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Human Dimensions of Wildland Fire Management: Social Science Perspective

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SERDP • ESTCP
SYMPOSIUM
2018 | Enhancing DoD's Mission Effectiveness

Meet the Firechasers

www.firechasers.ncsu.edu

Co-PIs

- ❖ Toddi A. Steelman, Duke University
- ❖ Anne-Lise Velez, Virginia Tech

Current Graduate Students

Kate Albrecht
Sarah Baines
Daisy Mills
Honey Minkowitz
Elliot Nauert
Ryan Scott



Big Picture: National Capacity to Deal with Increasingly Complex Disasters through Better Co-Management



Why is Co-management on Fires Important?

Fires are larger and traversing more jurisdictional boundaries than they have in the past

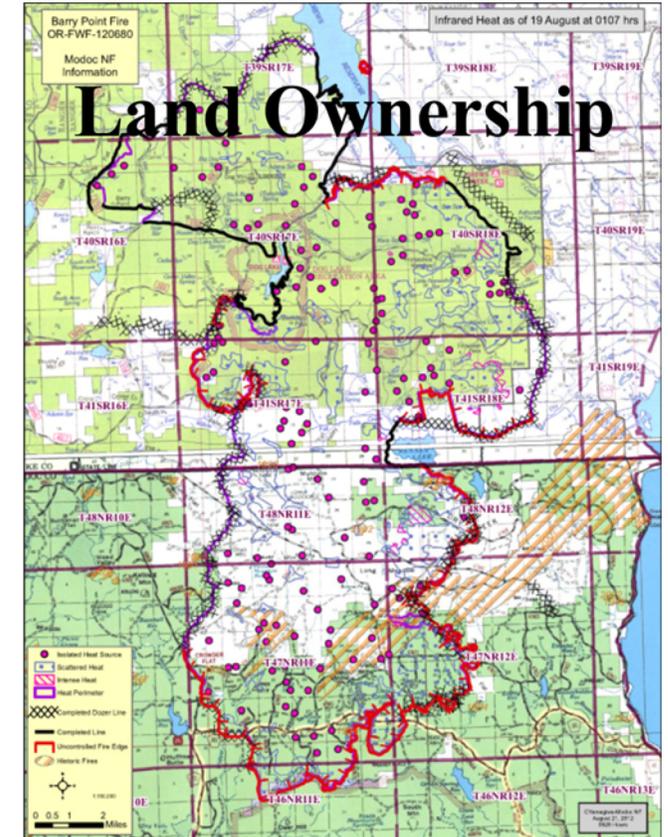
- Greater complexity = more engagement by more actors

