

# Southern California Ignition Reduction Program (SCI RP)

**Nicole Molinari<sup>1</sup>, Jeff Heys<sup>1</sup> & Robert Fitch<sup>2</sup>**

<sup>1</sup> *USDA Forest Service*

<sup>2</sup> *UC Santa Barbara*

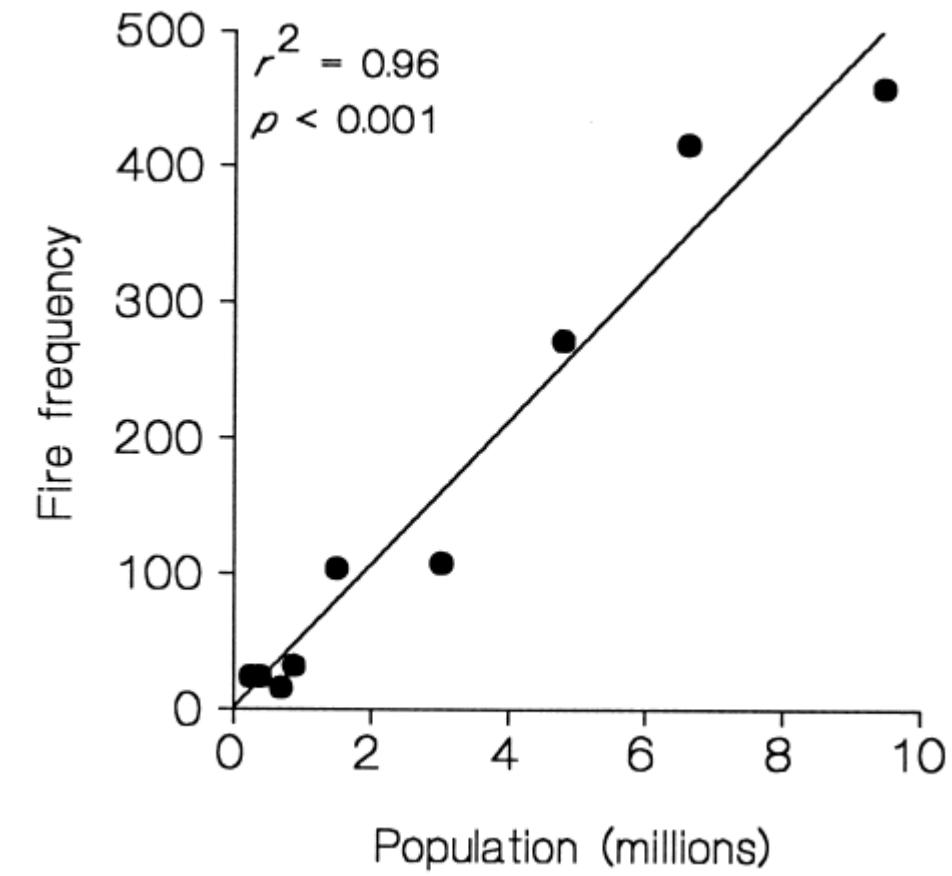
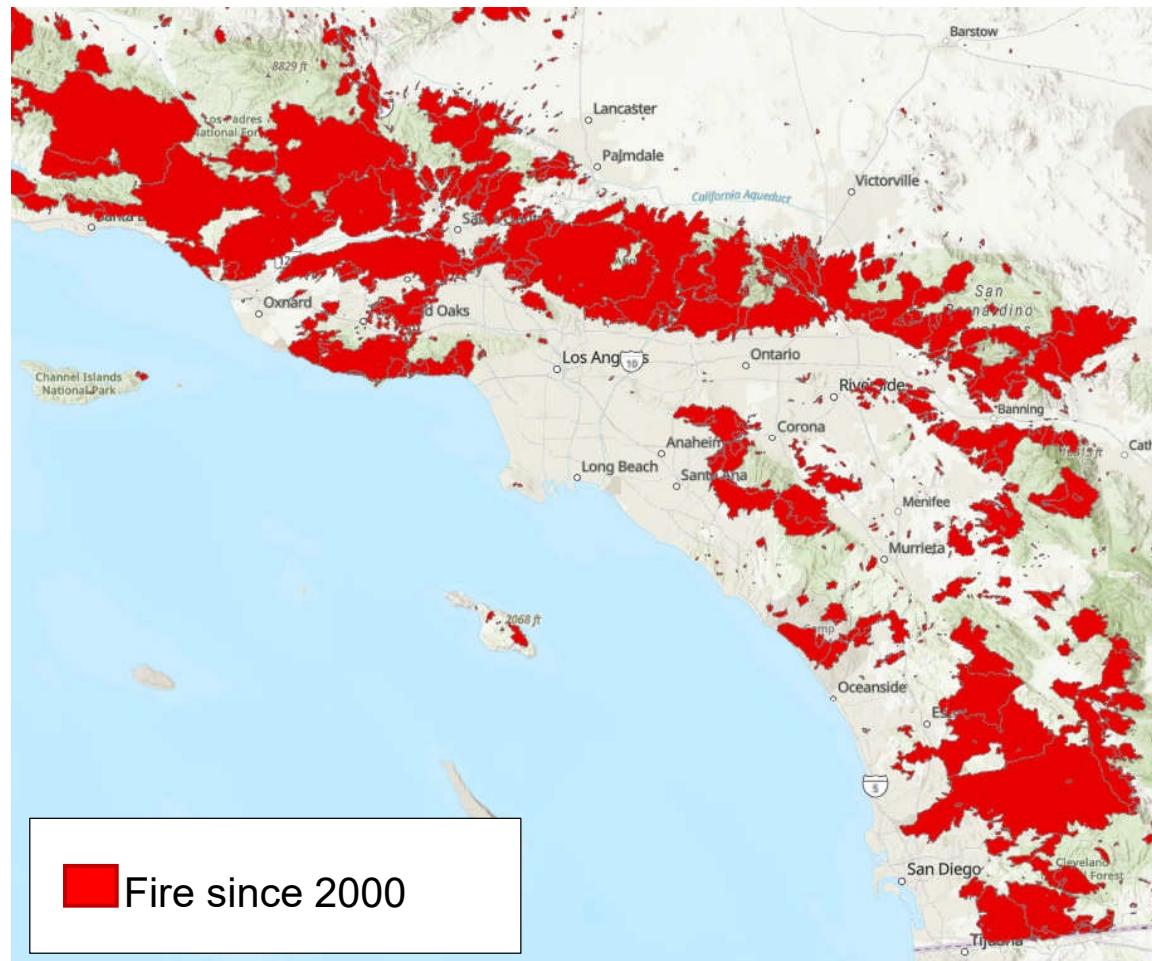
# Southern California Ignition Reduction Program (SCI RP)

