



Photo credit: Emily Jane Davis

# Boundary-Spanning for Collective Action: Managing Wildfire Risk in the West

Emily Jane Davis, Heidi Huber-Stearns, Tony Cheng, Darren McAvoy, Mike Caggiano



# Problems of Fire and Water

- Post fire rain events → sedimentation, effects on drinking water infrastructure
- Buffalo Creek and Hayman fires → 40 years of sediment in Strontia Springs
- Increase in partnerships to reduce wildfire risk in the arid West



Photo credit: Emily Jane Davis

--Huber-Stearns and Cheng 2019, Larsen et al. 2009, Gartner et al. 2017

**Land  
mgmt  
agencies**

Plan and implement mitigation, lead suppression, assess and restore post-fire

**Local  
govt**

Land use and zoning: reduce human development in fire-prone areas

**Collab.  
venues**

Dialogue about values for mitigation activities, post-fire salvage

**NGOs,  
local  
orgs**

Build capacity, serve as intermediaries and conveners, educate and communicate

**Home-  
owner  
assns.**

Increase home resistance to ignition: home ignition zone management

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Missions

Structures

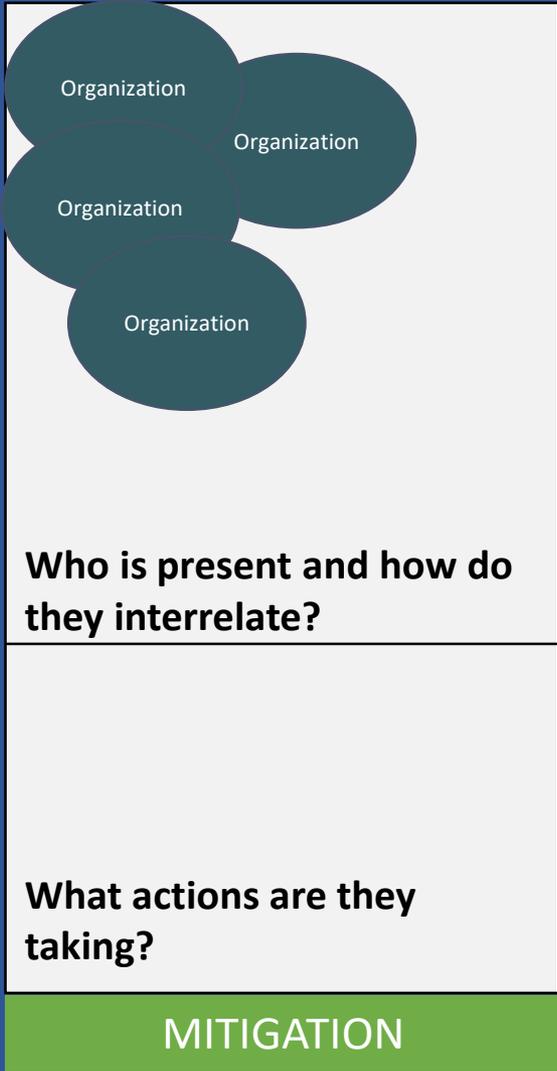
Rules

Practices

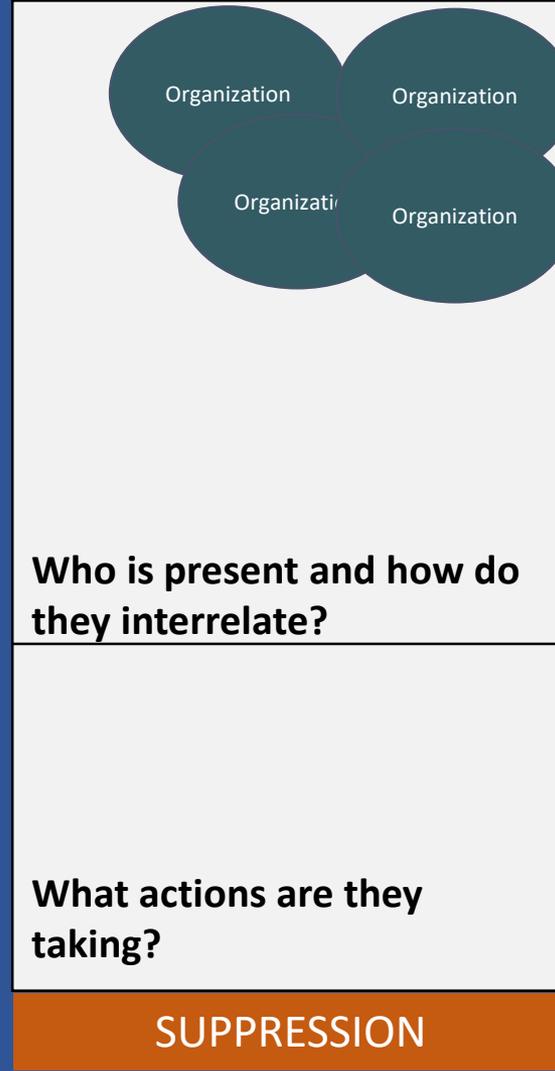
Cultures

Processes

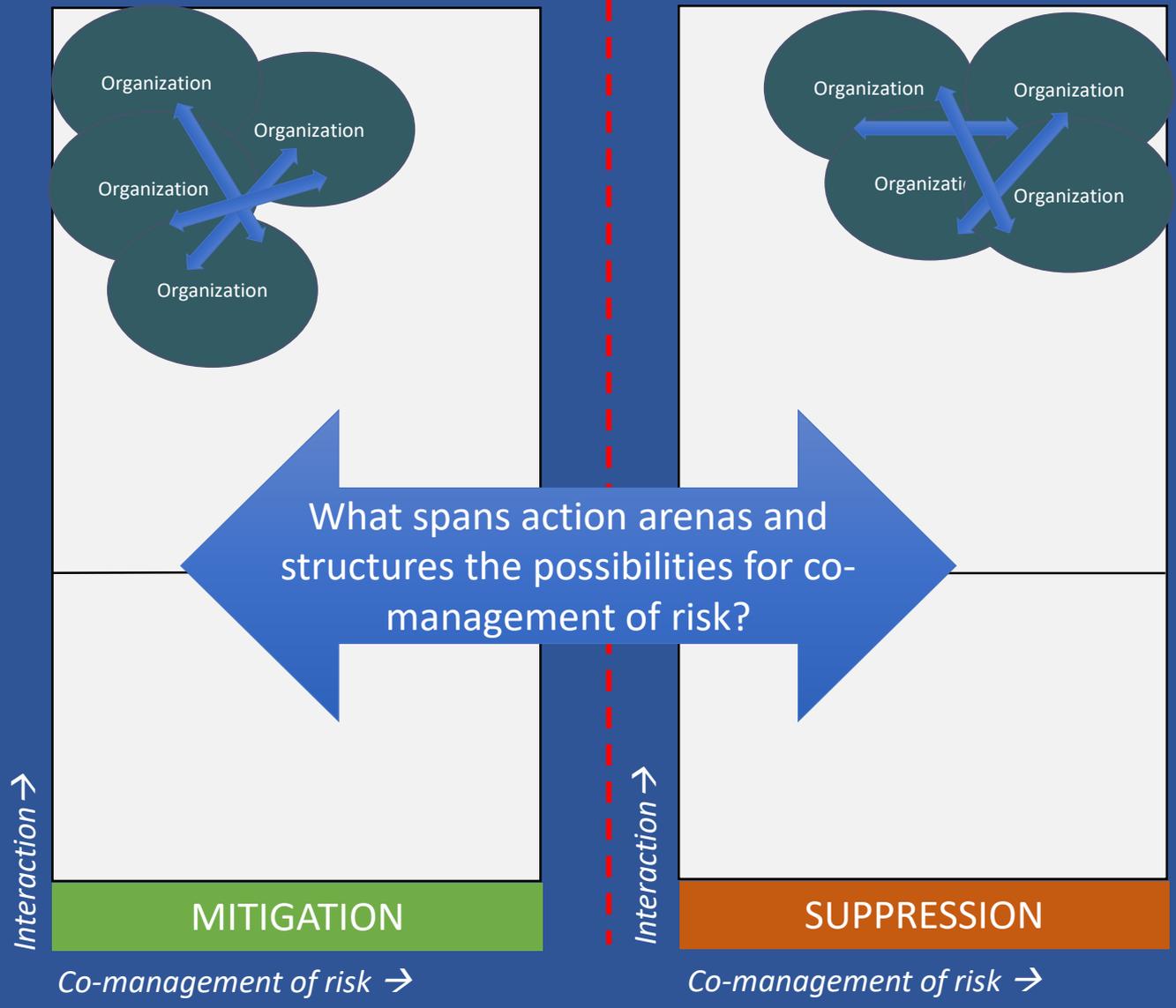
Hierarchies



*Co-management of risk →*



*Co-management of risk →*



# Research Questions

## S

What spans action arenas and structures the possibilities for co-management of risk in firesheds?

- 1) Develop new knowledge of the relationships between organizational structures, behaviors, and values at risk
- 2) Identify attributes that share or distribute risk in new ways through joint accountability and action