Lessons of change management

- Challenge of retrofitting new ideas to old systems

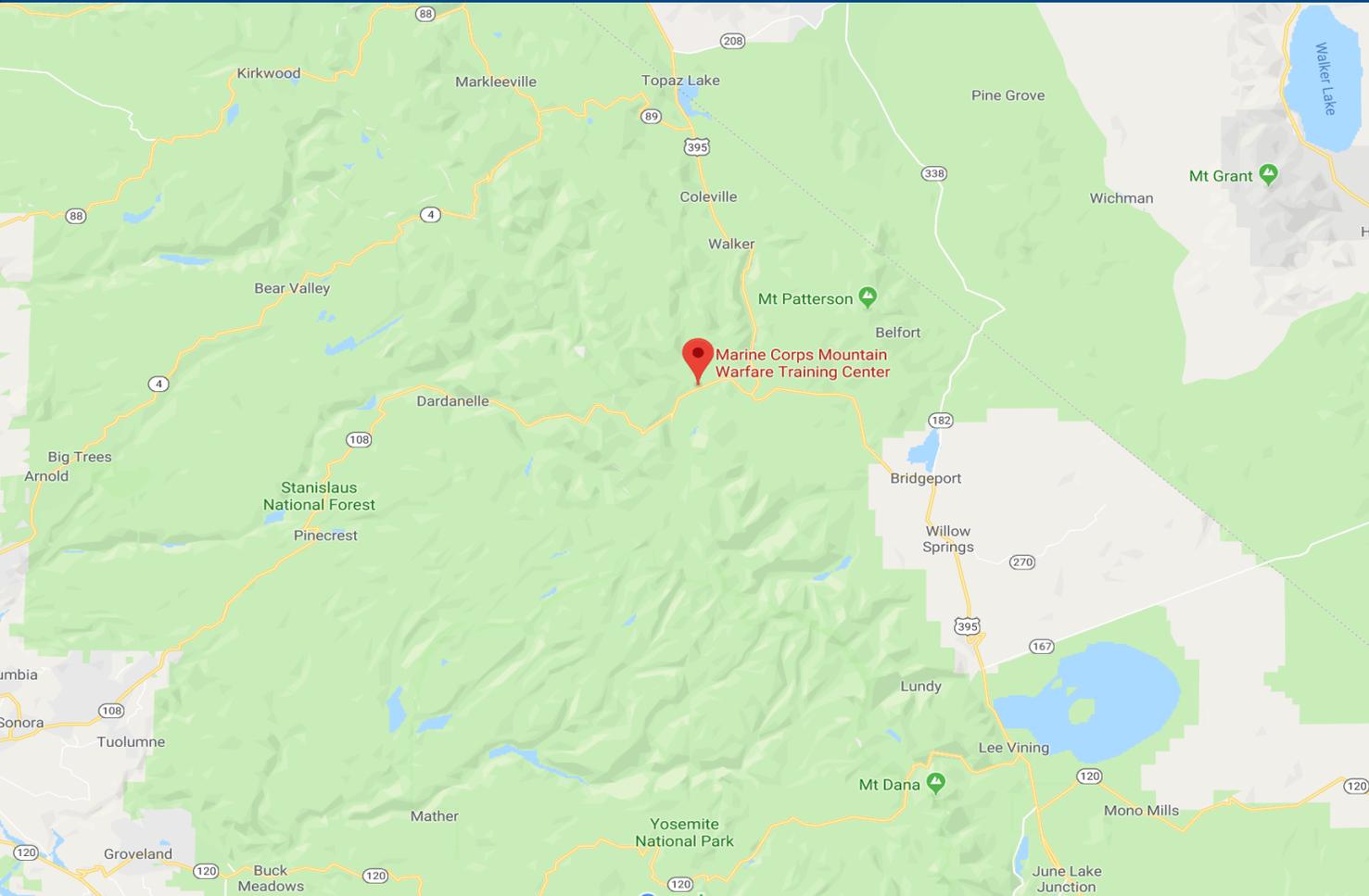
Retrofitting co-management into ICS

- Incident command system = hierarchical command and control organized around jurisdictional authority
- Co-management: power sharing across jurisdictions
- Is risk co-management among multiple jurisdictions possible within this governance structure?

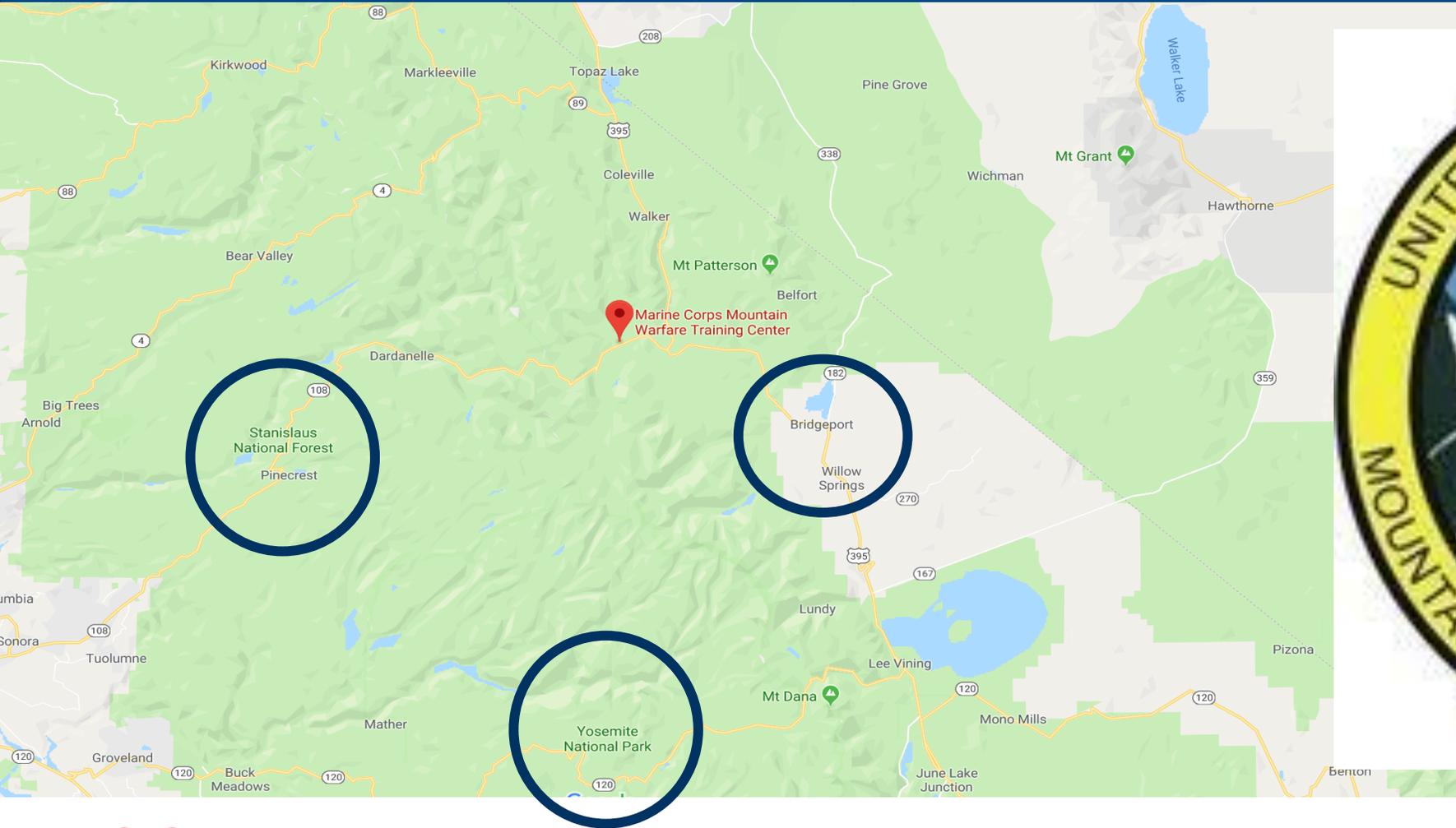


http://www.nwmapsco.com/ZybachB/Presentations/2010-2015/20140827_CTV/Wildfires_20140827-29-10.jpg