**Nicole Molinari<sup>1</sup>, Jeff Heys<sup>1</sup> & Robert Fitch<sup>2</sup>**

<sup>1</sup> *USDA Forest Service*

<sup>2</sup> *UC Santa Barbara*

# Wildfire in Southern California

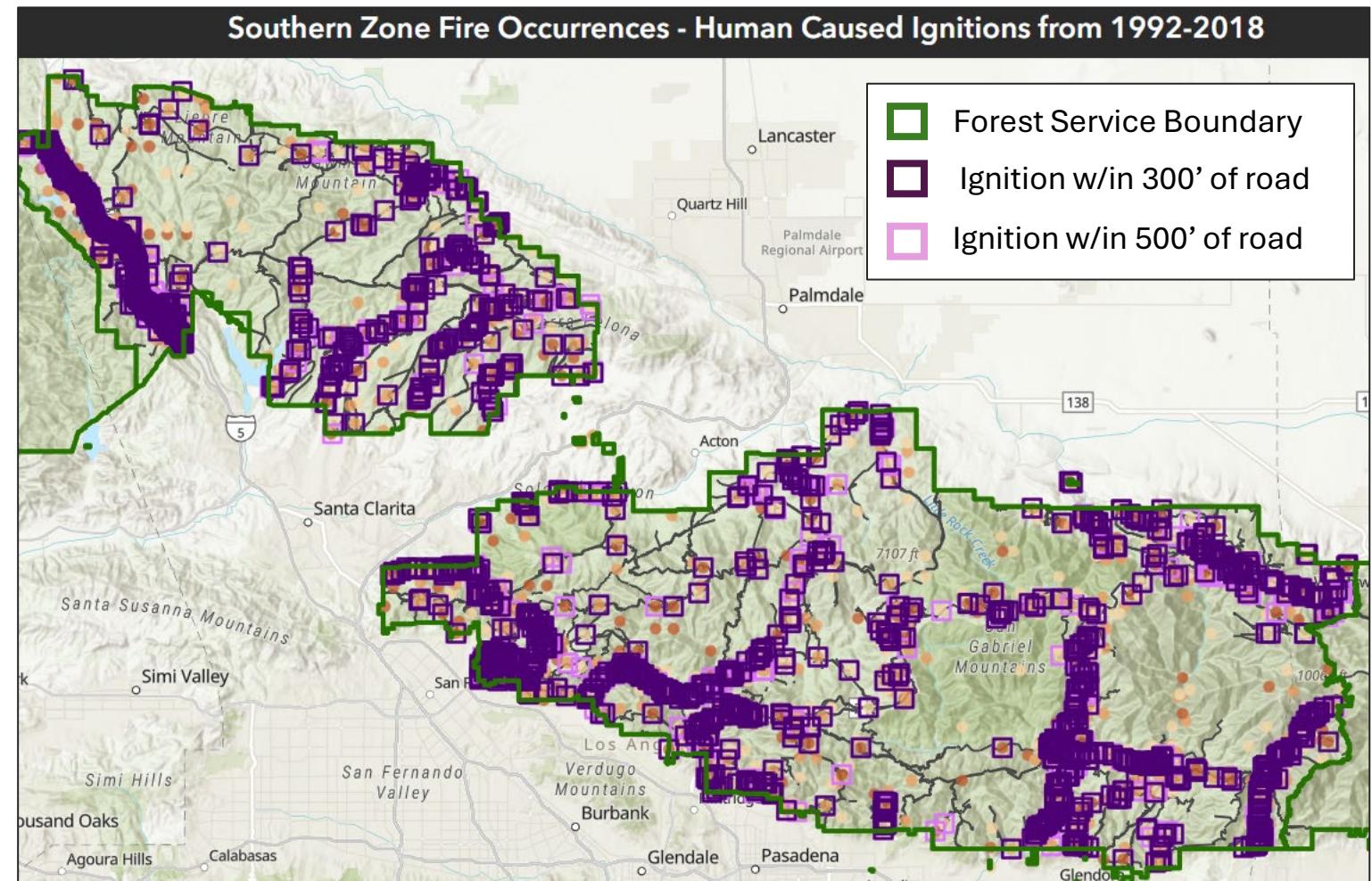


Keeley & Fotheringham, 2001

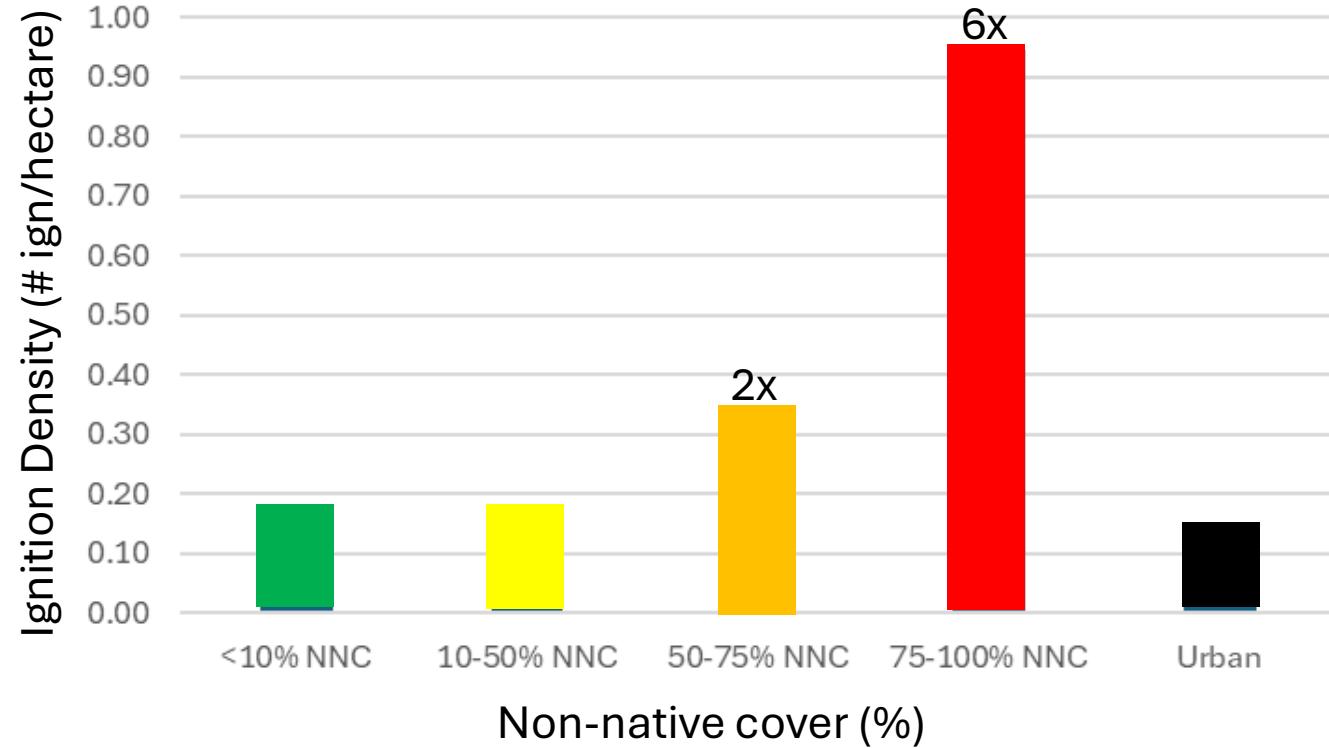
# Where there's humans, there's ignitions

95% of ignitions are human-caused:

- Wildland Urban Interface
- Campgrounds
- Trails
- **Roadsides (2/3<sup>rds</sup>)**
  - Los Padres NF = 50%
  - Angeles NF = 69%
  - San Bern NF = 63%
  - Cleveland NF = 73%



# Ignitions & non-native roadside vegetation



# What we know?

- **Ignition source** = humans
- **Location** = primarily roadsides, but other areas where humans concentrate should be considered
- **Condition** = non-native grass dominated areas are at highest risk

## SCIRP strategy to reduce ignitions:

- 1) Control non-native flashy fuels along roadsides
- 2) Replace with less ignitable native species

