8TH INTERNATIONAL WILDLAND FIRE CONFERENCE | GOVERNANCE PRINCIPLES: Towards an International Framework

Climate-Adapted Fire Risk Management: An integrated portfolio approach for the southwestern USA

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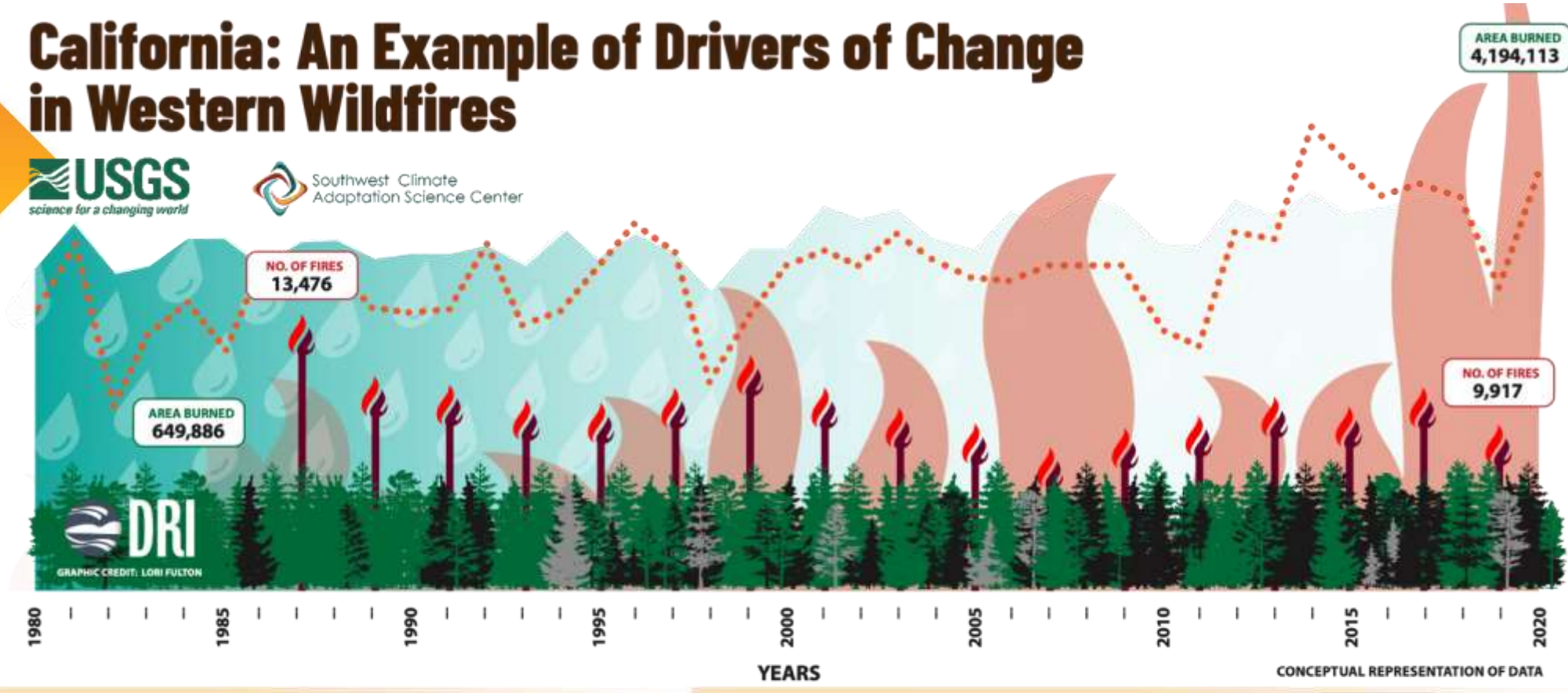
DRAFT

McDonald, Wall, Enquist, LeRoy et al.

California: An Example of Drivers of Change in Western Wildfires



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CLIMATE

California and across the West is warmer and drier. Atmospheric concentration of greenhouse gasses is largely driving climate change; given current trends, this effect will strengthen.

- **TEMPERATURE** — Annual average temperature increase of about 2° F since 1980.
- **VAPOR PRESSURE DEFICIT** — The water content of the air has been steadily decreasing since 1980.

