

# COMMUNITY CHALLENGES TO THE USE OF HERBICIDE FOR CONSERVATION in Laguna Beach, California

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Cal-IPC Symposium, October 25, 2024





# History

- Laguna Canyon Foundation formed in 1990 to preserve approximately 2,000 acres
- More than 22,000 acres of preserved open space, now called the South Coast Wilderness
- Expanded roles to include Advocacy, Education, Public Outreach, Trails and Conservation

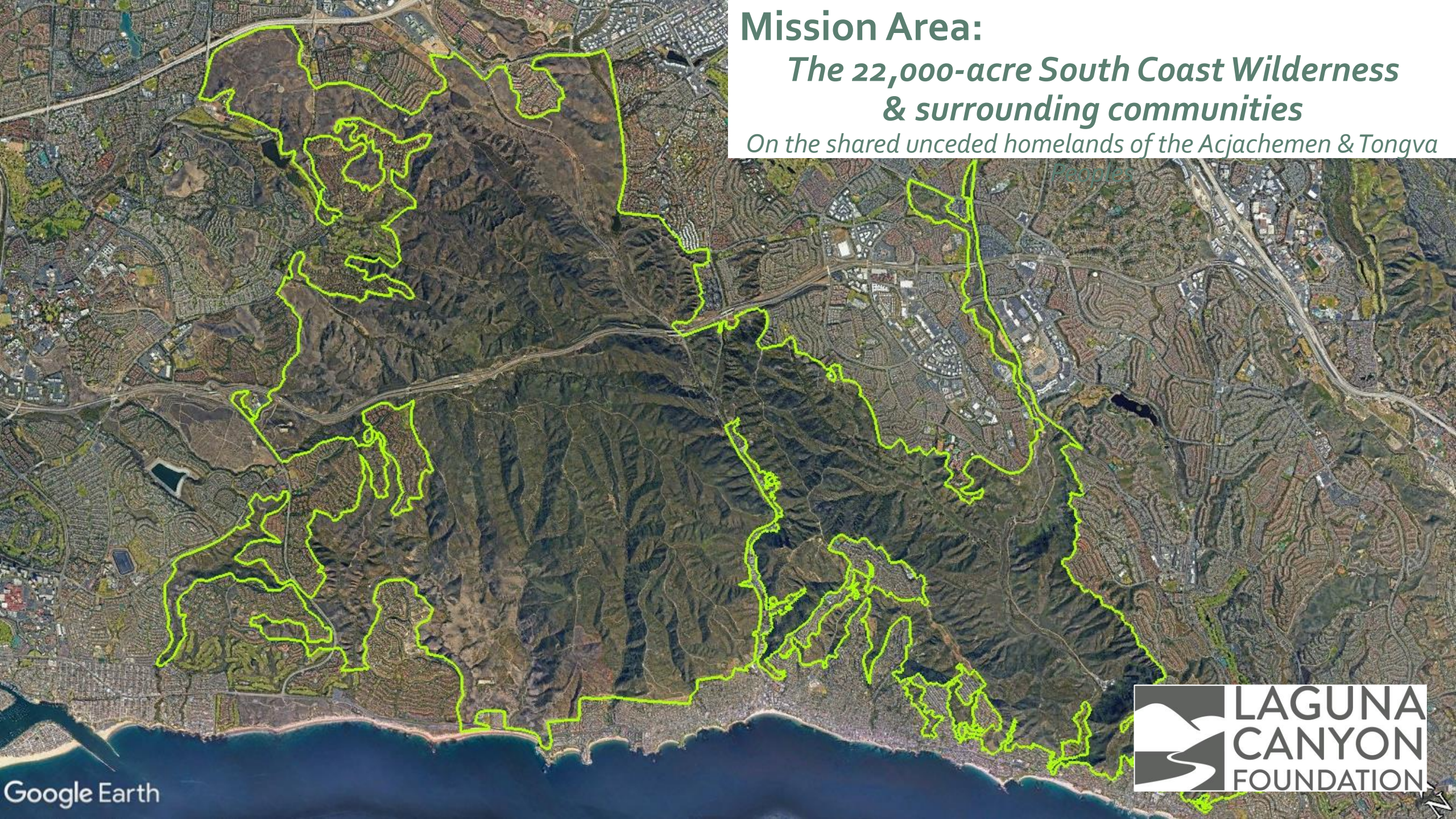




## Mission Area:

*The 22,000-acre South Coast Wilderness  
& surrounding communities*

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