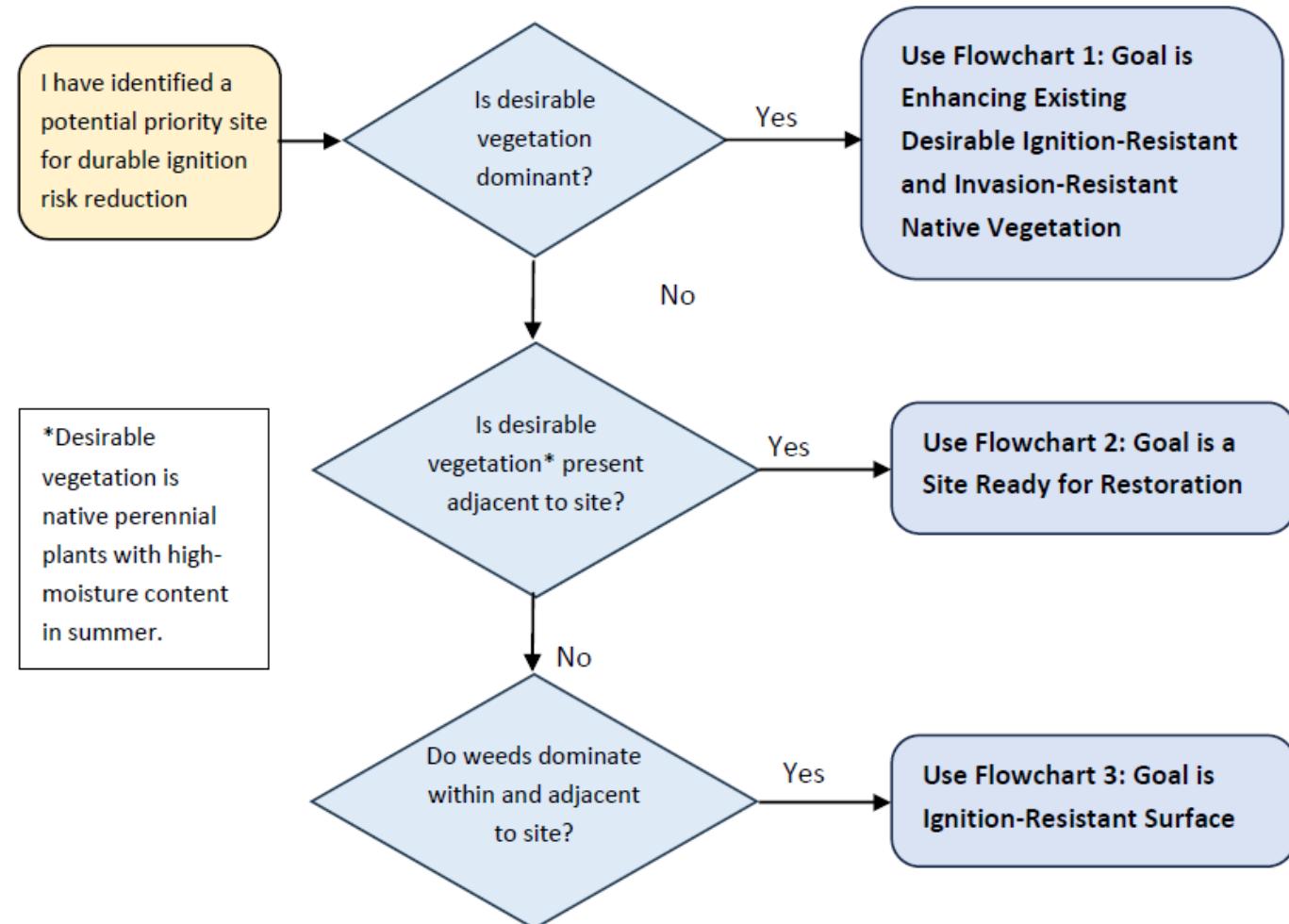
# Control of non-natives along roadsides

## Durable Ignition Reduction Toolbox

*Best practices for managing Southern California roadsides to reduce ignition risk through longer-lasting weed control and enhanced ignition-resistant native vegetation*

Prepared for the National Forest Foundation and the USDA Forest Service under Agreement RQ-516

By the California Invasive Plant Council, with support from On Point Land Management and Williams Ecological Assessments and Planning



# Durable Ignition Reduction Toolbox (DIRT)

## ENHANCEMENT APPROACH 1.1

**Year 1** - Remove weeds and their thatch with localized mowing/mastication and spot application of non-selective herbicide or selective herbicide, avoiding desirable vegetation. Alternatively, grazing may be used (either before or during growing season prior to seed set). Techniques will vary by species. Ensure soil surfaces are cleared of dead standing vegetation, which can be removed or mulched on site. Spot-treat emerging weed species before they flower during growing season at least once using either selective or non-selective herbicide, depending on species composition.

**Year 2** - Apply pre-emergent selective herbicide prior to growing season. Spot treat or mow emerging weed species before they flower using either selective or carefully targeted non-selective post-emergent herbicide, depending on species assemblage.

**Year 3** - If a pre-emergent with a shorter (<1 year) lifespan was used, consider re-applying. Spot treat emerging weed species before they flower during growing season (see Year 2).

**Year 4** - Monitor, selectively treat weeds as needed.

**Long-term follow-up:** Annual monitoring and treatment as needed. In Year 4 or later, review progress and adapt methods; consult an expert and consider mulching if site is appropriate. Supplemental seeding may be necessary if risk of reinvasion stays high and bare ground cannot be maintained. Seeding can only occur after weed seed bank is diminished and pre-emergent herbicide is no longer active in soil.

## Other information:

- Non-chemical alternatives
- Effectiveness
- Cost
- Disturbance level
- Treatment timing
- BMPs for weed removal methods
- Annotated bibliography

# Native seed selection for SCIRP

*GOAL: Select native species with traits that lessen ignitability*

- 1) List developed through expert voting
- 2) Five categories considering during voting:
  - a. Ability to establish and persist in disturbed areas (e.g. roadsides)
  - b. Ability to compete with non-native annual species
  - c. Qualities that reduce ignitability
  - d. Ease of seed collection/bulking
  - e. Co-benefits that promote pollinators, soil stabilization, other services