LAND COVER

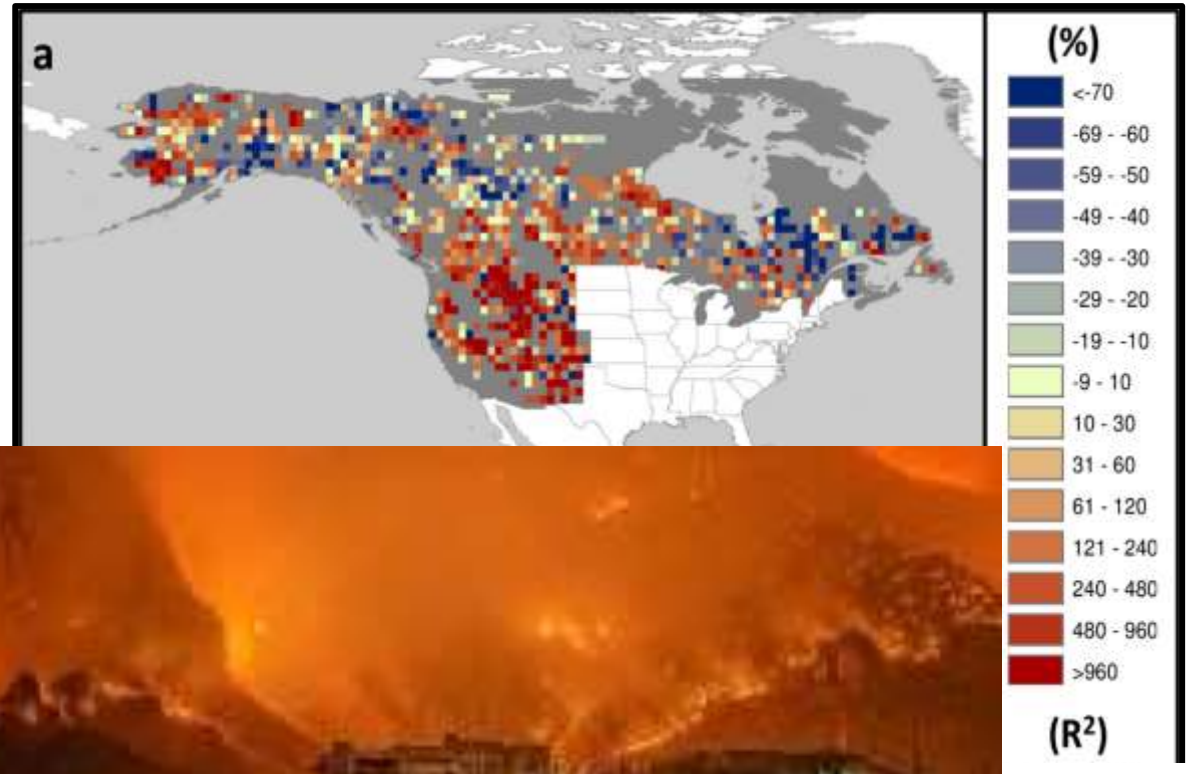
Colonization, fire suppression policies, and climate-driven tree mortality have led to **highly flammable and thick forests in California and across the West.**

- **NUMBER OF FIRES** — The annual number of fires shows a statistically significant *downward* trend between 1980-2020.
- **AREA BURNED** — While the annual number of fires has decreased, the annual area burned has increased to record-breaking size. The severity of fires has also increased in some regions.

TREE DENSITY

- High density land cover driven by colonization and fire suppression policies
- Climate- and insect-driven tree mortality
- Increased mortality due to high severity wildfire