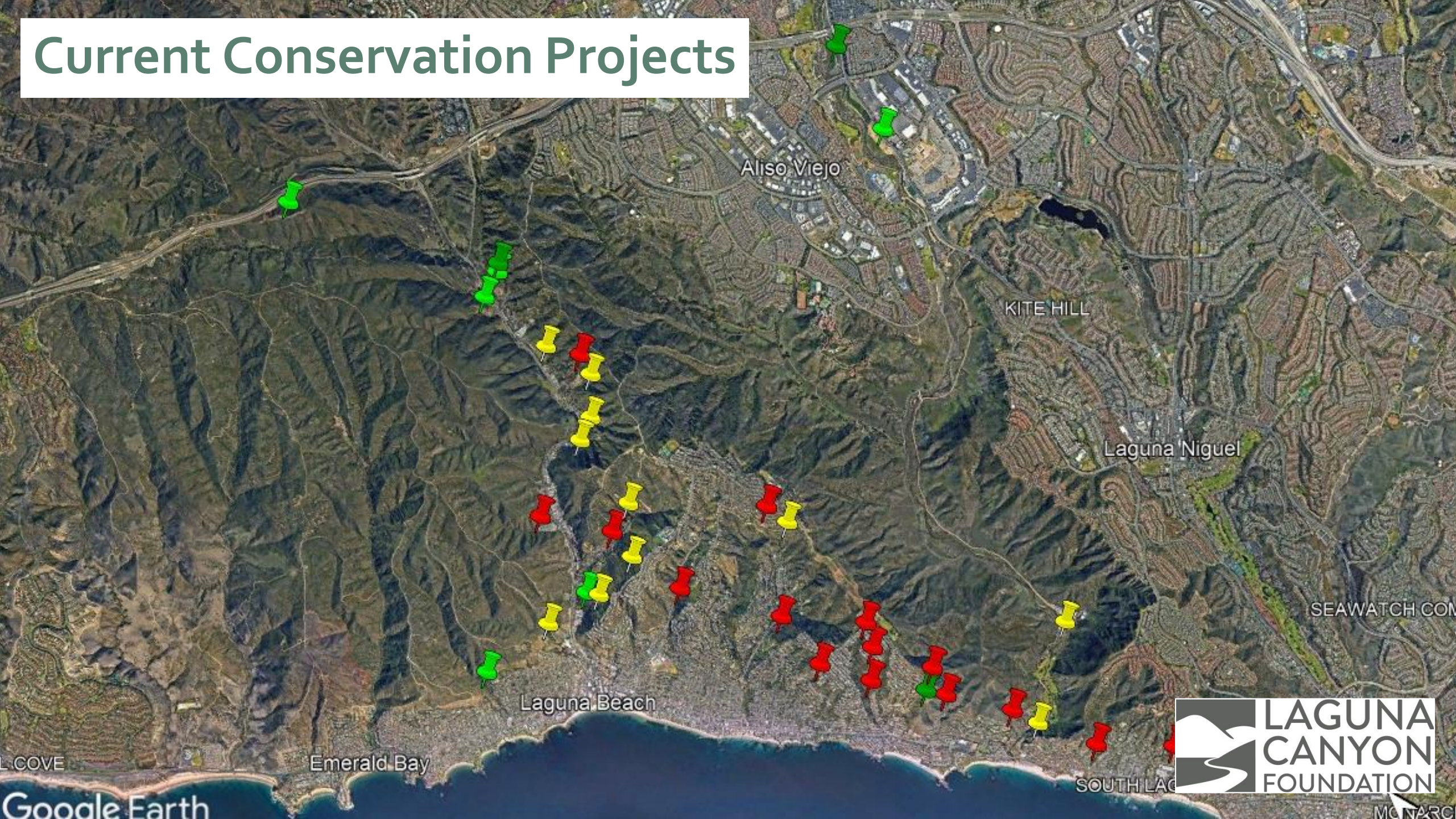
# Background

- LCF began work on first habitat mitigation project in 2012
- Registered as a Pest Control Business with the CA Dept of Pesticide Regulation & OC Agricultural Commissioner since 2017
- Successfully completed 10 habitat mitigation and restoration projects comprising over 40 acres
  - Currently working on 14 ongoing projects covering over 170 acres including restoration, mitigation, monitoring & maintenance and EDRR
  - Provides biological monitoring & oversight for 12 fuel modification zones in the City of Laguna Beach covering over 200 acres