Photos: Calflora



# Native species for roadsides

ANNUAL FORBS	SCORE	PERENNIAL HERBS	SCORE
<i>Croton setiger</i>	2.81 <sup>(16)</sup>	<i>Grindelia camporum</i>	3.00 <sup>(2)</sup>
<i>Deinandra fasciculata</i>	2.67 <sup>(9)</sup>	<i>Corethrogynne filaginifolia</i>	2.56 <sup>(9)</sup>
<i>Trichostemma lanceolatum</i>	2.44 <sup>(9)</sup>	<i>Datura wrightii</i>	2.50 <sup>(10)</sup>
<i>Lupinus</i> sp. (annuals)	2.44 <sup>(16)</sup>	<i>Pseudognaphalium</i> sp.	2.38 <sup>(16)</sup>
<i>Eschscholzia californica</i>	2.31 <sup>(16)</sup>	<i>Heliotropium curassivicum</i>	2.30 <sup>(10)</sup>
<i>Salvia columbariae</i>	2.31 <sup>(16)</sup>	<i>Heterotheca grandiflora</i>	2.25 <sup>(12)</sup>
<i>Amsinckia menziesii</i>	2.22 <sup>(9)</sup>	<i>Asclepias</i> sp.	2.06 <sup>(16)</sup>
<i>Acmsipon</i> sp. (annuals)	2.00 <sup>(16)</sup>	<i>Calystegia macrostegia</i>	1.94 <sup>(16)</sup>
<i>Cryptantha/Plagiobothrys</i>	2.00 <sup>(9)</sup>	<i>Sisyrinchium bellum</i>	1.93 <sup>(15)</sup>

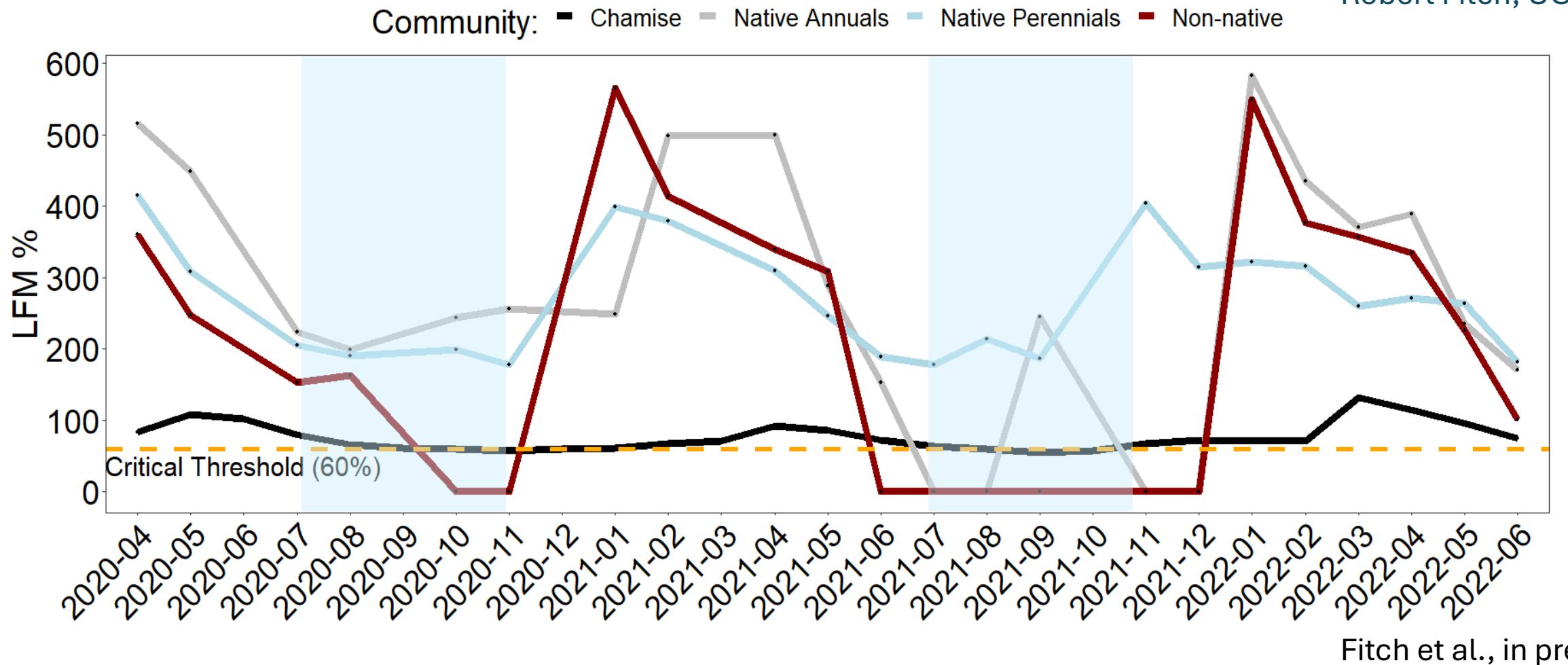
PERENNIAL GRASSES	SCORE	SUBSHRUBS	SCORE
<i>Sporobolus airoides</i>	3.00 <sup>(2)</sup>	<i>Eriogonum fasciculatum</i>	3.00 <sup>(3)</sup>
<i>Elymus</i> sp.	2.13 <sup>(16)</sup>	<i>Eriophyllum confertiflorum</i>	2.31 <sup>(16)</sup>
<i>Stipa</i> sp.	2.13 <sup>(16)</sup>	<i>Acmsipon glaber</i>	2.11 <sup>(9)</sup>
<i>Poa</i> sp.	2.00 <sup>(16)</sup>	<i>Hesperoyucca whipplei</i>	1.80 <sup>(10)</sup>

- Selected the top species from 4 lifeform groups
- **Field Trials:** Looking for restoration projects to evaluate establishment and persistence
- **Help us refine and improve this list!**