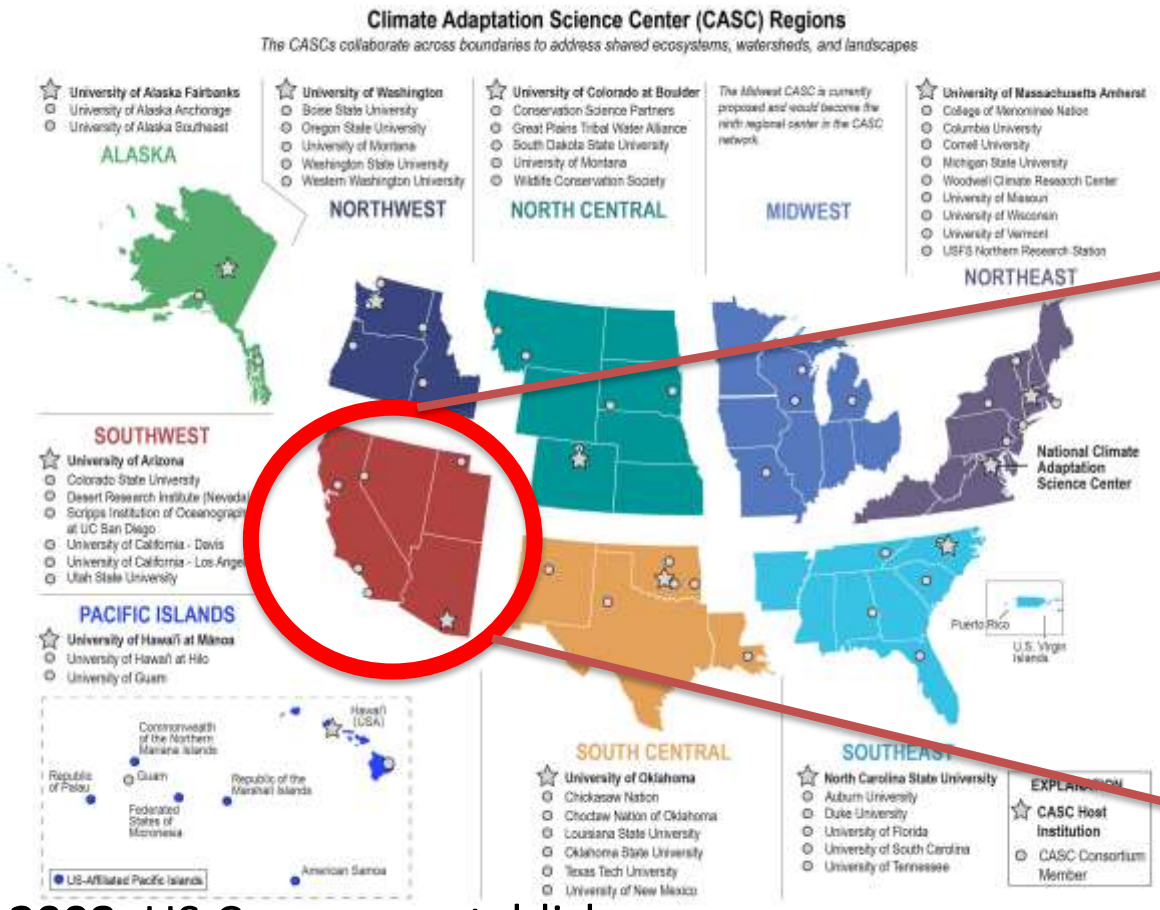
Even larger fires are projected by mid-century



Kitzberger, Falk et al. 2017.

Slide courtesy of Don Falk

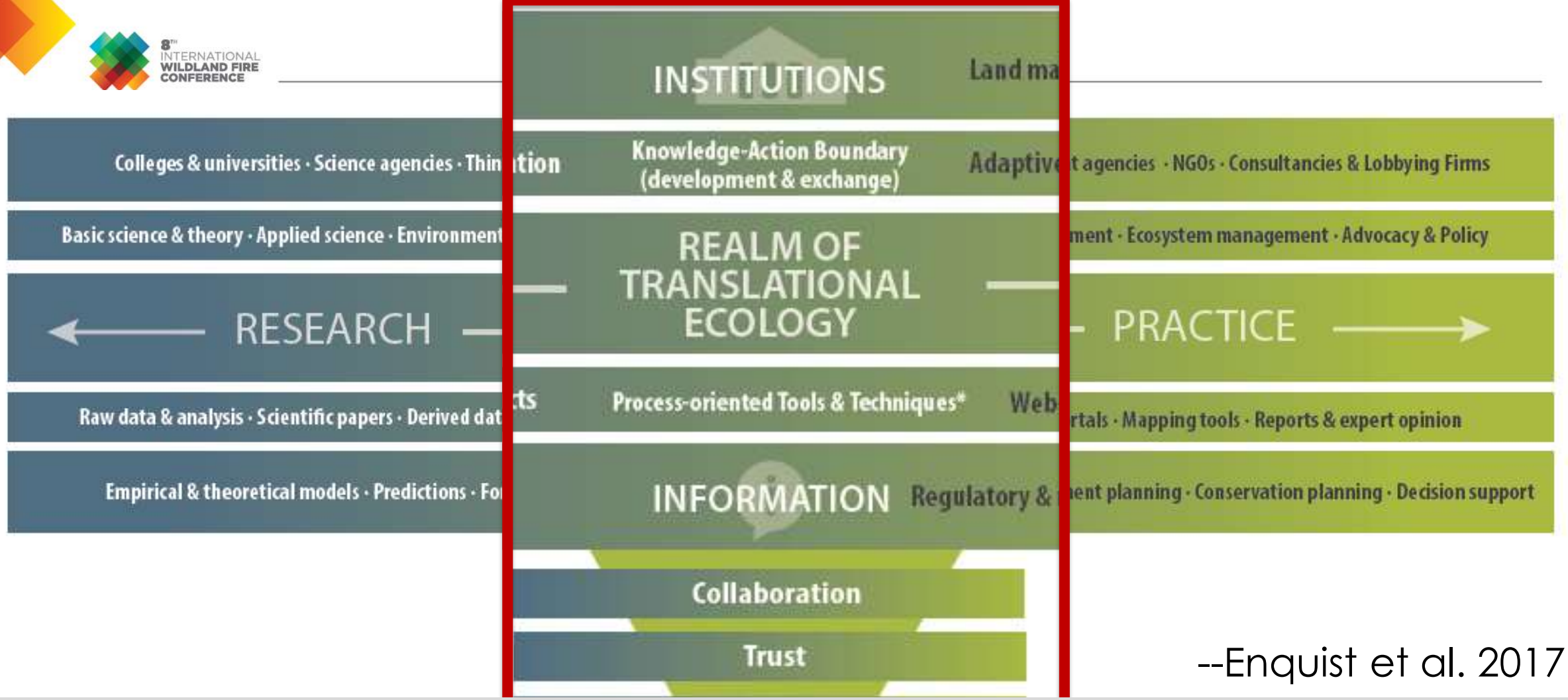
Climate Adaptation Science Centers (CASCS)