Case in point



Case in point



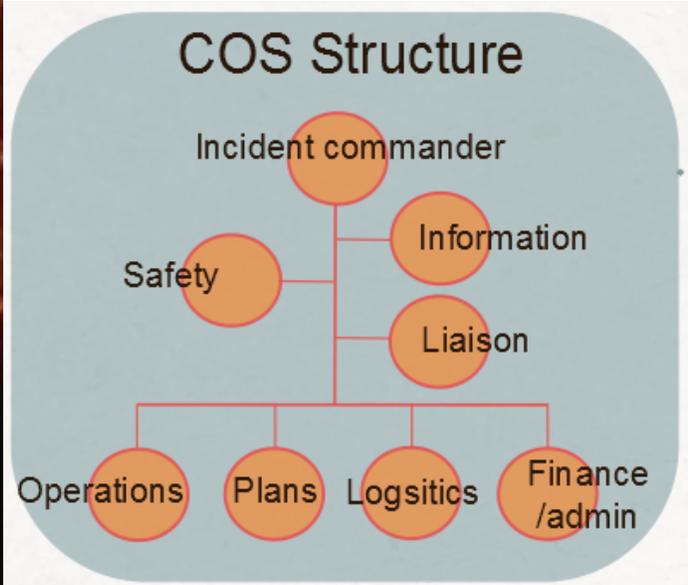


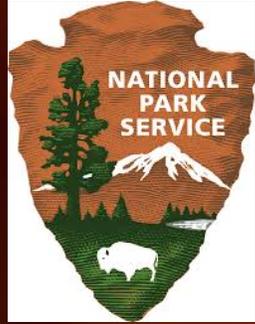
Wildfire management





Joint Delegation of Authority





Joint Delegation of Authority



Unified Command

Public safety

Wildfire
management

Public Utility
Restoration

Structure
Protection

Media

Re-entry into
evacuated
areas

Animal
Evacuations

Evacuations

Road Closures

Tribal affairs

Sheltering &
Mass Care

What does the new normal of jurisdictional complexity look like?



The challenge...

There are no easy data sources to give us a picture of what jurisdictional complexity on large fires looks like nationally

- ❖ Its hard to prepare for something we don't fully understand
- ❖ Need to understand how changes in wildfire are leading to changes in wildfire management
- ❖ **Firewatch protocol** – developed in 2017; refined in 2018

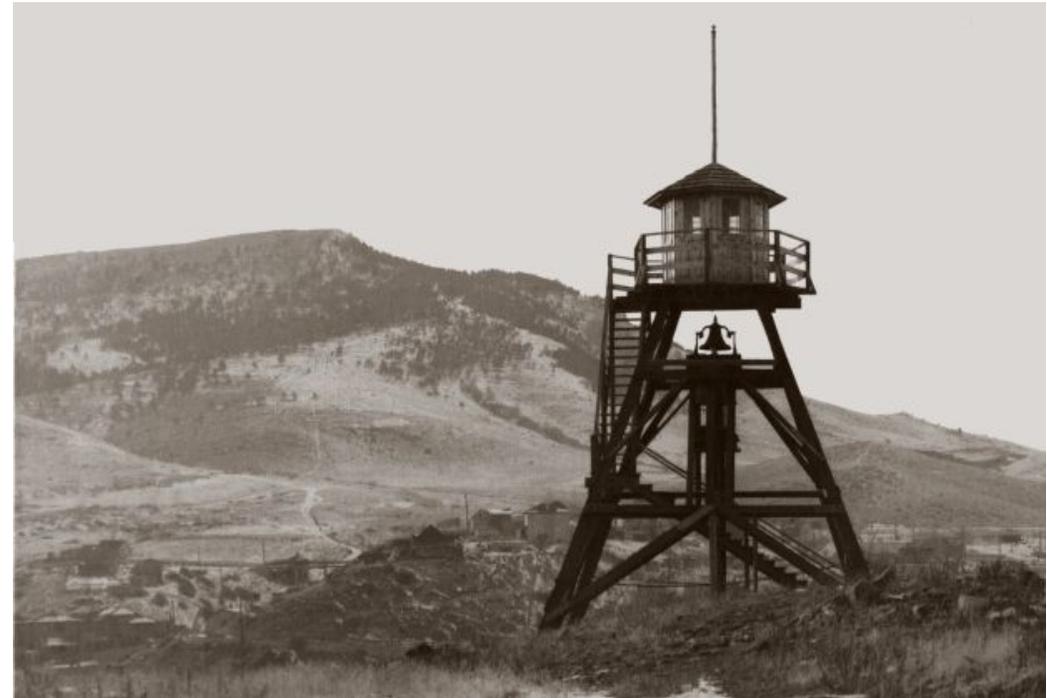


Photo credit: AL KNAUBER al.knauber@helenair.com

What does the new normal of jurisdictional complexity look like?:

of total jurisdictions impacted



VENTURA

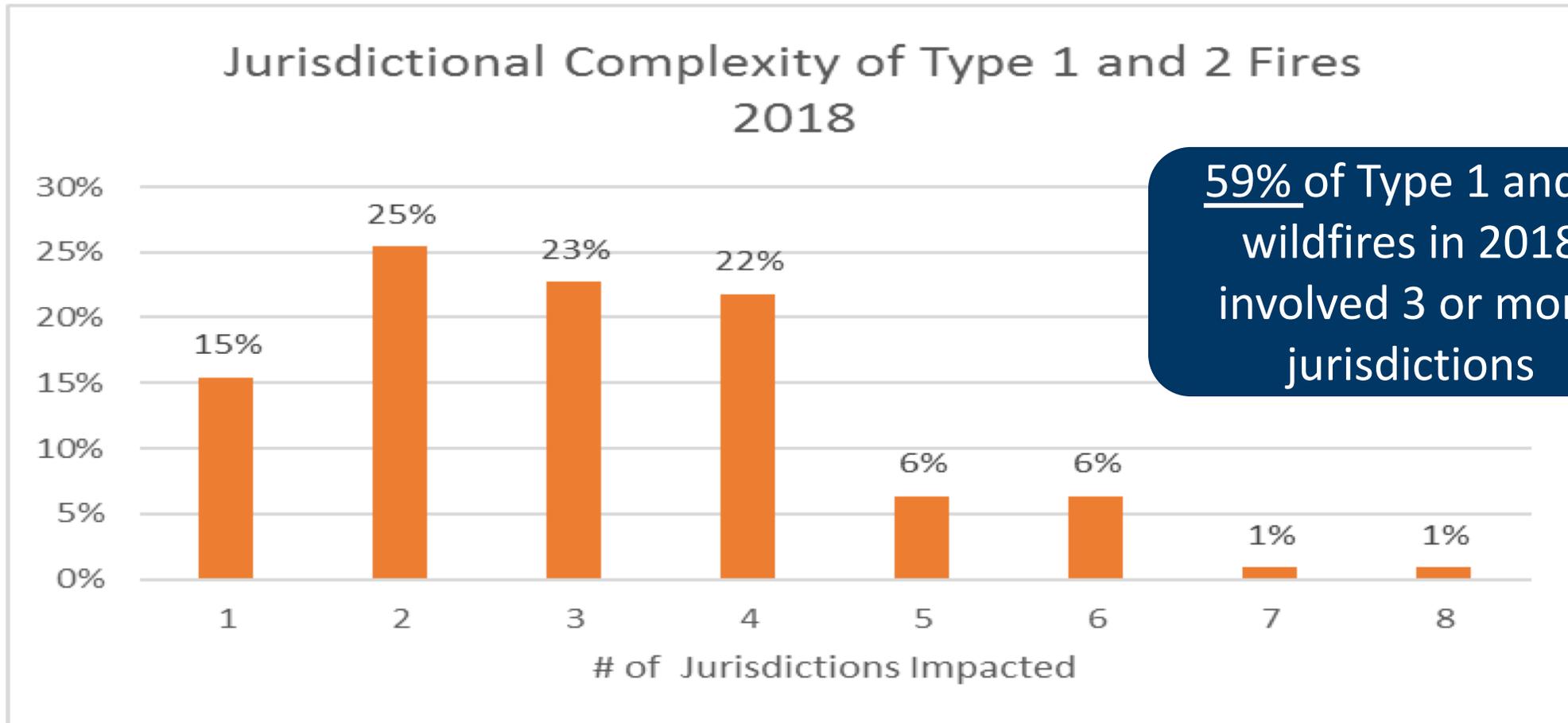


City of
SANTA BARBARA



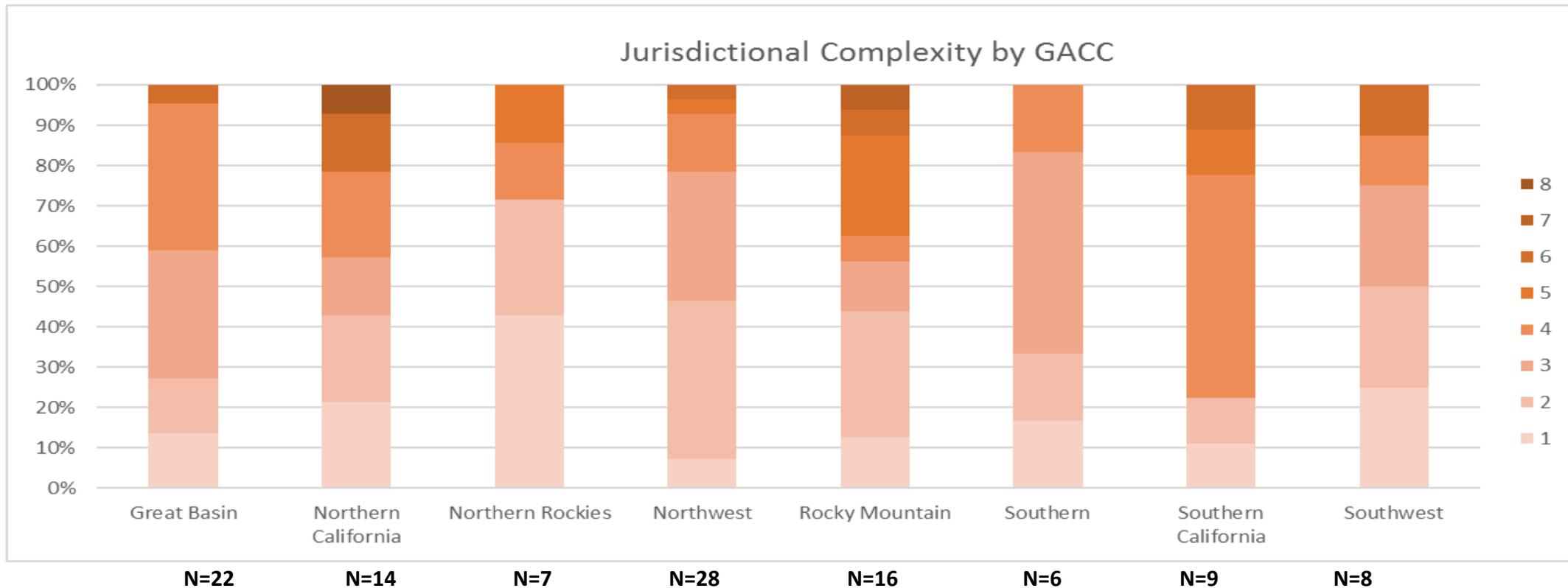
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What does the new normal of jurisdictional complexity look like?