# Live Fuel Moisture



Robert Fitch, UCSB



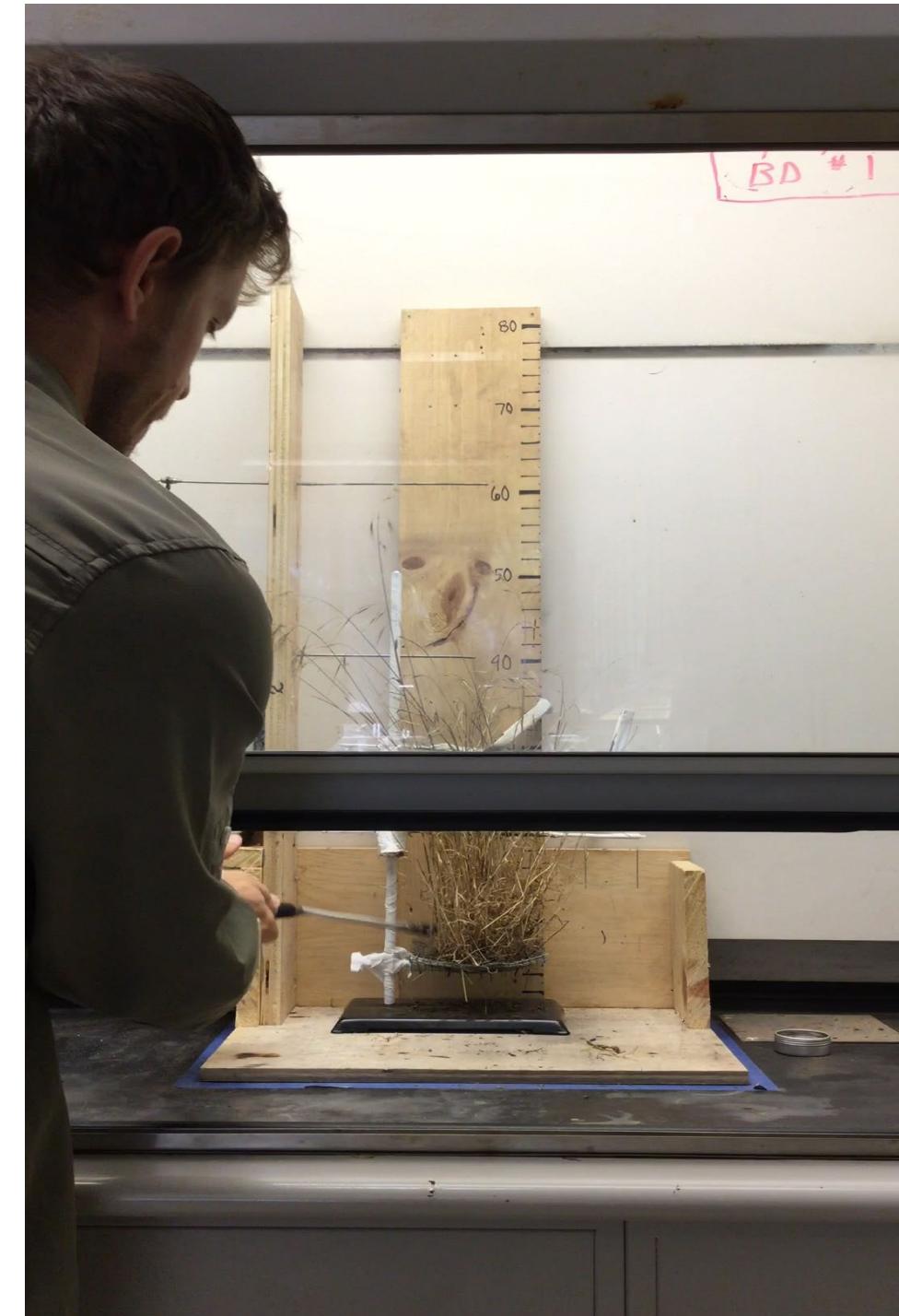
# Flammability Trials

## Burn Trials:

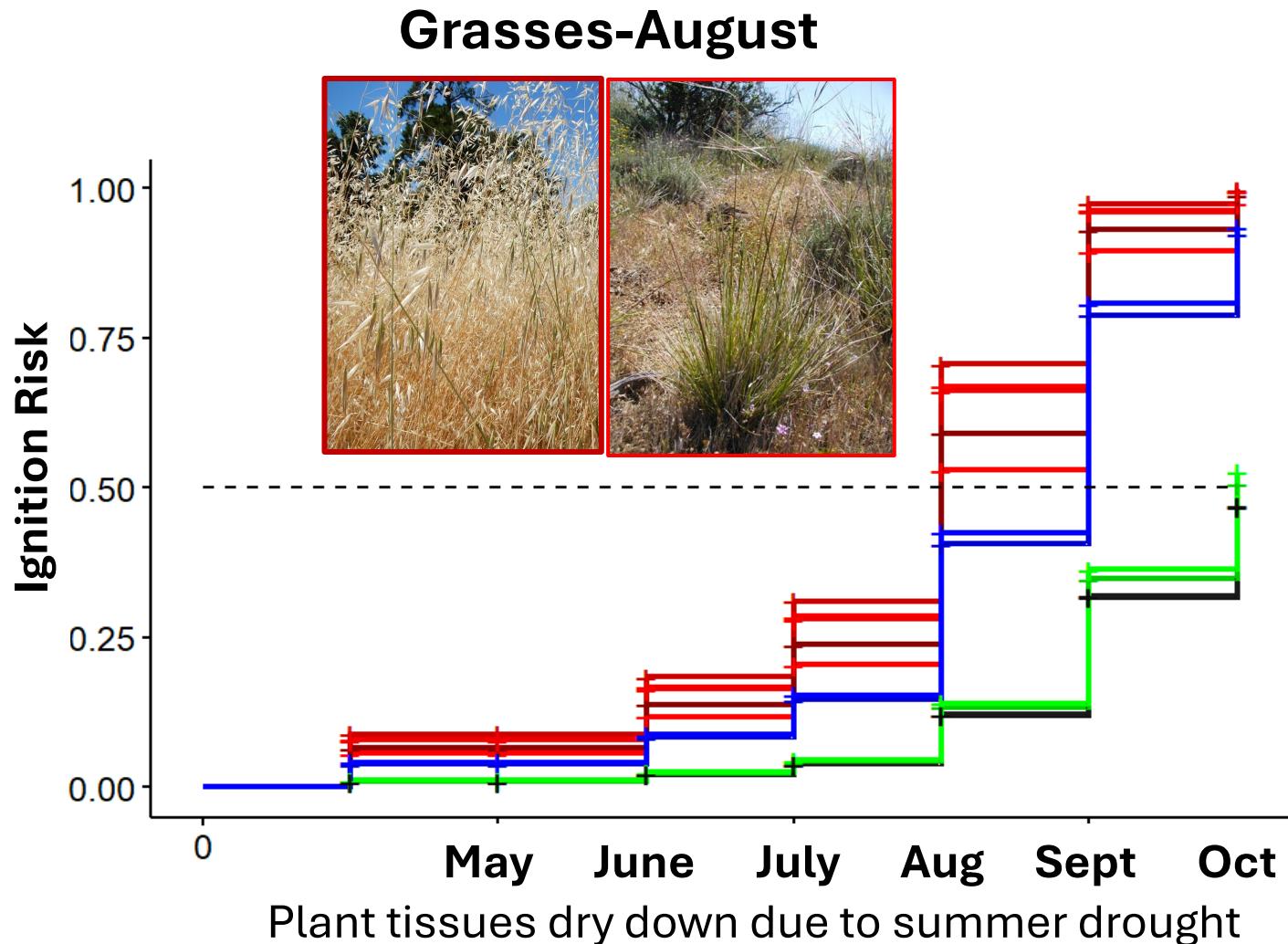
- Harvested whole plants monthly