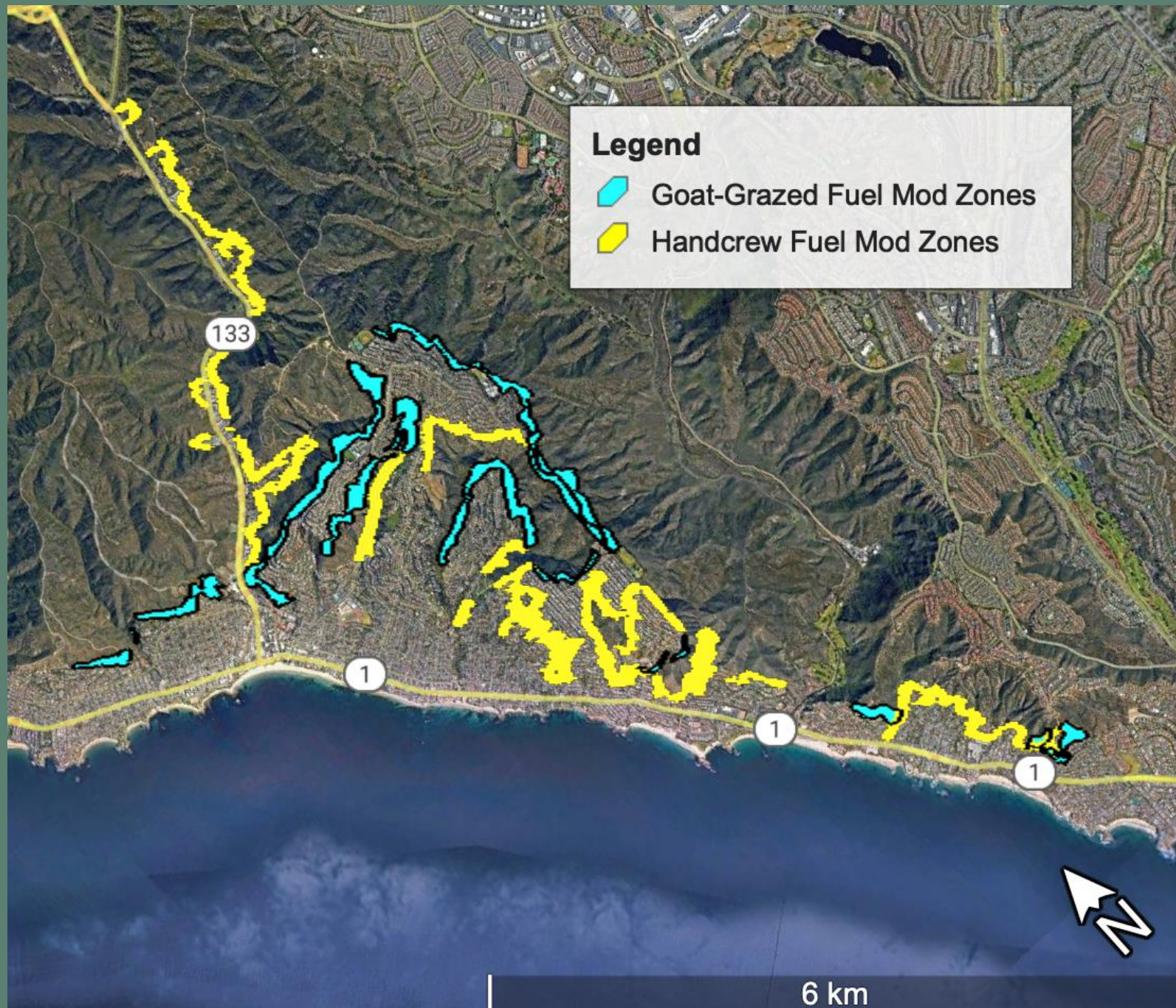




# Current Conservation Projects







# CITY OF LAGUNA BEACH FUEL MODIFICATION ZONES

<https://www.lagunabeachcity.net/government/departments/fire/fire-prevention/wildfire-mitigation-vegetation-management>



# 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

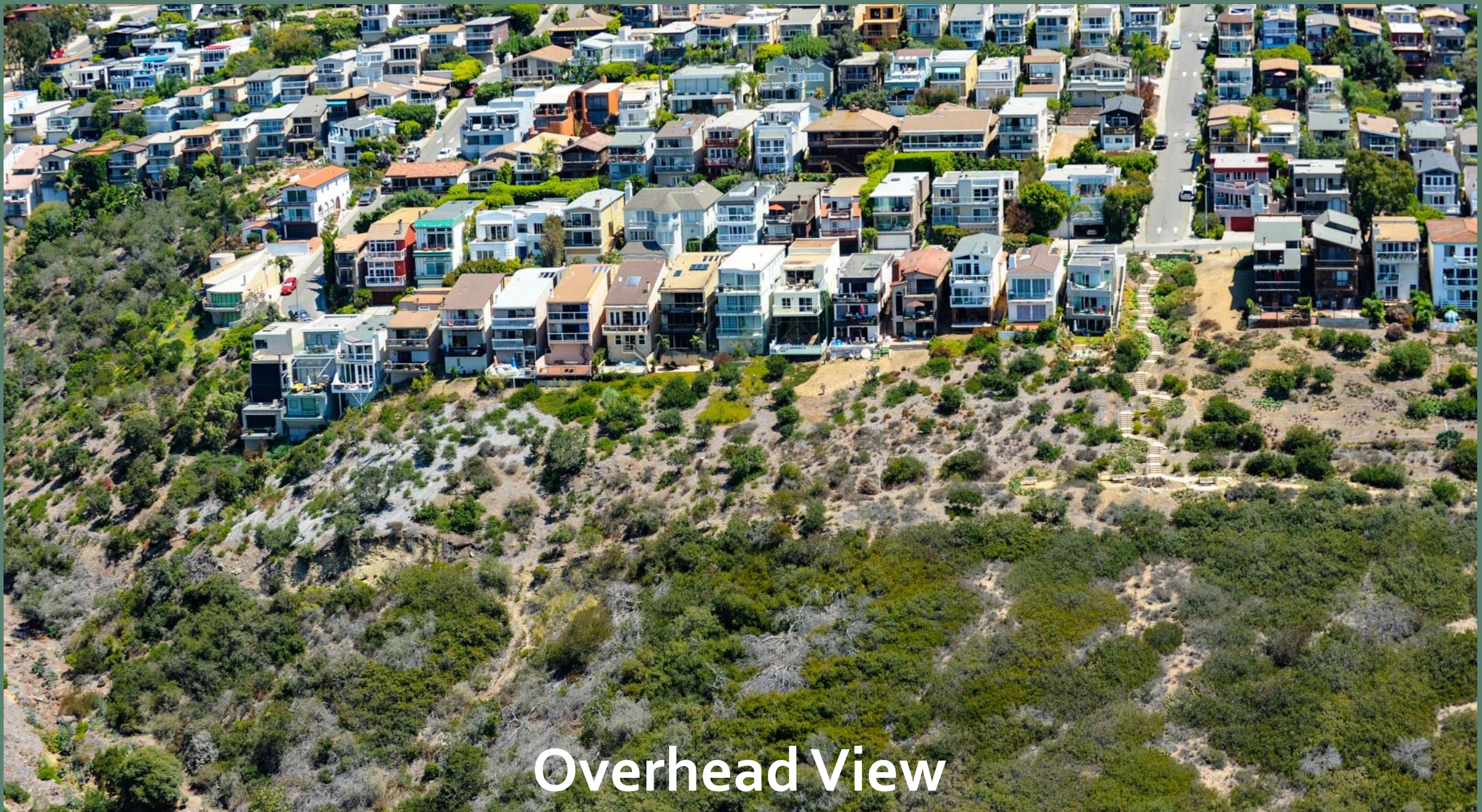






**Ground View**





Overhead View



# Valido Trail Fuel Modification

An aerial photograph showing a residential neighborhood on a hillside. A dirt trail winds through the area, with a person walking on it. The houses are surrounded by trees and vegetation. The text 'Valido Trail Fuel Modification' is overlaid in the top left corner.

