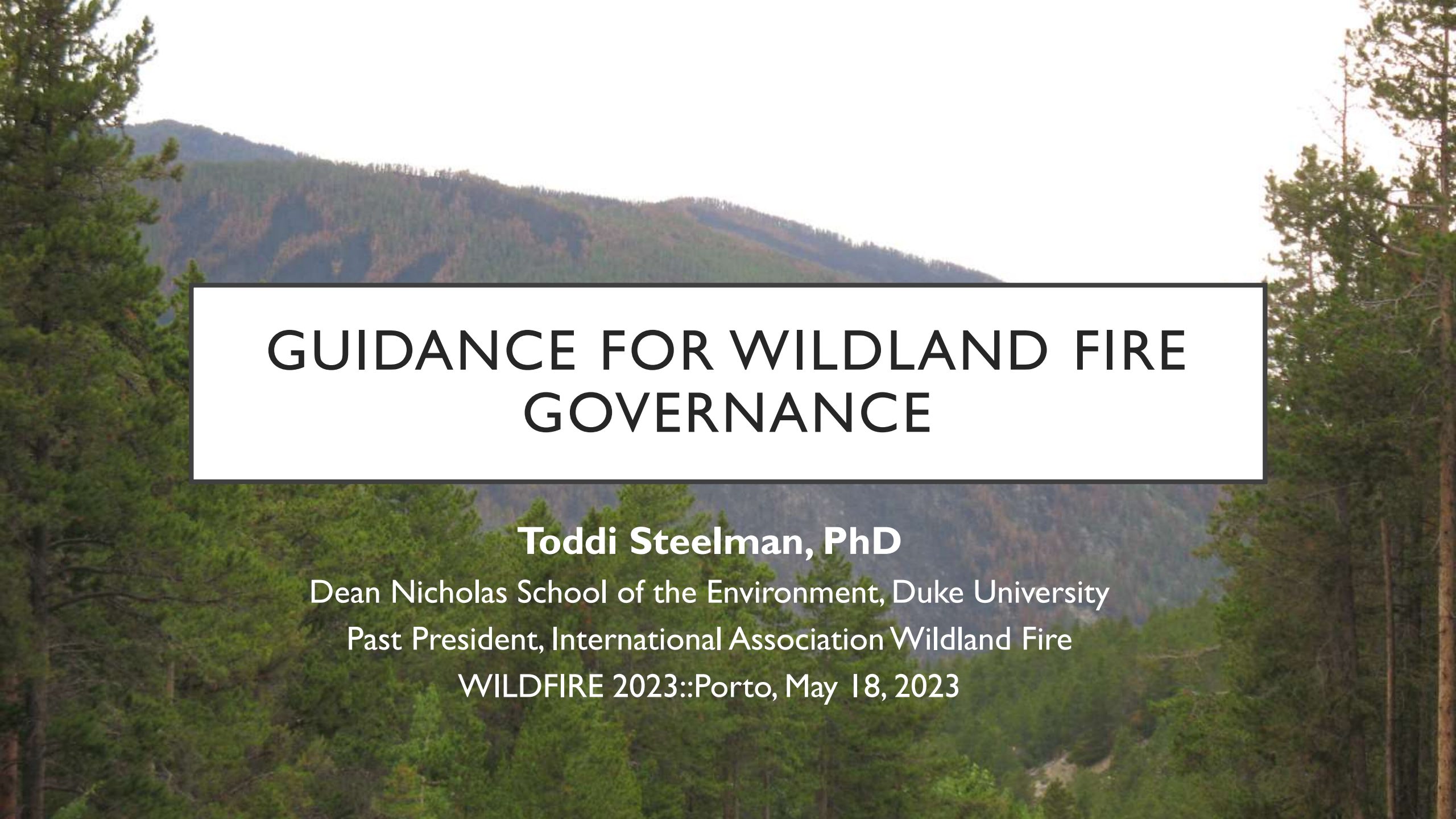


GUIDANCE FOR WILDLAND FIRE GOVERNANCE

Toddi Steelman, PhD

Dean Nicholas School of the Environment, Duke University

Past President, International Association Wildland Fire

WILDFIRE 2023::Porto, May 18, 2023

WHAT IS OUR GOAL?