2008: US Congress establishes National Center

2009: Secretarial Order 3289 expands regional network

Established in 2011, the SWCASC supports actionable science and implementable solutions through partnerships across the SW



--Enquist et al. 2017

Actionable science → Robust decision-making to reduce risk and build resilience

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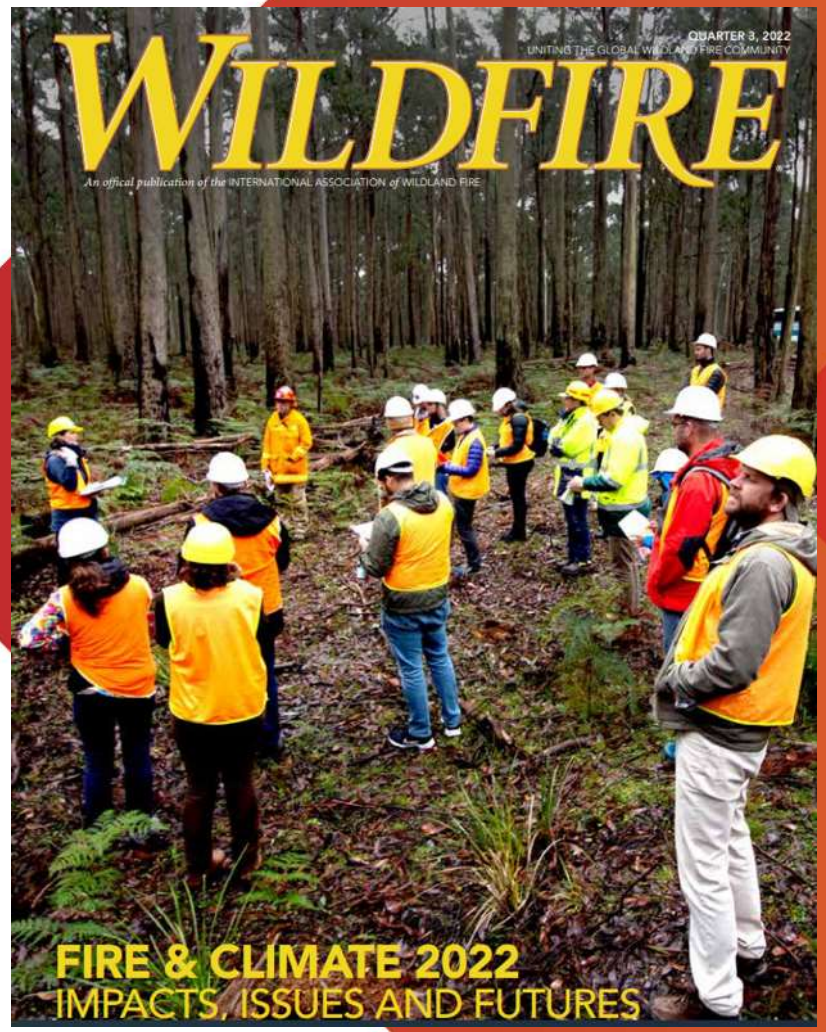