February 2023



# Community Responses

- Phone calls
- Letters
- Petition
- Social Media Comments
- Environment Committee
- Public Comments at City Council Meetings
- Complaints to Agricultural Commissioner



# Challenges:

- Misunderstandings
- Jumping to conclusions
- Misinformation
- Disinformation
- Cherry-picking data
- Confirmation Bias
- Dunning-Krueger Effect
- Binary Thinking
- Correlation vs Causation
- Shotgun Arguments
- Anecdotal Evidence
- False Equivalency
- Emotional Arguments
- Hero Complex
- False Equivalency
- Genetic Fallacy
- Legal Threats
- Personal Attacks





# Misunderstandings



## Examples:

- Scientific vs. Lay Definitions of :
  - “Spot” Treatment
  - “Broadcast” Treatment
  - “Landscape scale”

## Recommended Response:

- Avoid potentially confusing terms, e.g., Use “Targeted” Treatment





# Jumping to Conclusions

**Definition:** Making a negative judgment without having all the facts

**Examples:**

- Accusations of herbicide application on opted out properties (worker passing through—no herbicide within 180 ft of opt-out area)
- Accusations of improper PPE (where are the goggles and face mask? Aren't coveralls required?)

**Response:**

- Recognize that it's usually fear-based
- Assume positive intent
- Be empathetic



# Misinformation

Definition: The unknowing transmission of false information

Examples:

- “Roundup pollutes the water”
- “Organic herbicides are safer and better for wildlife”

Recommended Response:

- Education & Engagement

“Misinformation left uncountered becomes...information.”-Ryan McBeth



Pesticide or Degradate	Positive Samples/ Samples Taken	Positive Wells/ Wells Sampled	Positive Counties/ Counties Sampled	Reporting Limit Range (ppb)	Detected Concentration Range (ppb)	Sampling Agencies	Parent Compound Registration Status
Fenamiphos sulfoxide (degradate of fenamiphos)	0/150	0/150	0/21	0 - 0.04	-	USGS	nr
Fipronil	0/156	0/156	0/21	0 - 3.8	-	USGS	REG
Fipronil sulfide (degradate of fipronil)	0/156	0/156	0/21	0 - 3.8	-	USGS	REG
Fipronil sulfone (degradate of fipronil)	0/156	0/156	0/21	0 - 3.8	-	USGS	REG
<b>Fludioxonil</b>	<b>1/99</b>	<b>1/97</b>	<b>1/19</b>	<b>0.03</b>	<b>0.316</b>	<b>DPR</b>	<b>REG</b>
<b>Flutriafol</b>	<b>1/99</b>	<b>1/97</b>	<b>1/19</b>	<b>0.02</b>	<b>0.226</b>	<b>DPR</b>	<b>REG</b>
Fonofos	0/255	0/253	0/32	0 - 5	-	DPR USGS	nr
<b>Formaldehyde</b>	<b>3/47</b>	<b>3/14</b>	<b>1/6</b>	<b>0 - 2.0</b>	<b>3.2 - 9.8</b>	<b>SWRCB</b>	<b>nr</b>
Gamma-Chlordane	0/147	0/106	0/14	0.05 - 0.097	-	SWRCB	nr
Glyphosate	0/1496	0/1124	0/43	5 - 25	-	SWRCB	REG
Halosulfuron-Methyl	0/27	0/27	0/4	0.05	-	DPR	REG
Heptachlor	0/1736	0/1207	0/39	0 - 0.01	-	SWRCB	nr
Heptachlor epoxide (degradate of heptachlor)	0/1739	0/1208	0/39	0 - 0.01	-	SWRCB	nr
Hexachlorobenzene	0/1867	0/1281	0/40	0.01 - 0.65	-	SWRCB	nr
<b>Hexazinone</b>	<b>8/306</b>	<b>8/303</b>	<b>6/32</b>	<b>0 - 5</b>	<b>0.007 - 0.043</b>	<b>DPR USGS</b>	<b>REG</b>
Hydroxycarbofuran (degradate of carbofuran)	0/983	0/820	0/36	0.5 - 3	-	SWRCB	nr
<b>Imidacloprid</b>	<b>6/99</b>	<b>6/97</b>	<b>1/19</b>	<b>0.02</b>	<b>0.024 - 0.126</b>	<b>DPR</b>	<b>REG</b>
Iprodione	0/156	0/156	0/21	0 - 3.8	-	USGS	REG
Isofenphos	0/156	0/156	0/21	0 - 0.04	-	USGS	nr
Isoxaben	0/99	0/97	0/19	0.02	-	DPR	REG
Lambda-Cyhalothrin	0/156	0/156	0/21	0 - 0.2	-	USGS	REG
Lindane (gamma-BHC)	0/1907	0/1286	0/41	0 - 0.2	-	SWRCB	nr
Linuron	0/99	0/97	0/19	0.02	-	DPR	REG
Malafoxon (degradate of malathion)	0/156	0/156	0/21	0	-	USGS	REG
Malathion	0/394	0/337	0/33	0 - 0.12	-	DPR SWRCB USGS	REG
MCPA	0/30	0/30	0/6	0.05 - 10	-	DPR SWRCB	REG
Mecoprop	0/1	0/1	0/1	10	-	SWRCB	REG