Photo: Eytan Krasilovsky

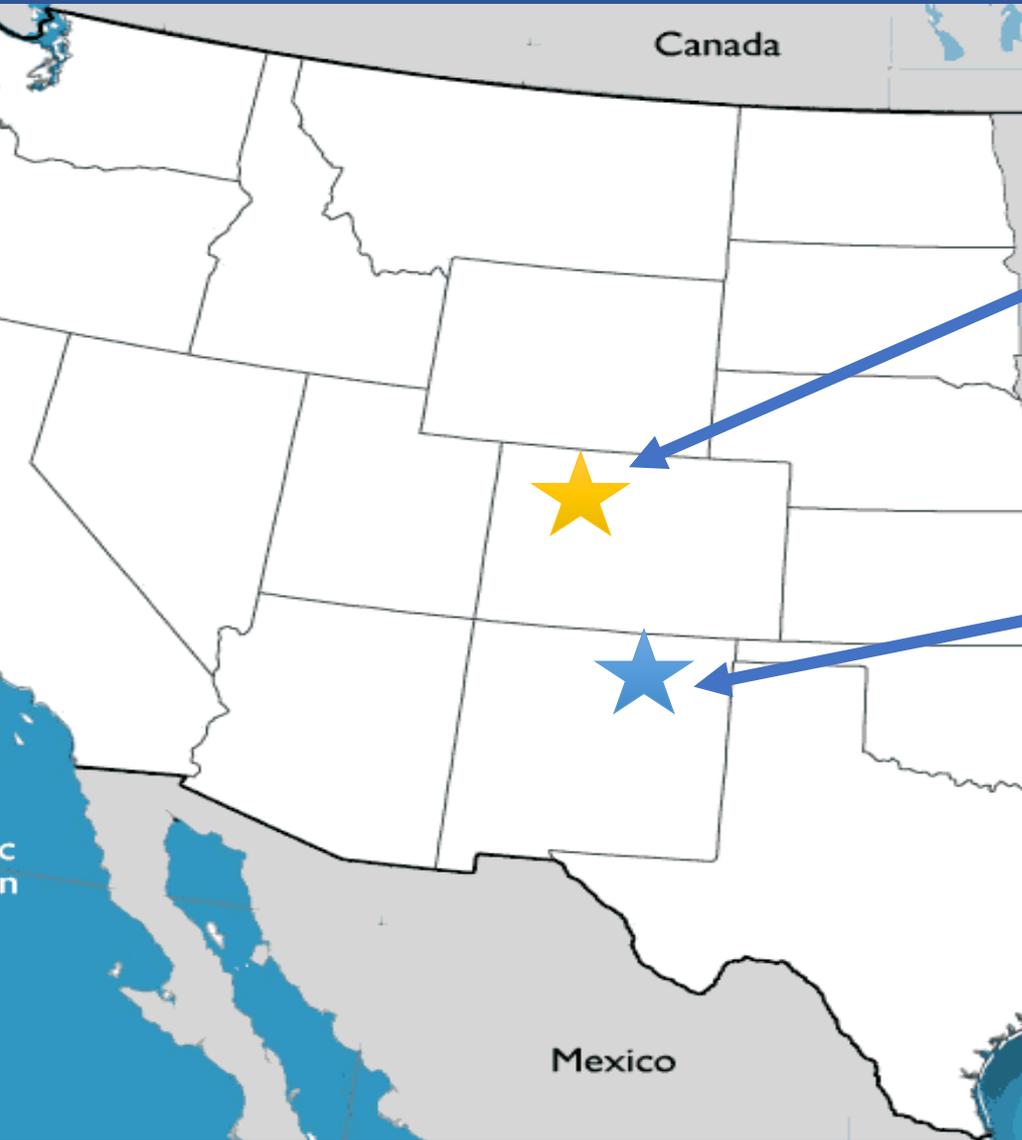


# Project Team



# Case Study Criteria

- Recent histories of:
  - Large fires with multiagency response
  - Collaboration and partnerships
- Variability in:
  - Socio-ecological context
  - Spatial footprint
  - Ownership patterns
  - “On paper” evidence of co-management



# Focal Cases Today

- Northern Colorado Fireshed, northern Colorado  
*March 2019*
- Rio Grande Water Fund Landscape, New Mexico  
*October 2018*
- 40 total interviewees (20 per case)

# Data Collection

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- Document analysis and timeline
- Qualitative semi-structured interviews
  - Key informants in federal, state, local agencies and other organizations
  - Involvement in mitigation and suppression
- Mapping
  - Ownerships
  - WUI
  - Large fires
  - Treatments





# Typology of Boundary Work

## **Activities**

Performing related or collective tasks

## **Objects**

Bridge gaps in org. structures, knowledge, interests; move resources

## **Concepts**

Sustain common communication and goals

## **Organizations/ people**

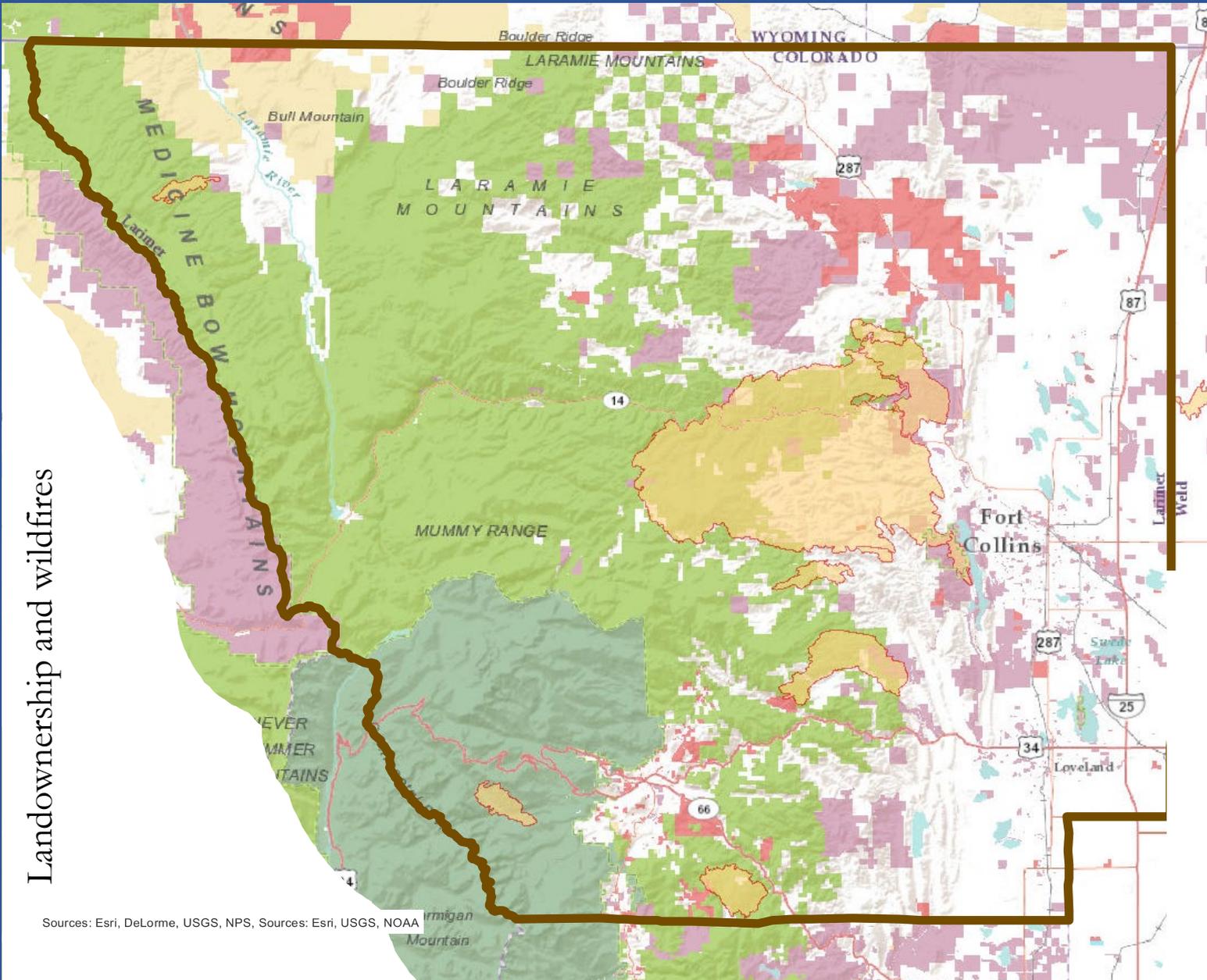
Facilitate and sustain connections, put in legwork