Just, effective, accountable and adaptive governance

GREATER IMPACTS ON AND CONSEQUENCES FOR HUMANS AND ECOSYSTEMS

(BOWMAN ET AL. 2017; BOER ET AL. 2020)

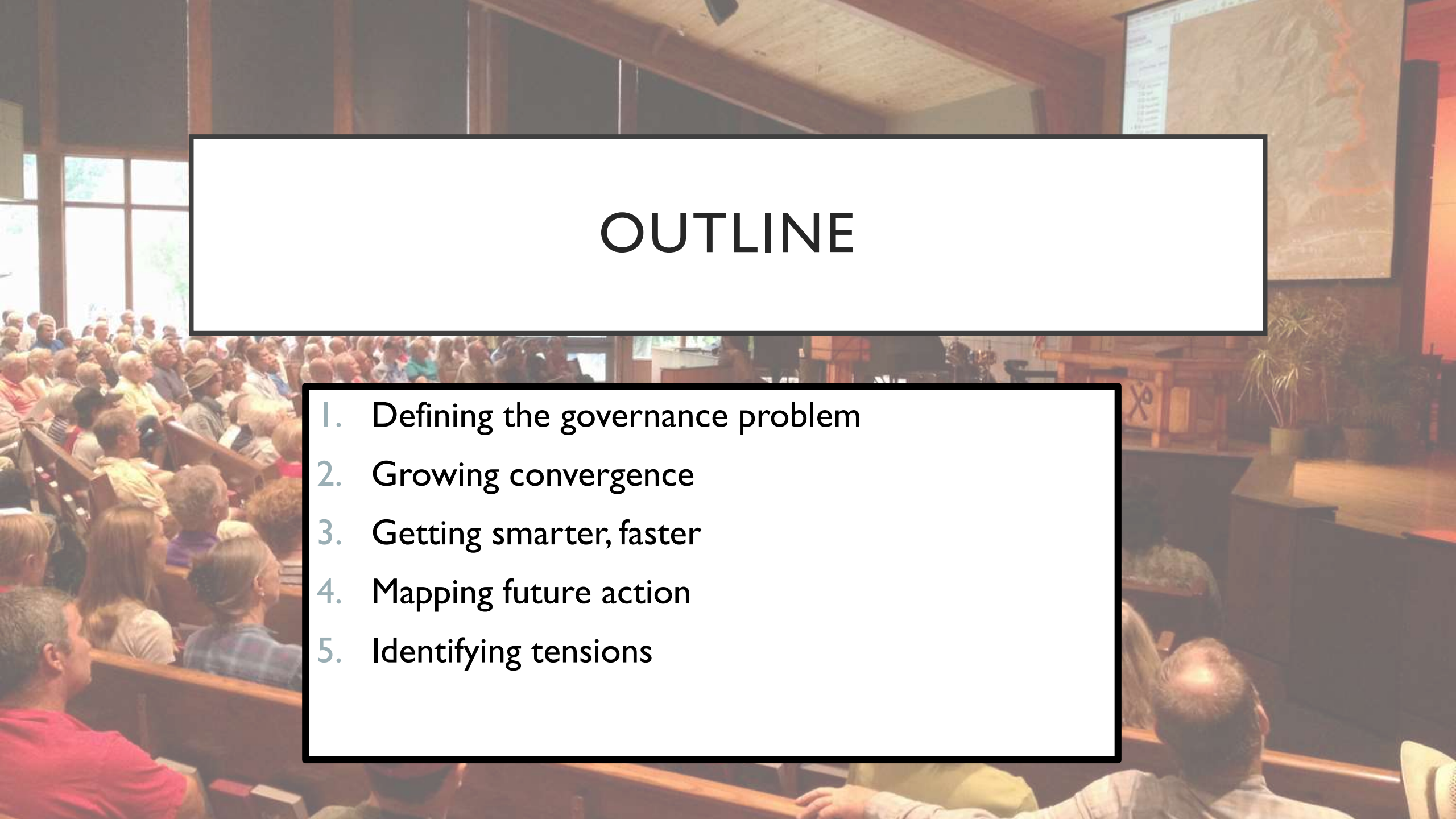
- Longer wildland fire seasons (Jolly et al. 2015; Flanigan et al. 2013)
- Extreme fire weather→ Extreme fire events (Jain et al. 2022; Liu et al. 2010)
- Increased wildland fire intensity, severity, frequency (Abatzoglou and Williams 2016; Jolly et al. 2015)

Land, Forest and Timber Management
Climate Change
Human Habitation

WHAT IS THE GOVERNANCE PROBLEM?

WHY GOVERNANCE?

- Institutions are sets of rules, processes, procedures, programs that give rise to recognized patterns of behavior (Young 2001)
- Address collective action problems (Hardin 1982)
- Governance ≠ Government
  - But government is essential (Koontz et al. 2005)
- Institutional change rests within structure, incentives, culture (Steelman 2010)



OUTLINE

1. Defining the governance problem
2. Growing convergence
3. Getting smarter, faster
4. Mapping future action
5. Identifying tensions

1. DEFINING THE GOVERNANCE PROBLEM

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WHAT IS THE PROBLEM?