## Measured:

- Probability of ignition
- Flame height
- Flame duration



# Risk increases with the summer-dry down



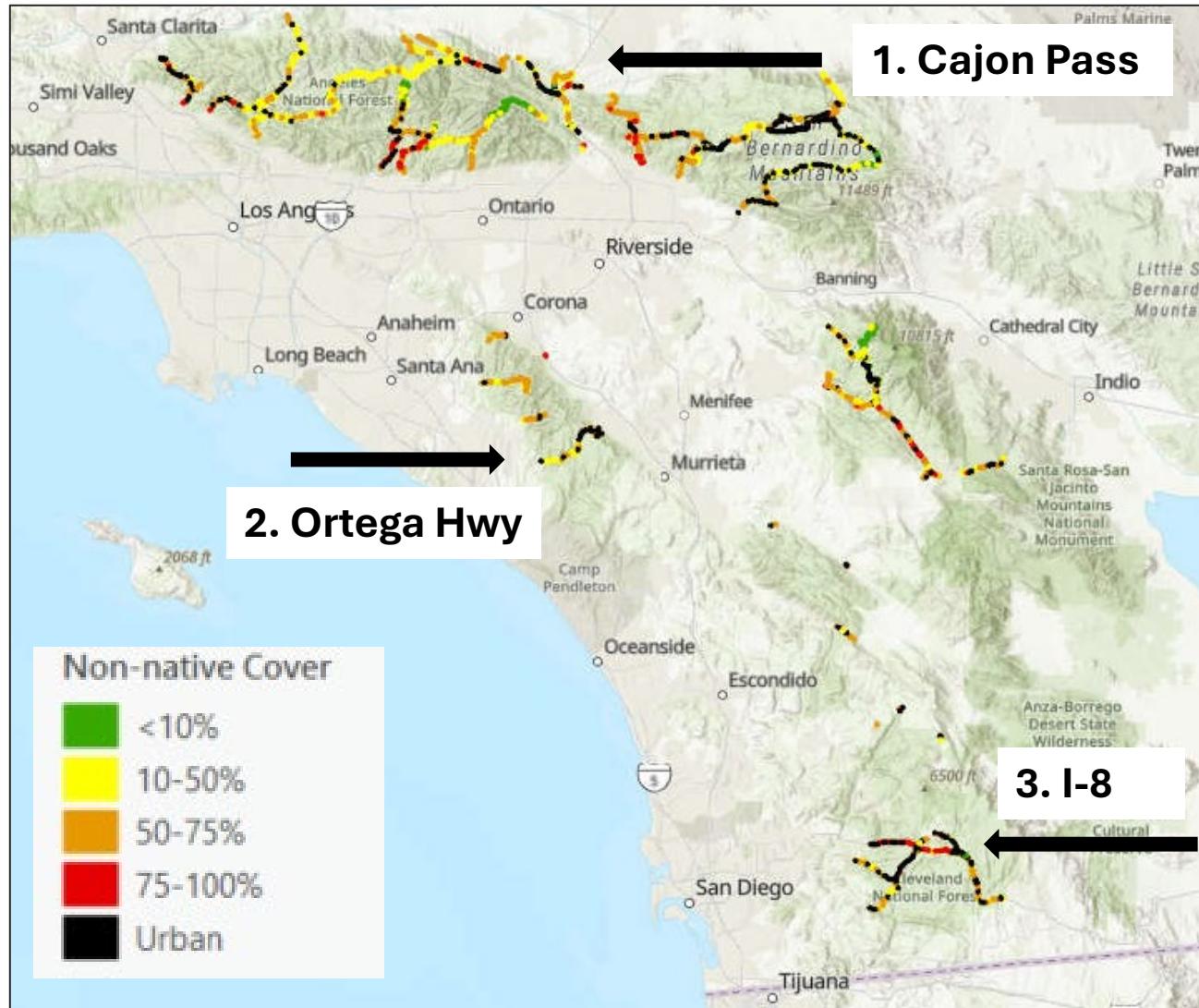
**Blue Eyed Grass & Corethrogyne September**