## **Settings**

Missions, cultures, practices, policies

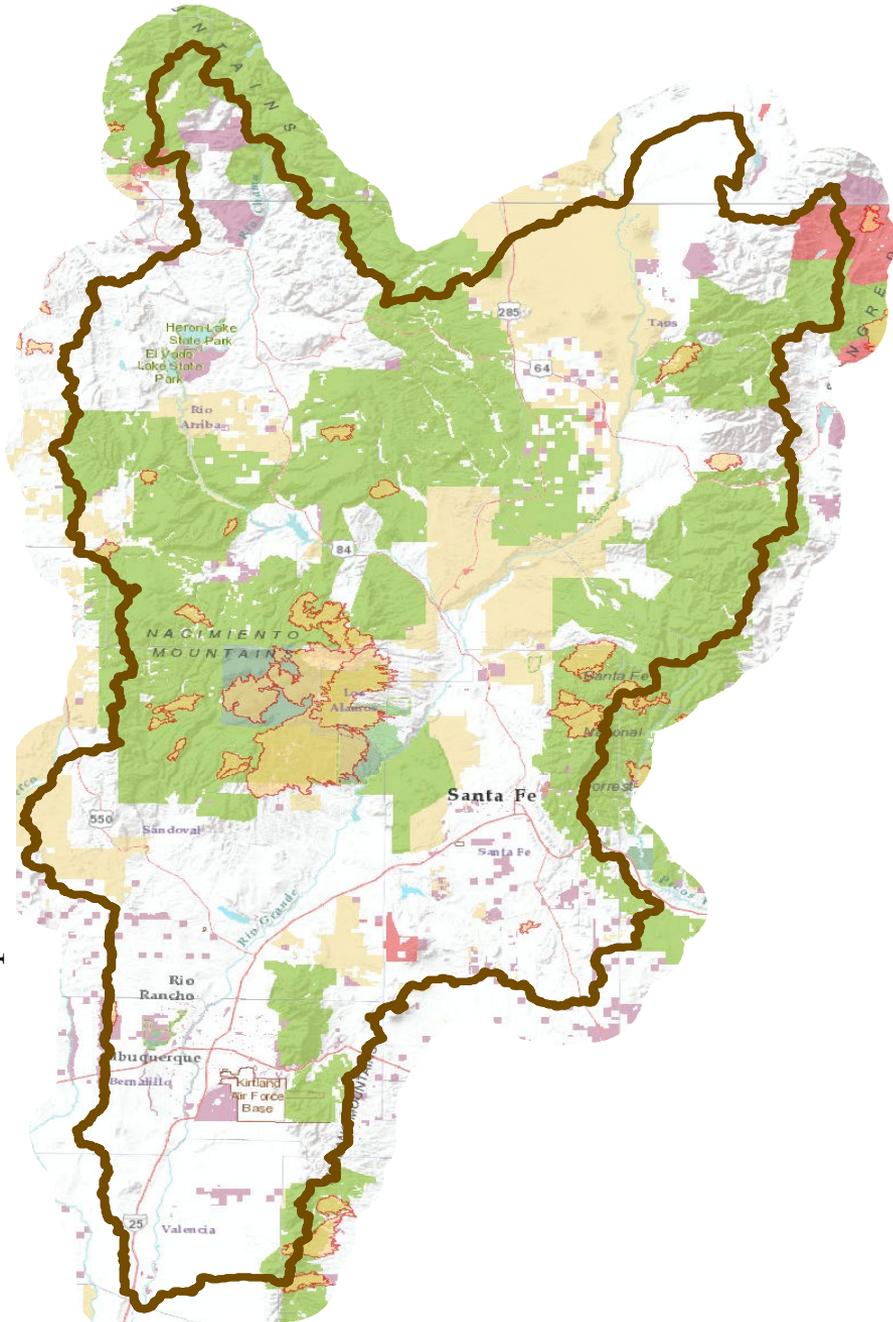
# Northern Colorado Fireshed

Landownership and wildfires



Sources: Esri, DeLorme, USGS, NPS, Sources: Esri, USGS, NOAA

Landownership and wildfires