From: SAMPLING FOR PESTICIDE RESIDUES IN CALIFORNIA WELL WATER 37th Annual Well Sampling Report | 2022 Update (CADPR)



# Misinformation





# Disinformation



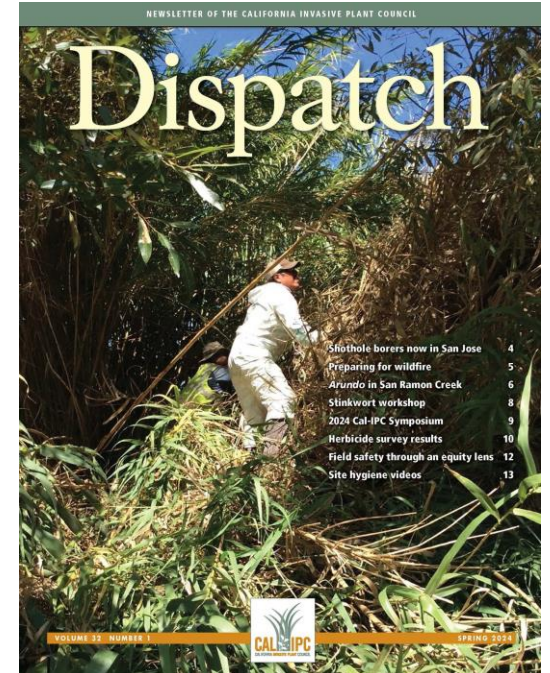
Definition: The knowing transmission of false information

Example: “The EPA says that glyphosate harms 93% of Threatened & Endangered Species”—Center for Biodiversity

- See “What the EPA really says about glyphosate” by Doug Johnson in Spring 2024 *Dispatch*

Responses:

- Facts often more complex than disinformation
- Can be countered with education, but more difficult
- Prophylactic education is most effective





# Cherry Picking Data

**Definition:** choosing to present only the data that supports your position

**Example:** Lists dozens of studies showing negative effects of glyphosate containing herbicides on animals and humans and asks for our list of studies showing that it is safe

**Responses:**

- Look at the totality of the available science
- Give more weight to peer-review and metastudies
- Give less weight to studies in different contexts (e.g., agriculture vs wildlands)
- Support targeted research when good science doesn't exist
- Encourage & support education in basic scientific literacy





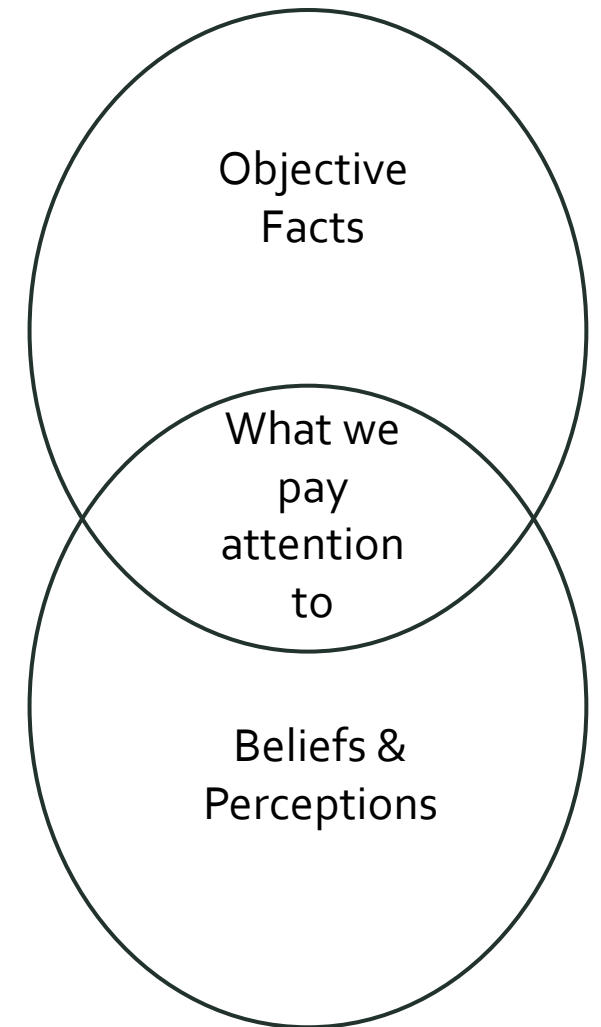
# Confirmation Bias

**Definition:** The tendency to discount any new information that challenges your position

**Examples:** Discounting studies funded by Monsanto (evil corporation), the EPA (regulatory capture), etc.

**Recommended Response:**

- Ask ourselves how we are subject to this bias and challenge ourselves to consider alternative viewpoints and information sources
- Avoid trying to change someone's mind through presenting facts that contradict their beliefs





# Ultracrepidarianism

Definition: The tendency to believe that being an expert in one field automatically makes one an expert in other fields.

*This bias can lead to poor decision-making when individuals overestimate their knowledge and expertise in areas outside their field*

- Subset of the Dunning-Kreuger Effect...