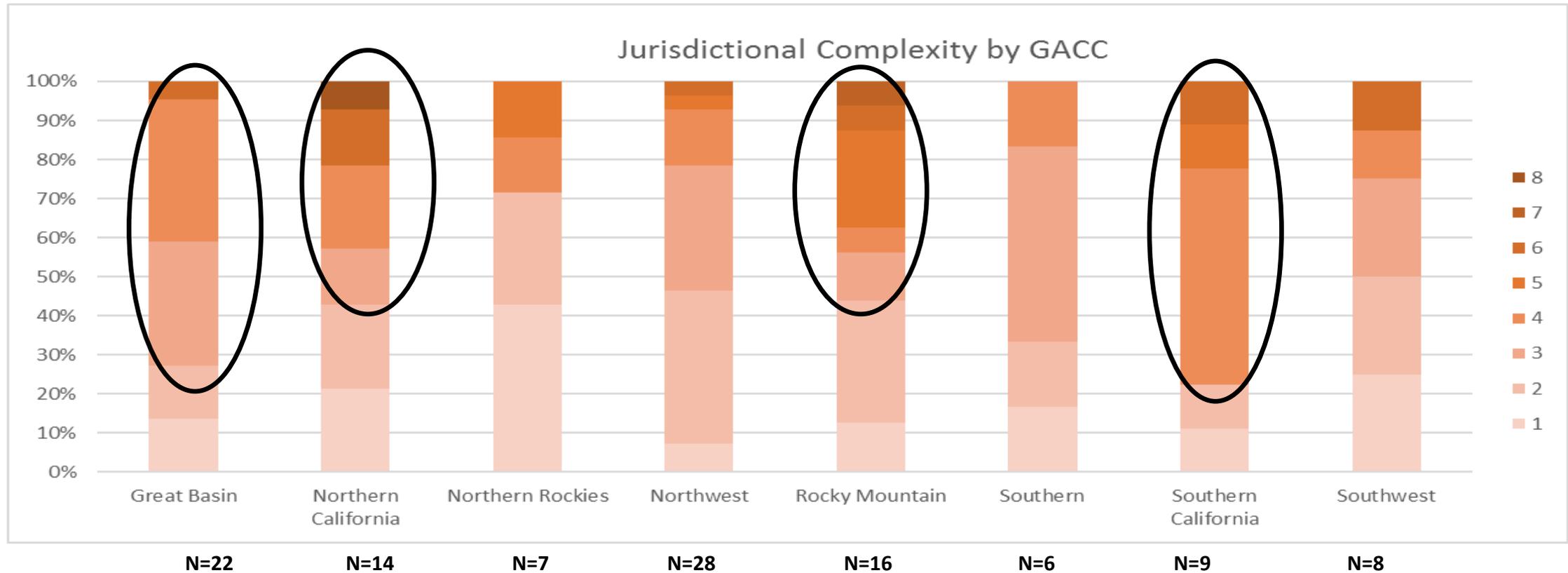


Includes only public jurisdictions (county, state, federal, and tribal) /excludes private

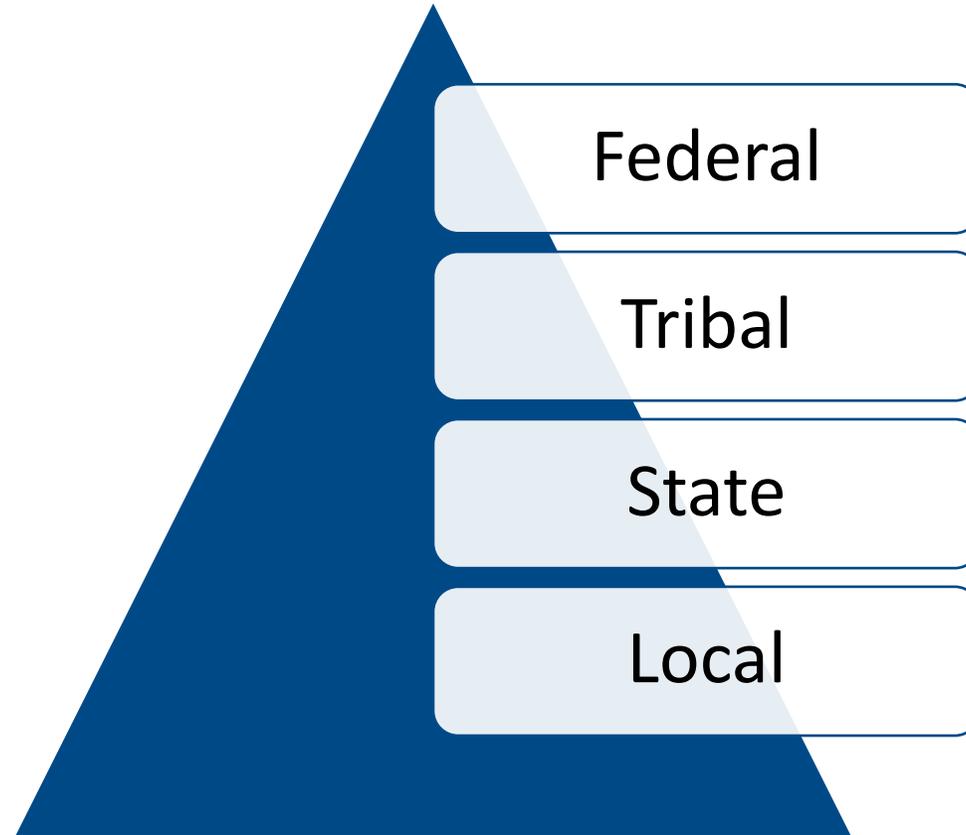
What did jurisdictional complexity look like by GACC in 2018?