# Rio Grande Water Fund

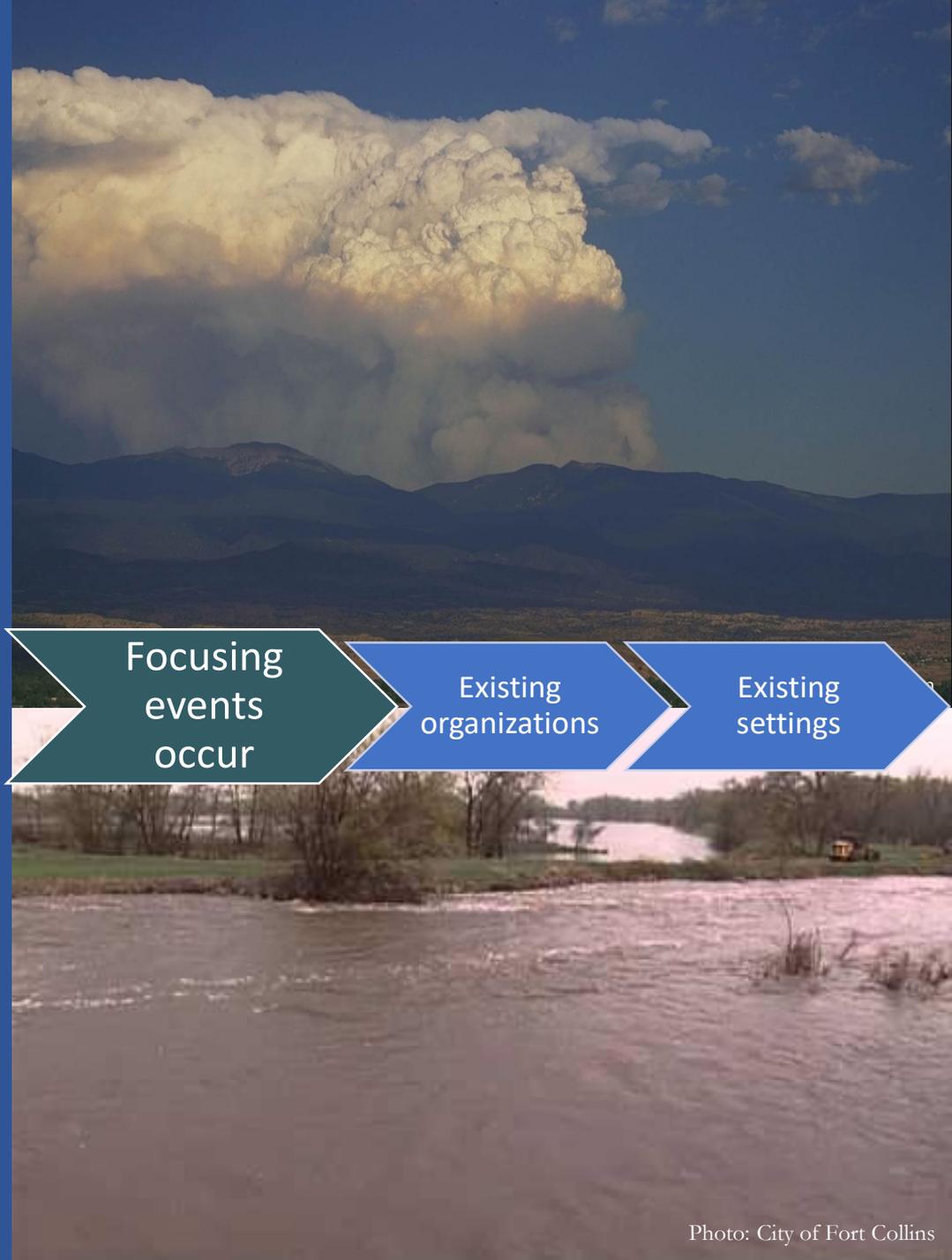
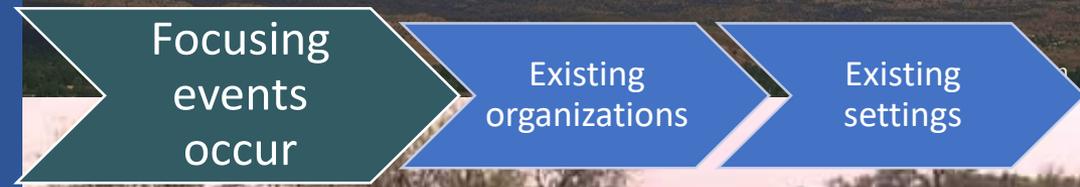
# Focusing Events

- Multiple large wildfires over time
  - Escaped prescribed
  - Natural ignitions
- Post-fire effects
  - Flooding
  - Water supply impacts



