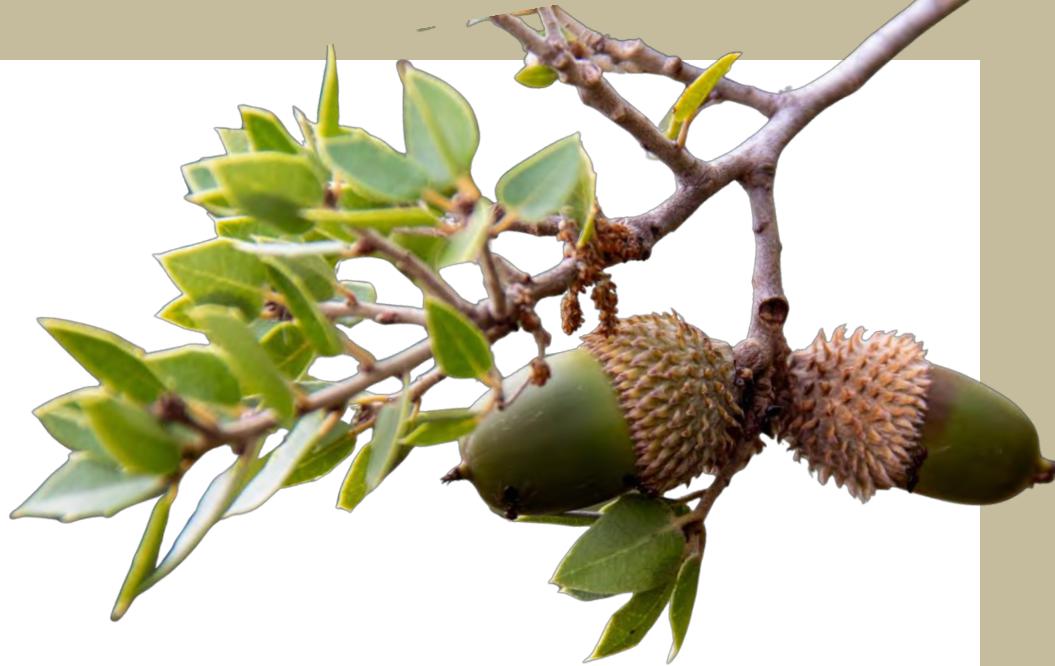
Lessons Learned (part 1)

- Try not to take it personally
- Stay calm and remain empathetic
- Seek to understand viewpoints & avoid arguing
- If you are running into opposition, you are doing something impactful
- Every interaction is an opportunity to educate
- Avoidance is not a successful long-term strategy
- As professionals, we need to hold ourselves to a higher standard
- Seek support



LCF Actions:

- Follow Landowner BMPs & Policies
- Increase Documentation for all projects
- Increase Staff Training & Certifications
- Pollinator Protection Measures
- Continue Experimentation
- Encourage Research
- Seek Additional Funding
- Increase Community Engagement
- Marketing & Education



Follow Landowner BMPs & Policies

- Natural Communities Coalition IPM BMPs
- Landowner Programmatic PCA Recommendations
- City of Laguna Beach Policies (current and future)
- Private Landowner wishes





Increase Documentation

- Annual PCA recommendations for all projects
- Document IPM practices using OC Parks Herbicide Application Notice form
- Use Geospatial Database: Calflora WeedMapper provides better tracking of weed observations and treatment data to determine efficacy and allow adaptive management



Increase Staff Training & Certification

- Pesticide Control Advisor (PCA) certification
- Additional Qualified Applicator Licenses (QAL)
- Annual Calibration Training for all Handlers

Pollinator Protection Measures:

- Avoid “complete” products including unknown surfactants
- Use only aquatic-rated surfactants, even in upland areas
- Switch to APE & NPE-free surfactants
- Avoid applications to flowering plants when pollinators present



Continue Experimentation

- Board mandated halt to all synthetic herbicide use on Berns Canyon Preserve in May 2024
- Property maintenance is condition of City lease
- Additional costs in FY 24-25: \$52,000
- Problematic species include Sweet Fennel, Poison Hemlock, Tree Tobacco, Kickxia, Cape Ivy, Stinknet, Perennial Veldtgrass



Seek Additional Funding:

- Nature-Based Solutions Grant with Orange County Conservation Corps
- DPR Alliance Grants Program
- Continue to search for diverse additional funding sources
- *Goal: choice of treatment option is independent of expense*

Encourage Research:

- Developing relationships with local researchers
- DPR Research Grants Program
- *Goal: Make the "Best Available Science" better*



Increase Community Engagement

- Land Tending Volunteer Events
- Native Plant Nursery Volunteer Events
- Long Term Volunteer shifts
- Community Wetlands Restoration Grant Program