Word of the Day



# Dunning-Krueger Effect

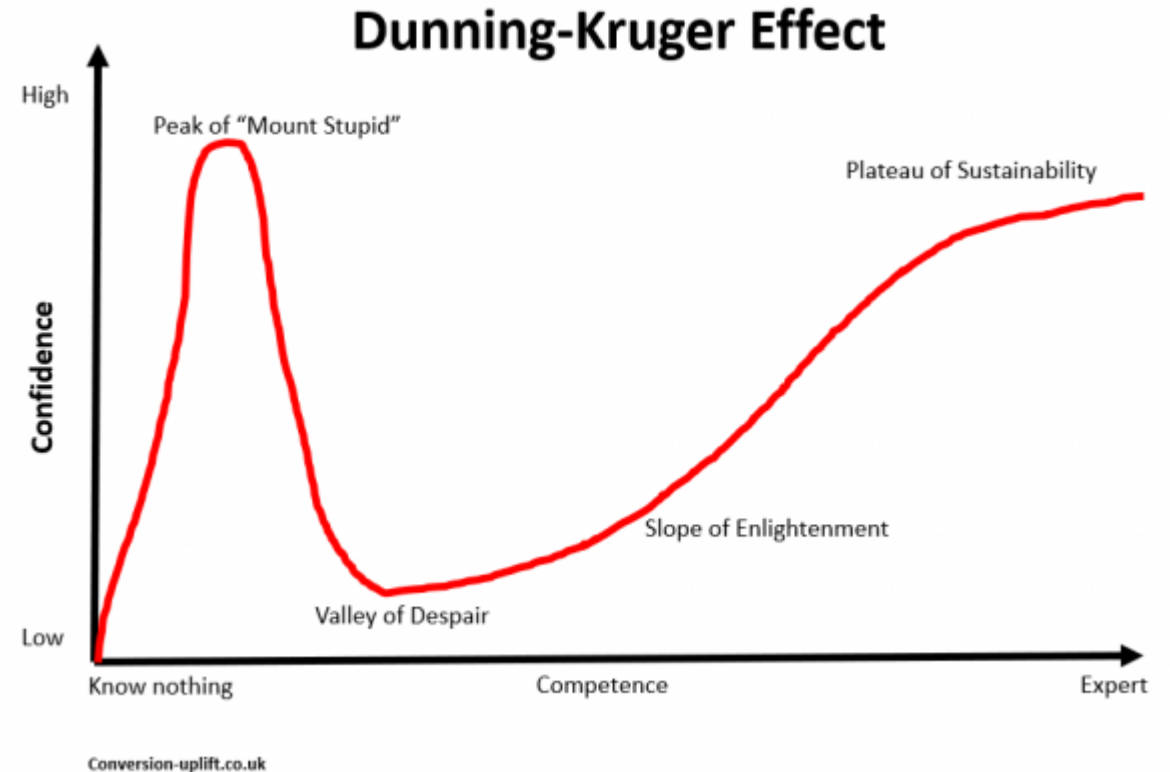
**Definition:** A cognitive bias where people with limited competence in a particular area overestimate their abilities.

**Examples:**

- “I’m not a scientist, but I’ve done my own research...”
- “Do you really think you’re smarter than everyone else in this community?”

**Responses:**

- Manage your frustration
- Foster & encourage a Growth Mindset





# Dunning-Krueger Effect

*There is a cult of ignorance in the United States, and there always has been. The strain of anti-intellectualism has been a constant thread winding its way through our political and cultural life, nurtured by the false notion that democracy means that 'my ignorance is just as good as your knowledge.'-Isaac Asimov*



*Never doubt that a small group of thoughtful committed individuals can change the world. In fact, it's the only thing that ever has.-Margaret Mead*



# Binary Thinking

Definition: Tendency to simplify complex issues into two opposite, extreme choices

Examples:

- “Roundup is Evil!”
- “Plants are Good!”

Response:

- Recognize that it is a strategy to avoid the discomfort of ambivalence



*There are two kinds of people in the world:*

- 1. Those who think you can divide the world into two kinds of people*
- 2. Those who don't.*



# Shotgun Argument

*aka "Preponderance of Garbage" or "Gish Gallop"*

**Definition:** Presenting so many claims that it is impossible to debunk them all

**Example:** 40 community members showed up at the January City Council meeting calling for an herbicide ban. 5 community members opposed it. Each person had two minutes.