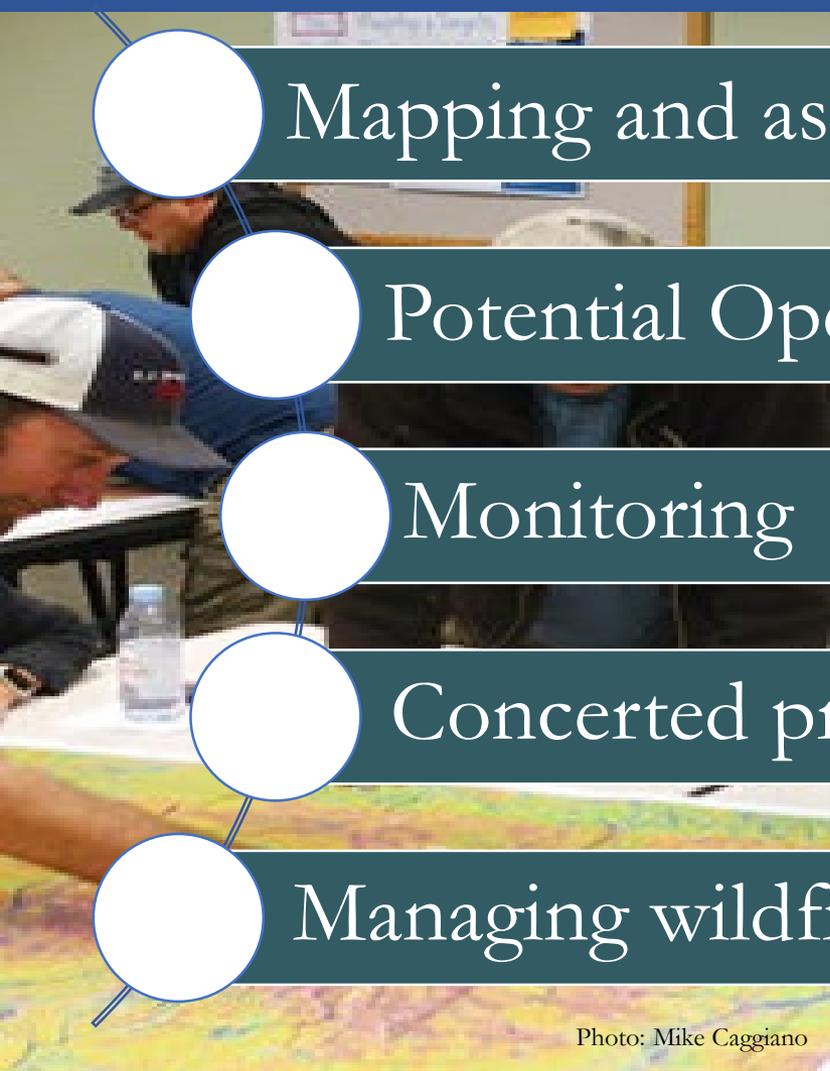
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# Boundary Spanning: Activities



Mapping and assessment processes

Potential Operational Delineations

Monitoring

Concerted prescribed fire

Managing wildfire for resource objectives

# Boundary Spanning: Objects

FOR SIGNATURE DATES (8-25-2015)

Pa  
"R

Comprehensive plans prioritizing water sources

Waters  
living in  
and,

WHEREAS, severe wildfires and the resulting post-fire effects, as was seen after the 2011 Las Conchas fire, may impact surface water sources and supplies by introducing large quantities of sediments into reservoirs and surface infrastructure that serve communities, acequias and irrigation districts;

WHEREAS, riparian areas have a key role in groundwater recharge for the Rio Grande;

Wildfire mitigation and suppression plans

WHEREAS, the impact of wildfires is substantial, including its agricultural and property tax base;

WHEREAS, the Rio Grande Valley Water Users' Association, the Rio Grande County Water Utility Authority and the City of Santa Fe have expended tens of millions of dollars to develop projects to divert water from the Rio Grande and San Juan Chama Project to supply their respective water systems; and,

WHEREAS, New Mexico citizens will benefit from additional information about the essential role of the shrub and grassland ecosystems in our water supply and economy and the on-going need for forest, shrub and grassland restoration;

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stra

MOUs, agreements, collaborative charters

be most effective if local, state, tribal, and non-governmental organizations voluntarily collaborate on their individual forest, grassland and watershed restoration projects;