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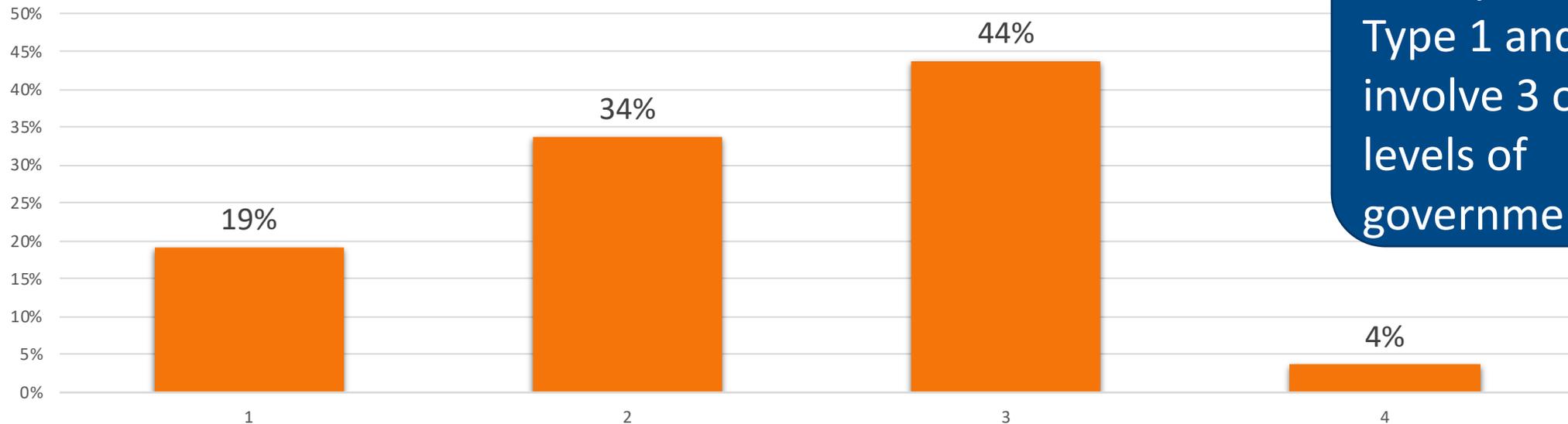


What does the new normal of jurisdictional complexity look like?: # of jurisdictional levels



What does the new normal of jurisdictional complexity look like?

Jurisdictional Complexity by Government Level

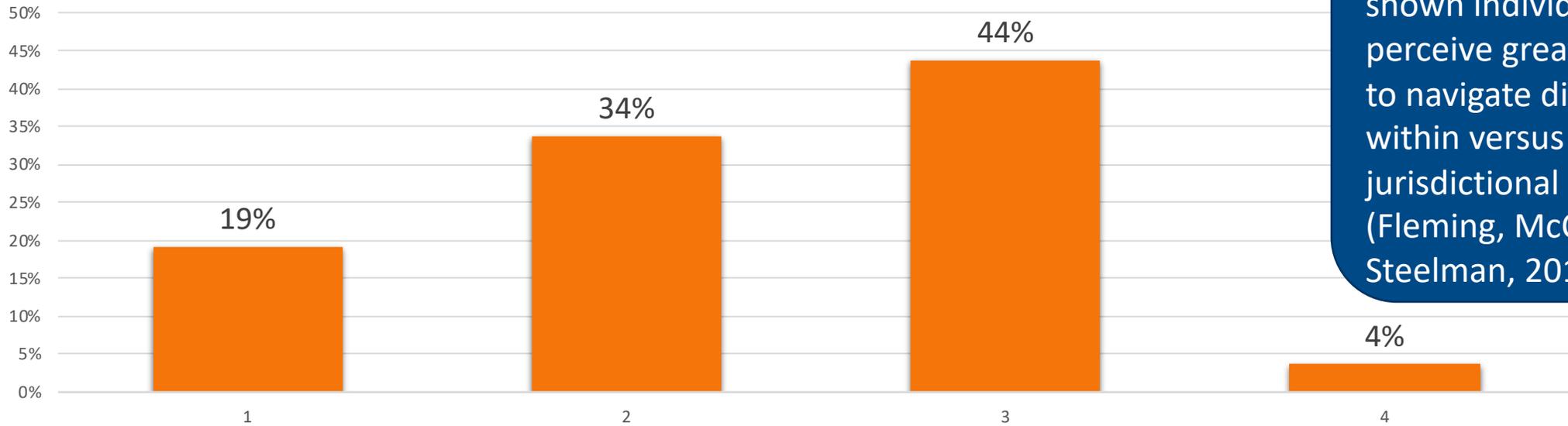


Nearly half of all Type 1 and 2 fires involve 3 or more levels of government

Based on a possible range 1-4: local, state, federal and tribal

What does the new normal of jurisdictional complexity look like?