Managing for Changing Fire Regimes:

A new national collaboration between SW CASC, Joint Fire Science Program (JFSP), USGS Wildland Fire Science Program, USDA FS

The Framework

1. Leverage partnerships to collaboratively identify and co-develop new management strategies

Define desired conditions considering diverse perspectives, including Indigenous and experiential local knowledges, in addition to state-of-the art climate-informed fire models

2. Implement identified interventions actions

Experiment with and test efficacy of strategies across multiple jurisdictions in pre-during-post fire situations.

3. Evaluation and learning

Evaluate outcomes with long-term monitoring

Adjust management actions as needed based on principles of adaptive management

Identify targeted science gaps/needs

4. Build new & existing partnerships

Ensure effective and frequent communication

Create New Funding Models & Opportunities

Enduring partnerships based on trust, respect, and reciprocity

Reducing & managing risk requires building trust-based partnerships

Cultural Fire Partners & Projects

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Cultural Fire is a form of low intensity fire practiced by Indigenous Peoples throughout the globe for purposes of cultural renewal and ecological restoration

<u>Deliberate integration</u> of western science with Indigenous knowledge systems to leverage synergistic adaptation actions

➔ ***prescribed fire & cultural burning***

Historically-grounded: <u>it is not just a fuels or ecological objectives, it's also about CULTURE</u>:

- ***Relationship to the land, to fire, to the ancestors***
- ***Based on respect for fire & knowledge rather than fear & a command-and-control mentality***
- ***Intergenerational exchanges***
- ***Cultural outcomes, such as materials for basketry, food, ceremony***

Diverse knowledge systems for fire-climate adaptation

The need to support Indigenous self-determination, recognizing Indigenous Peoples' rights, and supporting Indigenous knowledge—& other forms of local knowledge

"will be critical to reducing climate change risks to achieve adaptation success now and into the future"

—IPCC WG2, 2022, North America chapter

Southwest Fire-Climate Partnership

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SW FireCAP

Southwest Fire Climate Adaptation Partnership

Is an open & inclusive group of partners with a shared vision for working together to advance fire & climate adaptation in the southwestern U.S. by building cross-organization collaboration & leveraging resources based on a platform of shared goals.

Roundtable teams have special focus on the fire-climate nexus and Indigenous practices of ecosystem restoration to better support partnerships with Indigenous Peoples throughout the region.

Southern California Climate-Adapted Montane Forest Strategy

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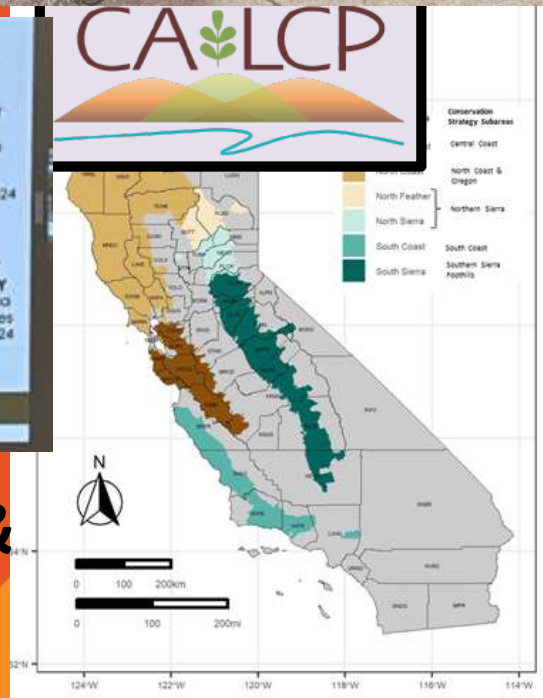
SOUTHERN CALIFORNIA MONTANE FORESTS PROJECT

A Climate-Informed Conservation Strategy

Goal: Engage partners & communities across the region to advance our collective understanding of the vulnerabilities and challenges facing these forests & identify opportunities and adaptation strategies for increasing wildfire and overall forest resilience.



$70 million new federal & state funds pledged

<u>New funding models</u> for diverse partnerships that co-develop shared vision & goals, implement on the ground action, and identify actionable, yet targeted science needs & priorities

Adaptation Finance

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Thank you!

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