# Boundary Spanning: Concepts



Focused watershed restoration

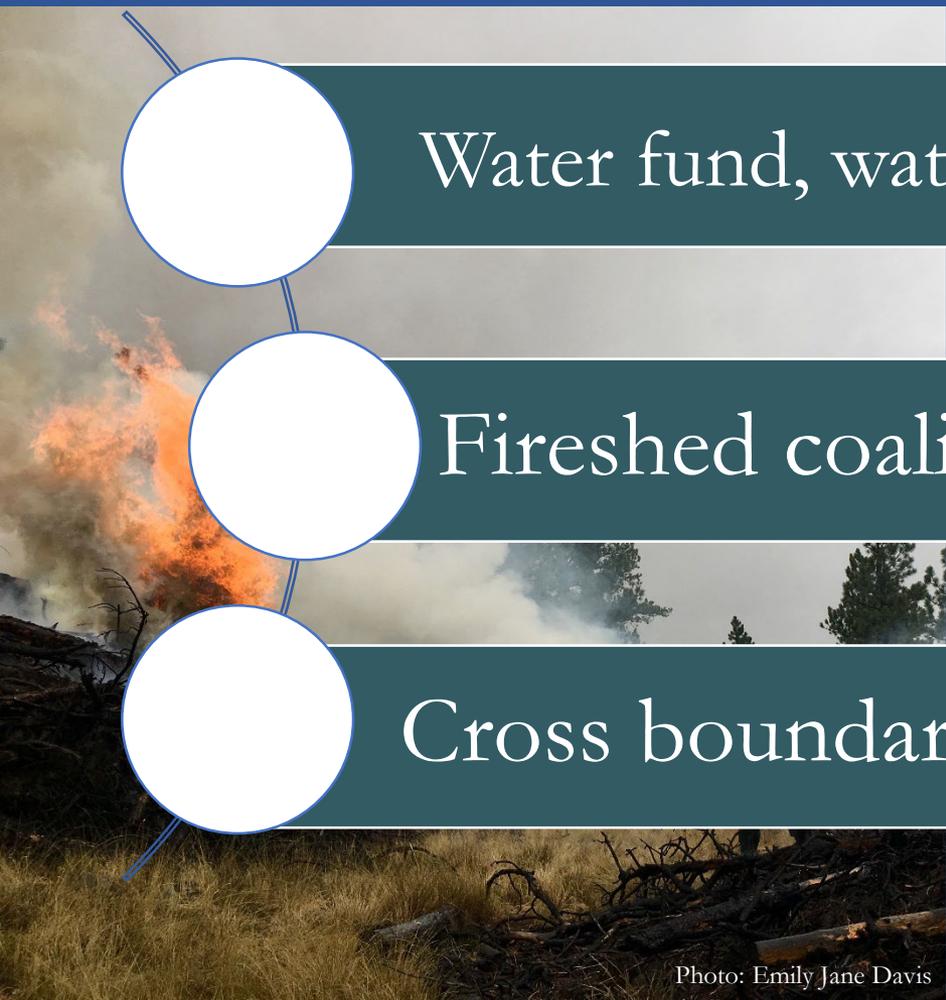


Collective investment



Restoration principles

# Boundary Spanning: Organizations

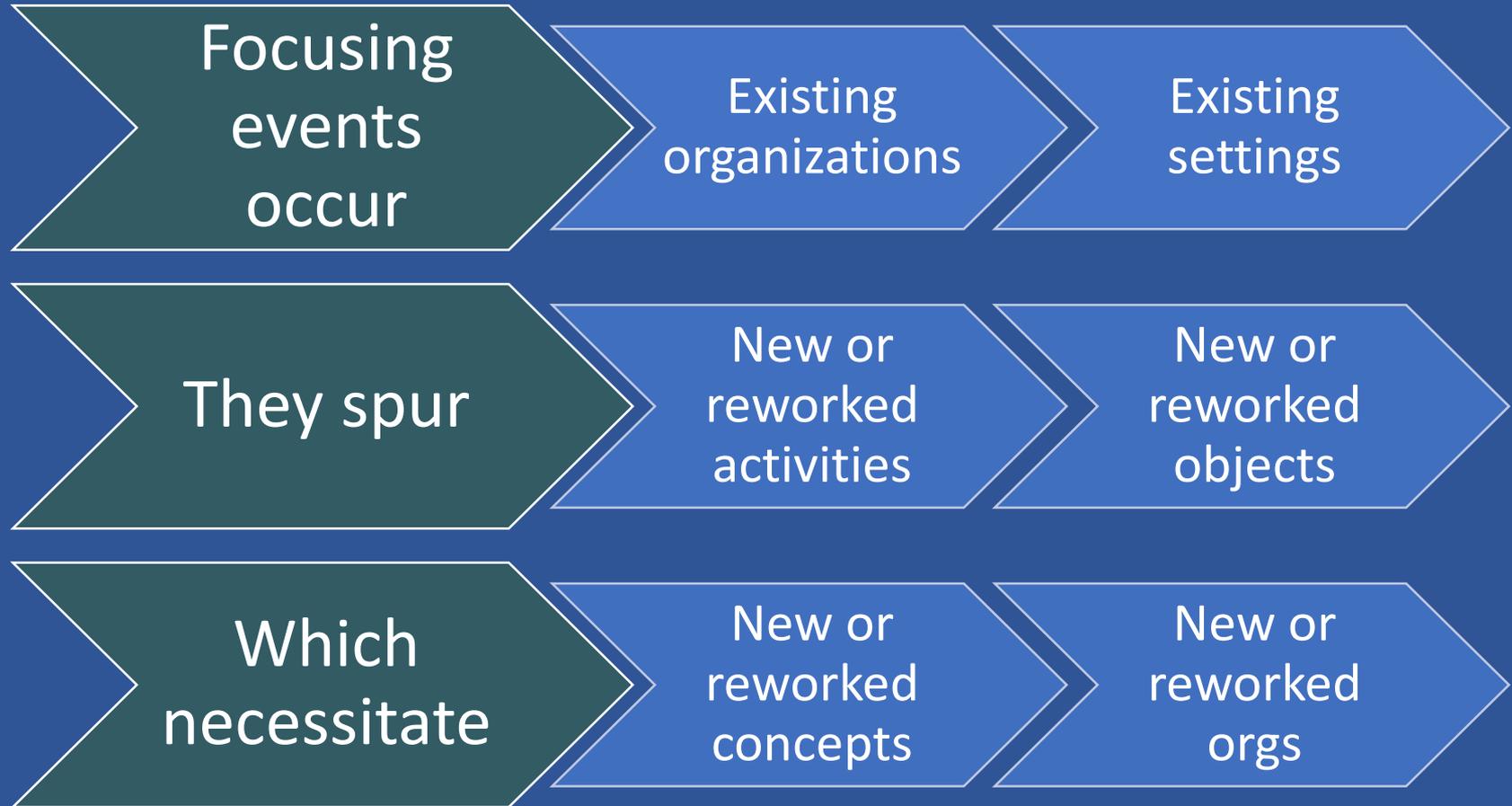


Water fund, water protection partnership

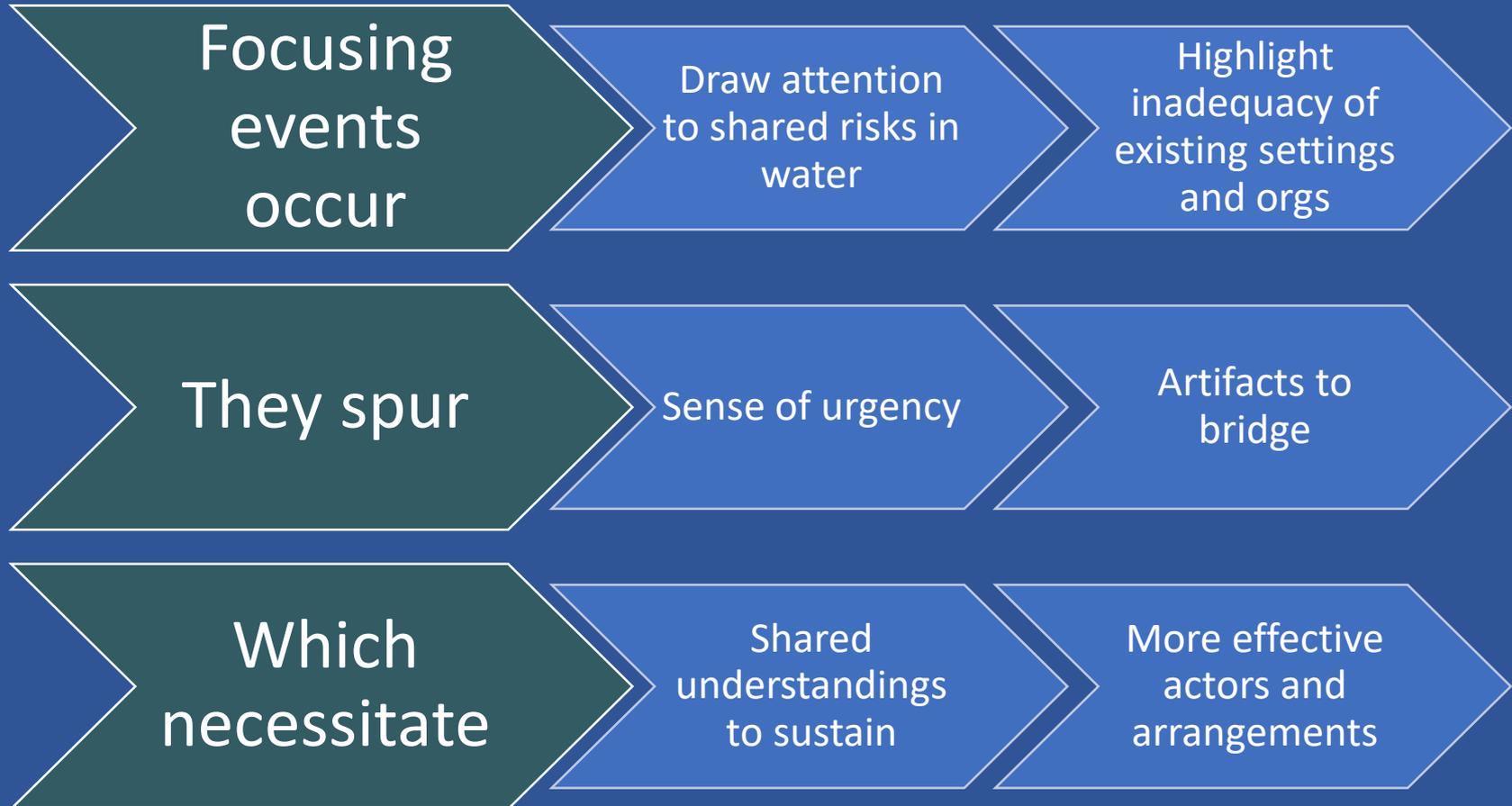
Fireshed coalitions or efforts

Cross boundary rx workforces

# How Might This Boundary Spanning Operate?



# Why Might It Operate This Way?





# Challenges

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- Meetings...
- STP and champions
- Lack of clarity, possibly risks of:
  - Competition
  - Inefficiency
- Realities of different jurisdictions, missions

# Why Not Here?



- Similar focusing events: fire and water
- Different settings and organizations
- Continue to co-manage risks in suppression, but not mitigation

# What spans action arenas and structures the possibilities for co- management of risk?

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- Multiple focusing events with tangible impacts...
- ...capable of stimulating multiple types of boundary work...

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- Multiple focusing events with tangible impacts...
- ...capable of stimulating multiple types of boundary work...
- ...and the commitment and resources to sustain and institutionalize that work.

# Implications

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- Look beyond boundary organizations
- Ask if boundaries be spanned meaningfully without focusing events
- Examine processes of governance change absent legal or policy shifts





# Thank You

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<http://www.nwfirescience.org/CoManagingRisk>