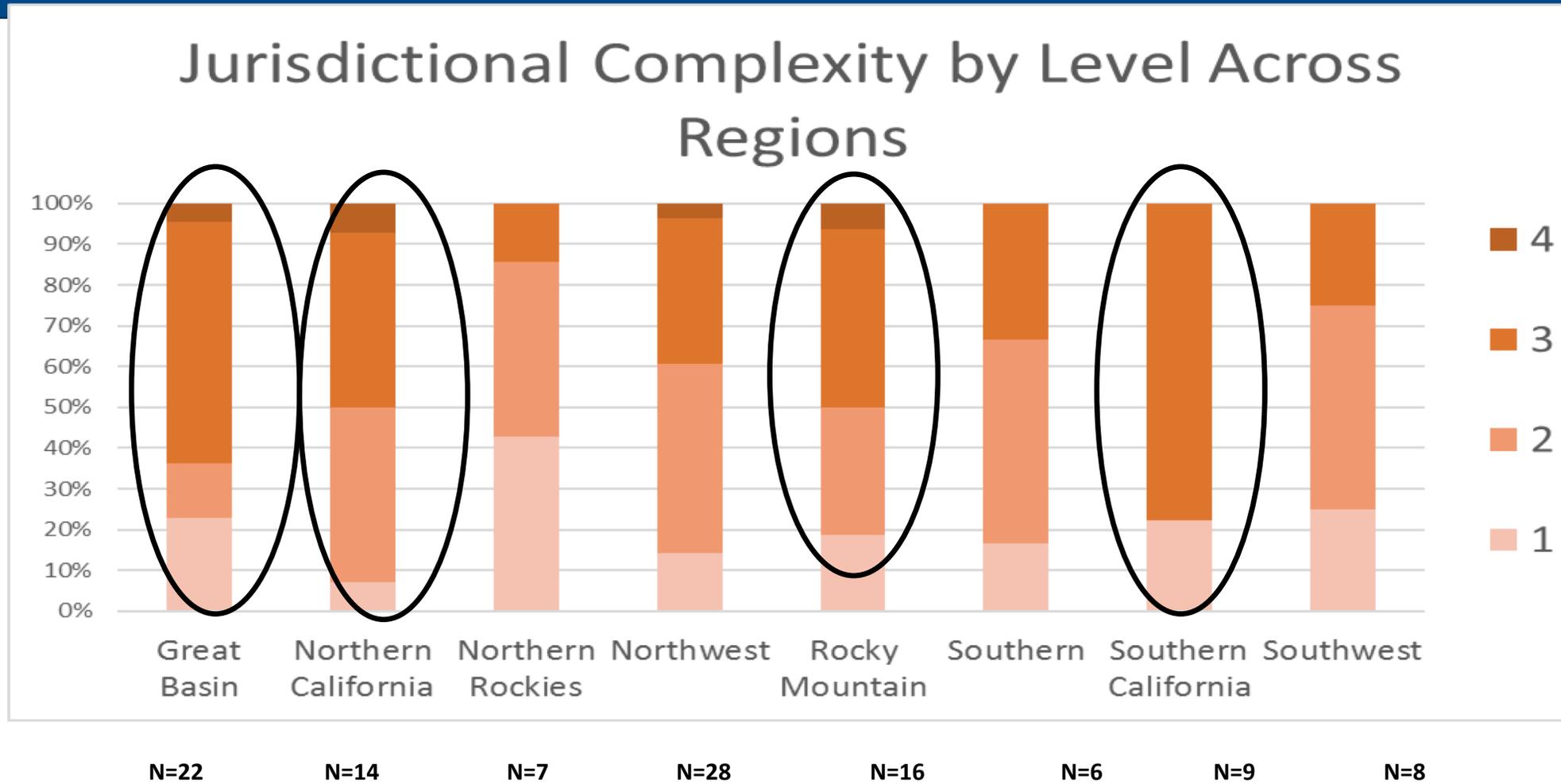
Jurisdictional Complexity by Government Level



Our past research has shown individuals perceive greater ability to navigate differences within versus between jurisdictional levels (Fleming, McCarthy, and Steelman, 2015)

Based on a possible range 1-4: municipal, county, state, federal and tribal

What did jurisdictional complexity look like by GACC in 2018?



Big Take Aways

- ❖ Type 1 and 2 fires routinely have 3 to 4 jurisdictions impacted representing 3 levels of government – this is the new normal
- ❖ None of the current complexity analysis includes representation of private interests which is a whole additional layer of complexity

Improving fire management will require improving our ability to govern large multi-jurisdictional fire organizations...but what does that mean?

How are we doing
managing multi-
jurisdictional fires?