Marketing & Education

- Educate our Board
- Educate our Volunteers
- Educate the Next Generation
- Tell our Story to the Community
 - Social Media
 - Website updates
 - Presentations



Laguna Beach Policy 2025 Update

- LCF submitted plan to limit herbicide use to only EDRR species in the Fuel Mod Program
- Wide buffers imposed
- Policy applied to all City Open Space
- Town Hall Meetings & City Manager Approval required before any application
 - LCF Preparing City-wide EDRR Plan covering 8 species



Lessons Learned (part 2)

- **Lawyers and Scientists Think Differently**
- **Give an Inch and they will Take a Mile**
- **The Squeaky Wheel gets the Grease**
- **Plant Blindness is an Epidemic**



Lessons Learned (part 2)

- Humans are Bad at Risk Assessment
 - Familiarity Heuristic
 - Brain System Conflicts
 - Risk Perception Gap
 - Illusory Truth Effect
 - Cultural Cognition



Challenges (part 3?):

- Anecdotal Evidence
- False Equivalency
- Emotional Arguments
- Hero Complex
- Genetic Fallacy
- Illusion of Purity
- Legal Threats
- Personal Attacks



WCB Aliso Creek Restoration Project



Initial Conditions
2018

Insect Species: 23

WCB Aliso Creek Restoration Project



Post-initial weed removal
2021

Nests found: 0

WCB Aliso Creek Restoration Project

Year 4
2024

Nests found: 17
Insect Species: 54

WCB Aliso Creek Restoration Project



Year 2
2022

Thank You!

Chris Gort
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Dulce Cortez
Ryan Neace
Will Miller, USFWS
Doug Johnson, Cal-IPC
Ron Vanderhoff, OCCNPS
Caroline Colesworthy





Questions?



Impacts of Invasive Species Presentation



Invasive Species Impact Biodiversity

- Invasive species are one of the **Largest Threats to Biodiversity** and ecosystem health worldwide (along with development & climate change).

Global Assessment Report on Biodiversity and Ecosystem

Services of the United Nations

- The South Coast Wilderness is one of the largest remaining intact areas of coastal scrub ecosystems in the California Floristic Province, which is itself a **Biodiversity Hotspot**.

Conservation International



Invasive Species Impact Biodiversity

- Invasive species in North America cost over **\$26 Billion** per year.
National Invasive Species Information Center
- Impacts of invasive species tend to be **Concentrated in High-income Areas.** *Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*
- Management of Invasive Species is the **Single Most Effective Management Action** for habitat conservation.
The Positive Impact of Conservation Action. Science Vol.384 No 6694 (large metastudy)



Invasive Species Impact Food Webs

“Ninety percent of the insects that eat plants can develop and reproduce only on the plants with which they share an evolutionary history.”—Doug Tallamy



Pale Swallowtail: Ceanothus



Monarch: Milkweed



American Lady:
Pearly
Everlasting

Invasive Species Impact Endangered Species

Giant Reed chokes waterways, crowds out riparian vegetation and prevents threatened and endangered species from reproducing.



Least Bell's Vireo



Southwest Pond Turtle



Invasive Species Impact Human Health

Invasive plants like Castor Bean and Poison Hemlock are lethally poisonous to people in small doses.



Invasive Species Impact Fire Behavior

Fountaingrass is a long-lived invasive grass species that contributed to the extreme fire behavior in the Lahaina Fire in 2023.



Invasive Species Have Unknown Future Impacts

Newly-established (aka “EDRR”) invasive species in the area have *unknown* impacts.