**Response:**

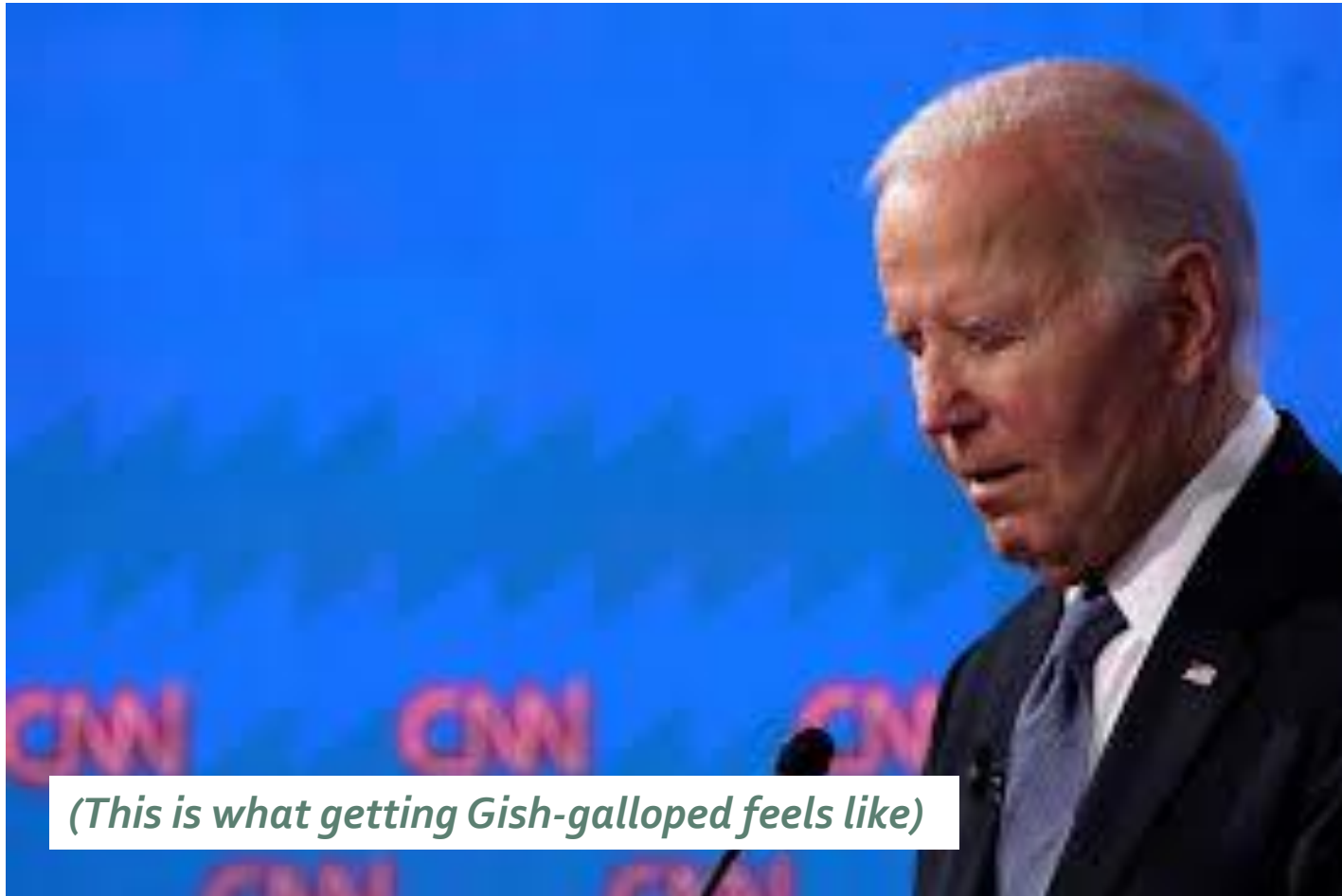
- Call out the strategy
- Refute one claim
- "If I had more time I'd do the same with the rest."





# Shotgun Argument

*aka "Preponderance of Garbage" or "Gish Gallop"*



*(This is what getting Gish-galloped feels like)*

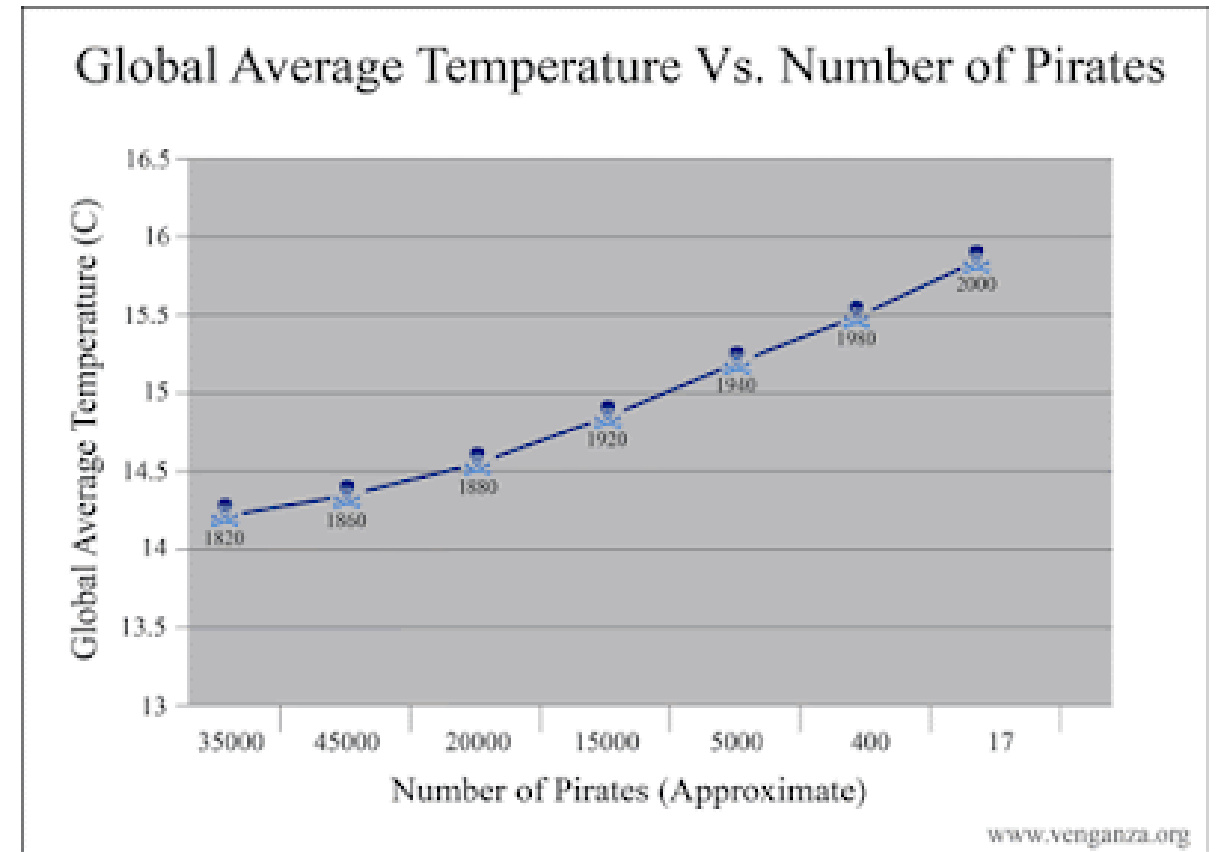


# Correlation vs. Causation

Definition: A logical fallacy that occurs when a cause-and-effect relationship is assumed between two events that occur in sequence or simultaneously