Short answer:

IT DEPENDS ON WHO YOU ASK....



Methods: 10 item survey– Network performance at co-management

1. A coordinated set of fire management objectives were agreed upon among all affected jurisdictions
2. All concerned jurisdictions prioritized maintaining good communication among jurisdictions
3. Credit for success and effort was shared among jurisdictions during public meetings and media events
4. There was a general willingness across affected jurisdictions to offer assistance to other jurisdictions
5. “Borrowed resources” were released in a timely fashion to minimize burden on the lending agency
6. Critical values at risk were broadly understood by all major stakeholders
7. Efforts to protect identified values were appropriate given available resources
8. The overall strategy taken in managing this fire was appropriate
9. Local resources were incorporated into the incident management operations
10. Public information was coordinated among cooperating jurisdictions to ensure continuity of the message

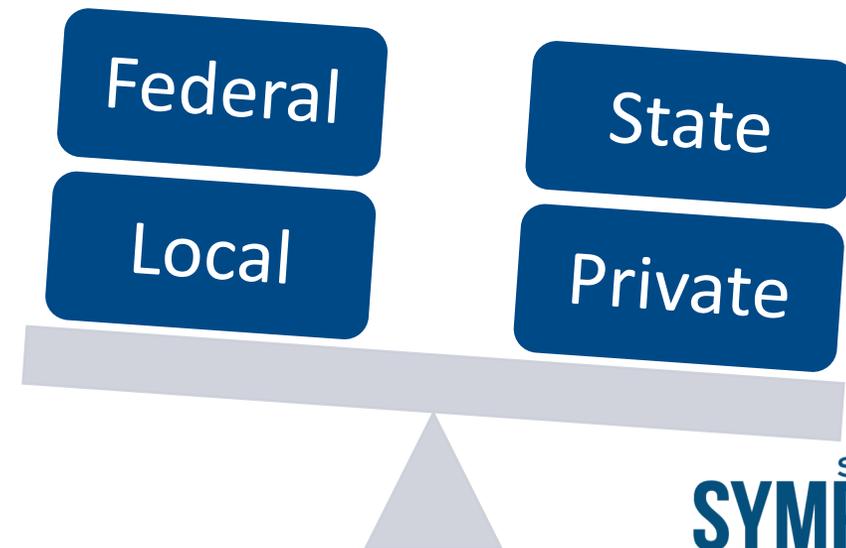
Nowell & Steelman, 2013; www.firechasers.ncsu.edu

How are we doing managing multi-jurisdictional fires?

- Everything depending on:
 - What jurisdiction you represent [F (4,84)=10.22***]
 - Which incident being referenced [F (9, 80) = 4.78***]

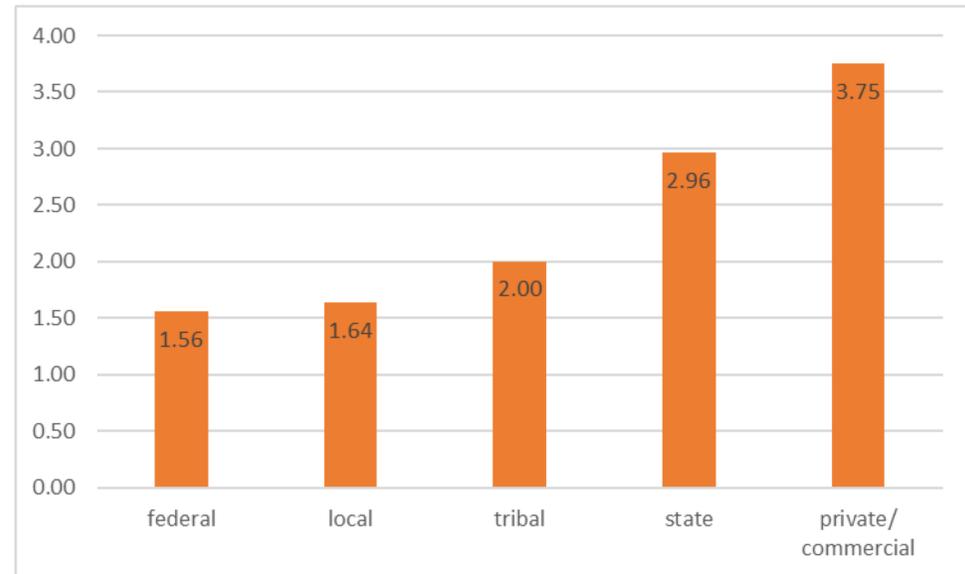
General pattern:

- State and private were least satisfied



Biggest Point of Divergence

The overall strategy taken in managing this fire was appropriate
[$F(4,84)=12.03^{***}$]



1 = most agree, 5 = most disagree



However, regardless of jurisdiction, the challenges and solutions identified by land managers were consistent.

Concluding insights for 2018

Traditional ICS
governance encourages
jurisdictional hot potato



Movement toward Fireshed Level Governance

- ✓ Off-season efforts to build relationships and establish a common operating picture of the fireshed is critical
- ✓ Think of every fire that escapes IA as a potential multi-jurisdictional fire – particularly when national resources are stretched thin
- ✓ Early outreach to threatened jurisdictions – figure out your fire organization before you need it
- ✓ Participation and procedural confidence are critical
 - ✓ Agency Administrator meetings
 - ✓ Participation is not the same thing as asking someone to approve the plan