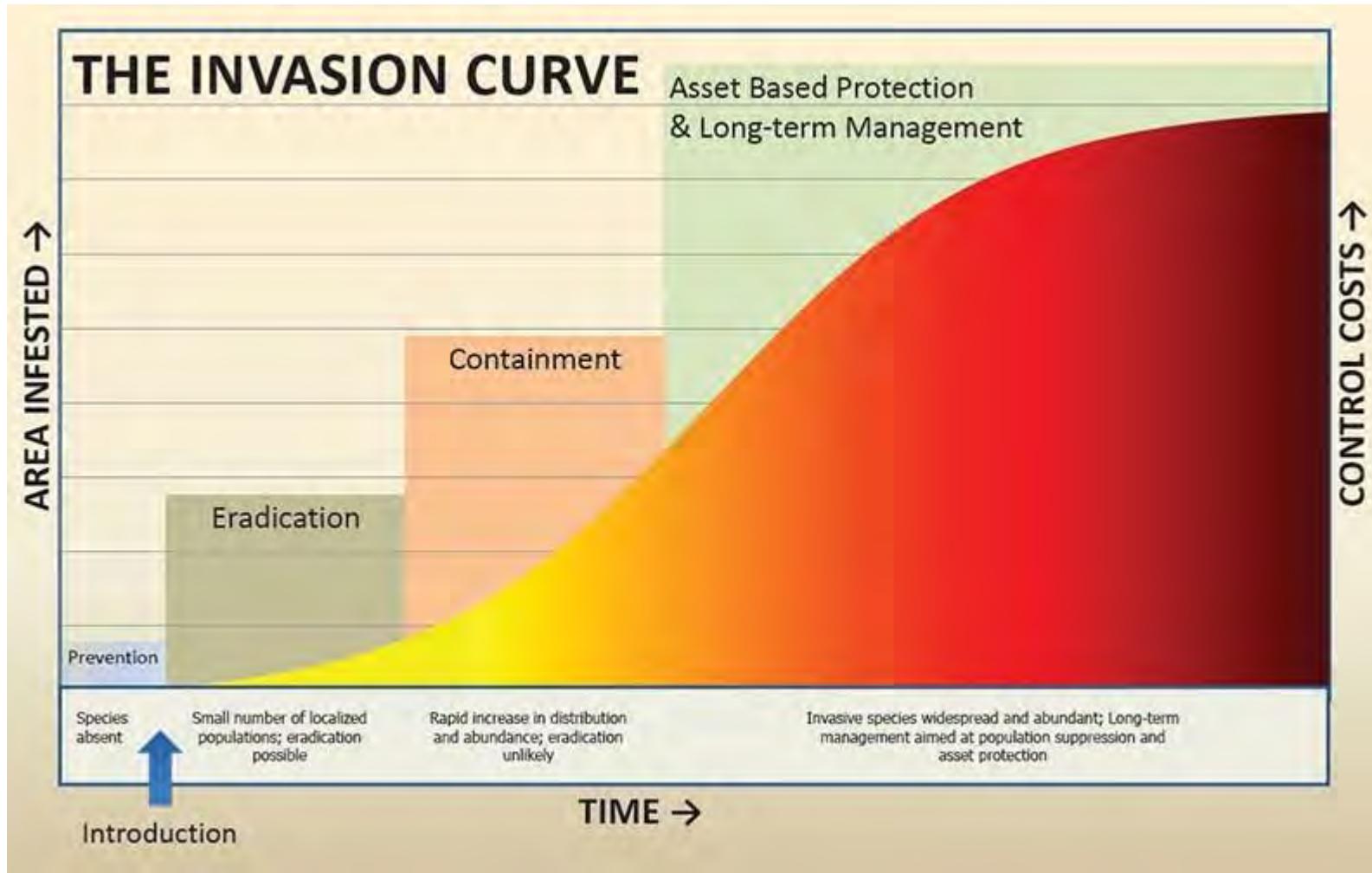


When Alternatives to Herbicides Aren't Enough

Presentation



When Alternatives Aren't Enough



- With EDRR species, the goal is eradication to prevent them from becoming established. A relatively small effort can save potentially billions of dollars later
- CDFA “A”-rated plants subject to state-enforced actions

When Alternatives Aren't Enough

- Cape Ivy: $\frac{1}{2}$ -inch piece of stem can re-root
- Sweet Fennel: fleshy stalk breaks when pulled, resprouts
- Giant Reed: resprout from rhizomes
- Invasive Trees: resprout from roots
- Sahara Mustard & Kickxia: low stature = unmowable



When Alternatives Aren't Enough

Unintended Side Effects:

Mowing:

- Increased Human Presence
- Increased Wildlife Disturbance
- Wildlife Strikes

Hand-Pulling:

- Increased Human Presence
- Trampling, Compaction, Erosion
- Increased Repetitive Motion Injuries

“Organic” Herbicides:

- Increased Human Presence
- Increased Risk to Applicators
- Increased Soil Concentrations
- Increased Potential for Runoff & Water Contamination

Volunteers:

- Impacts due to misidentification
- Liability concerns
- Tight timelines
- Steep, inaccessible areas



When Alternatives Aren't Enough

Unintended Side Effects:

Goat Grazing:

- Can Introduce and Spread Additional Weed Species
- Erosion due to Overgrazing
- Impacts to Sensitive Plants
- You Can't Tell the Goats What to Eat



Alternative Synthetics:

- Not Broad Spectrum
- Higher Chance of Water Contamination
- More Persistent in Environment
- Increased Risks to Applicators



When Alternatives Aren't Enough

- Narrow Treatment Windows
- “One Year of Seeds Gets You Seven Years of Weeds”