Examples:

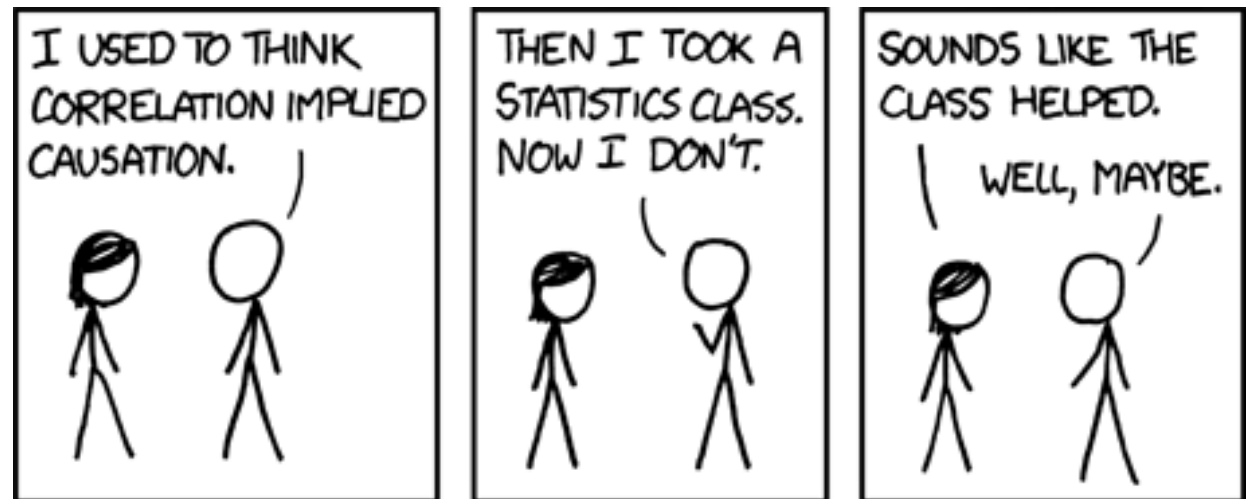
- “My dog got sick after playing in that area and I just know it was because of the Roundup.”
- “My sister’s cousin’s girlfriend got cancer and she used Roundup in her yard, therefore Roundup caused her cancer.”



# Correlation vs. Causation

Response:

- You can try to point it out, but if the person has already made up their mind, Confirmation Bias kicks in
- Dark Humor
- That's it, I got nothing. Any ideas?



xkcd



# Lessons Learned

- Try not to take it personally
- Stay calm and remain empathetic
- Seek to understand viewpoints & avoid arguing
- Recognize that the fact you are running into opposition means that you are doing something impactful
- Every interaction is a (potential) 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
- IPM Documentation for all projects
- Training & Certification
- Pollinator Protection Measures
- Continue Experimentation
- Encourage Research
- Seek Additional Funding
- Increase Community Engagement
- Marketing & Education





# LCF Follows Landowner BMPs & Policies

- Natural Communities Coalition IPM BMPs
- OC Parks PCA Recommendations and Invasive Plant Control Guidelines
- CDFW PCA Recommendations
- City of Laguna Beach Policies (current and future)
- Private Landowner wishes

## Increased IPM Documentation for all Projects:

- Annual PCA recommendations for all projects: use landowner PCAs when available, LCF staff to obtain PCA
- Document IPM practices including rationales annually: new form based on OC Parks Herbicide Application Notice
- Use Mapping Database: LCF purchased Calflora WeedMapper subscription (\$5k/year)--allows better tracking of weed observations and treatment data to determine efficacy and engage in adaptive management



## Increased Training & Certification:

- Additional staff QALs and QACs
- Calibration Training added to Annual Pesticide Handler Safety Training

## Pollinator Protection Measures:

- Use only aquatic-rated surfactants, even in upland areas
- Avoid applications to flowering plants

# 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 23-24: \$20,000
- Projected costs in FY 24-25: \$52,000
- Problematic species include Sweet Fennel, Poison Hemlock, Tree Tobacco, Kickxia, Cape Ivy, Stinknet, Perennial Veldtgrass



## Encourage Research:

- Developing relationship through “WUICAN” with UCI researchers
- DPR Research Grants Program
- Pursue additional funding & partnerships
- Increase data on effects of herbicide in wildland settings
- Make the “Best Available Science” better

## Seek Additional Funding:

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



# 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
- Tell our Story to the Community
- Resource Page on Website including Best Management Practices





# WCB Aliso Creek Restoration Project

A photograph showing a hillside covered in dry, brown grass and some green shrubs. In the foreground, there is a dirt path and a utility pole with power lines. The sky is clear and blue.

Initial Conditions  
2018



# WCB Aliso Creek Restoration Project



Post-initial weed removal  
2021



# WCB Aliso Creek Restoration Project

Year 4  
2024





# WCB Aliso Creek Restoration 2022

Year 2  
2022





# Thank You!

Chris Gort  
Hallie Jones  
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Michelle Kremer  
Scott Ferguson

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





# Questions?