**Croton & Vinegar Weed October**

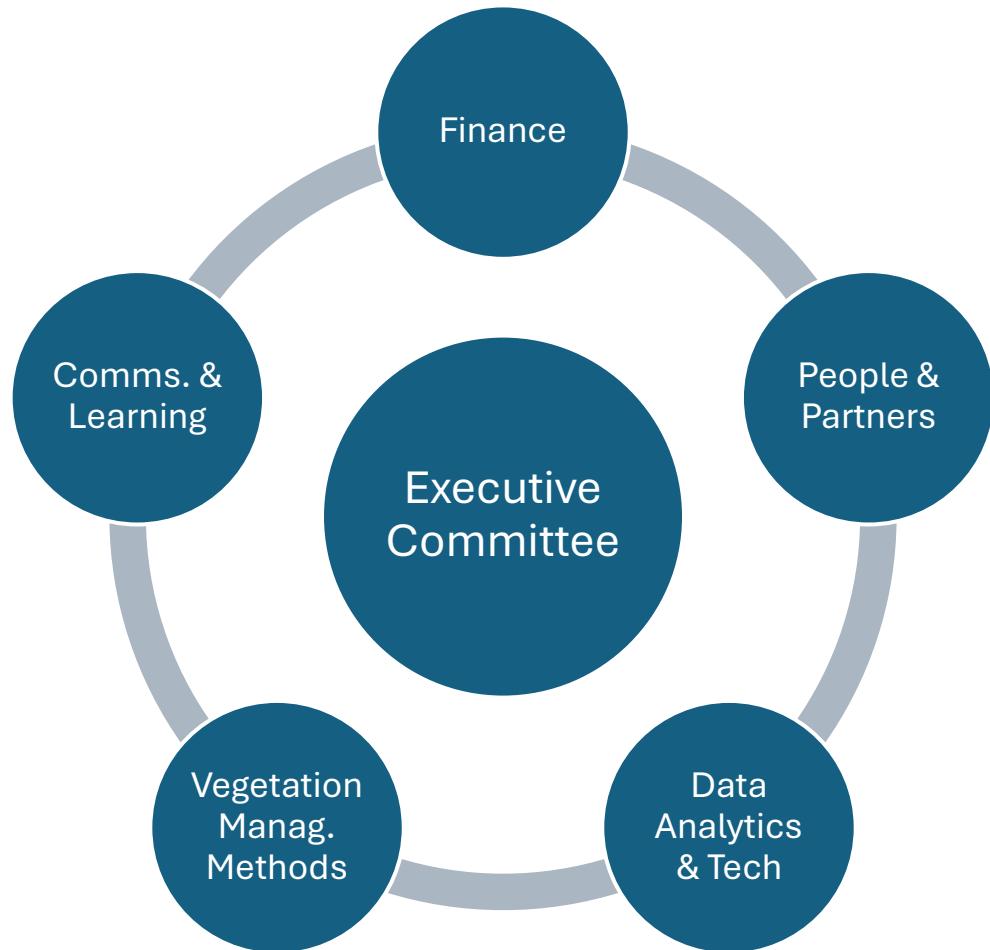


# Three SCIRP pilot projects



- Close collaboration with FS, CalTrans National Forest Foundation and Conservation Finance partners
- Following DIRT and using the native seed list
- Timeline: Winter 2025

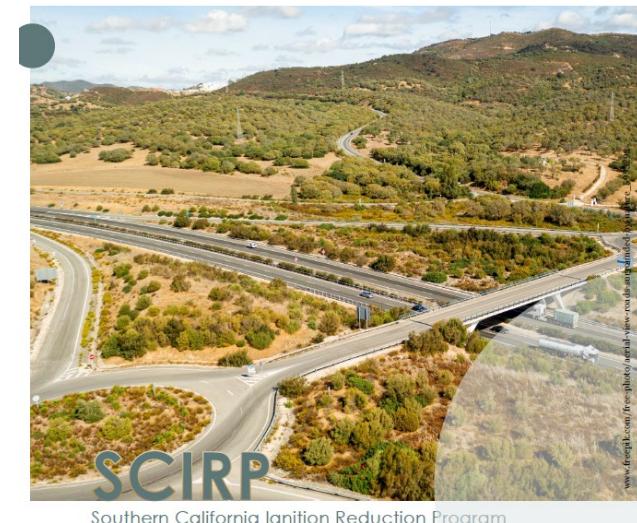
# Questions or want to get involved?



[Nicole.molinari@usda.gov](mailto:Nicole.molinari@usda.gov)  
[Jeffrey.heys@usda.gov](mailto:Jeffrey.heys@usda.gov)



**BLUE FOREST**  
Financial Innovation for Sustainable Solutions



SCIRP Charter signing in August 2025



CHARTER



Conservation  
Investment  
Management