Fragmentation

Socio-ecological forcings

Institutional mismatch

Resilient suppression culture

Ad hoc understanding of governance

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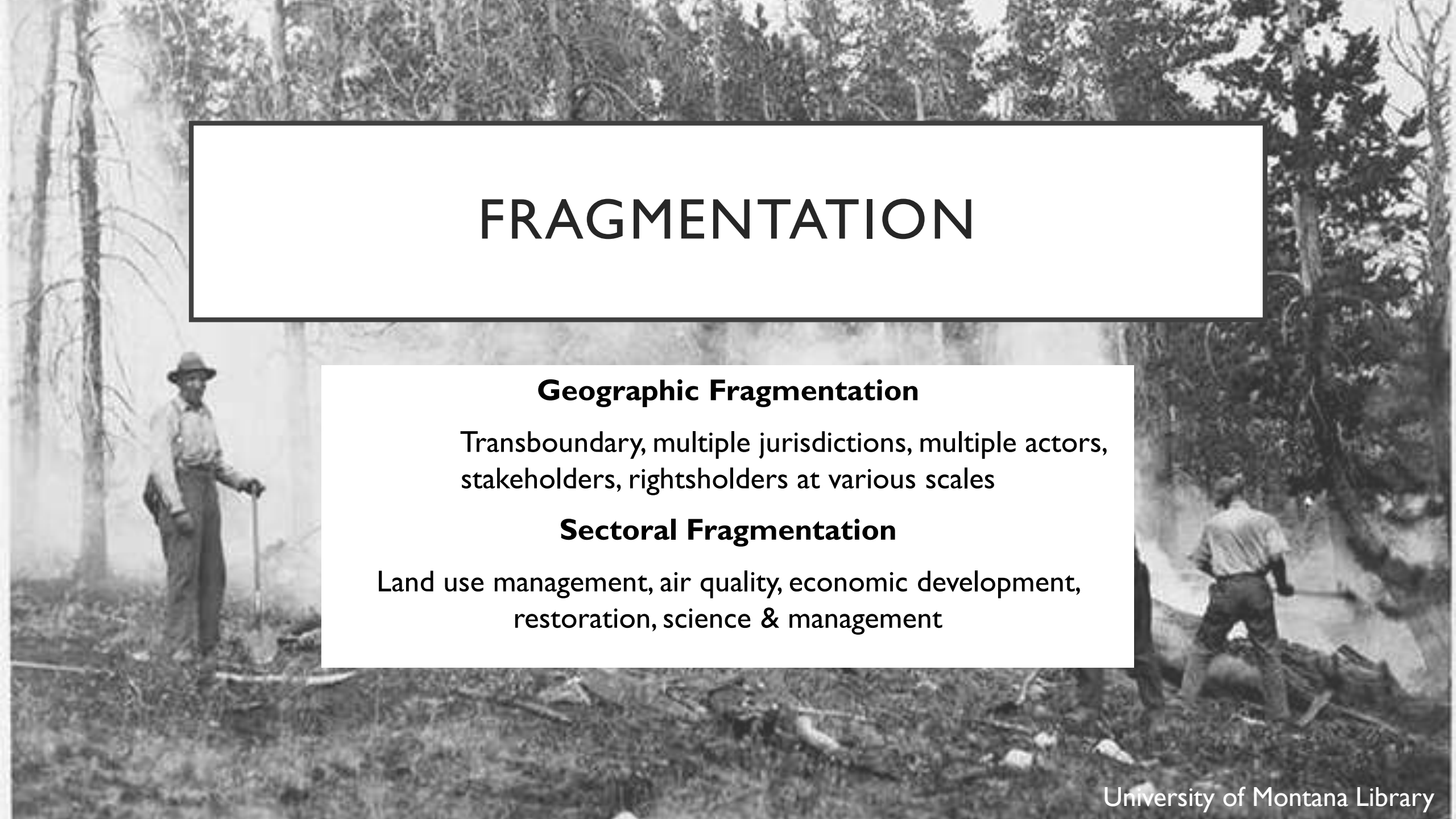

FRAGMENTATION

Geographic Fragmentation

Transboundary, multiple jurisdictions, multiple actors, stakeholders, rightsholders at various scales

Sectoral Fragmentation

Land use management, air quality, economic development, restoration, science & management

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SOCIO-ECOLOGICAL FORCINGS

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PROFOUNDLY LOCAL PROBLEM

Local response agencies

Local communities

Local land use

Local culture

Global
National
Regional
Local

Global

National

Regional

Local

Global

National

Regional

Local

Global

National

Regional

Local

Global

National

Regional

Local

INSTITUTIONAL MISMATCH

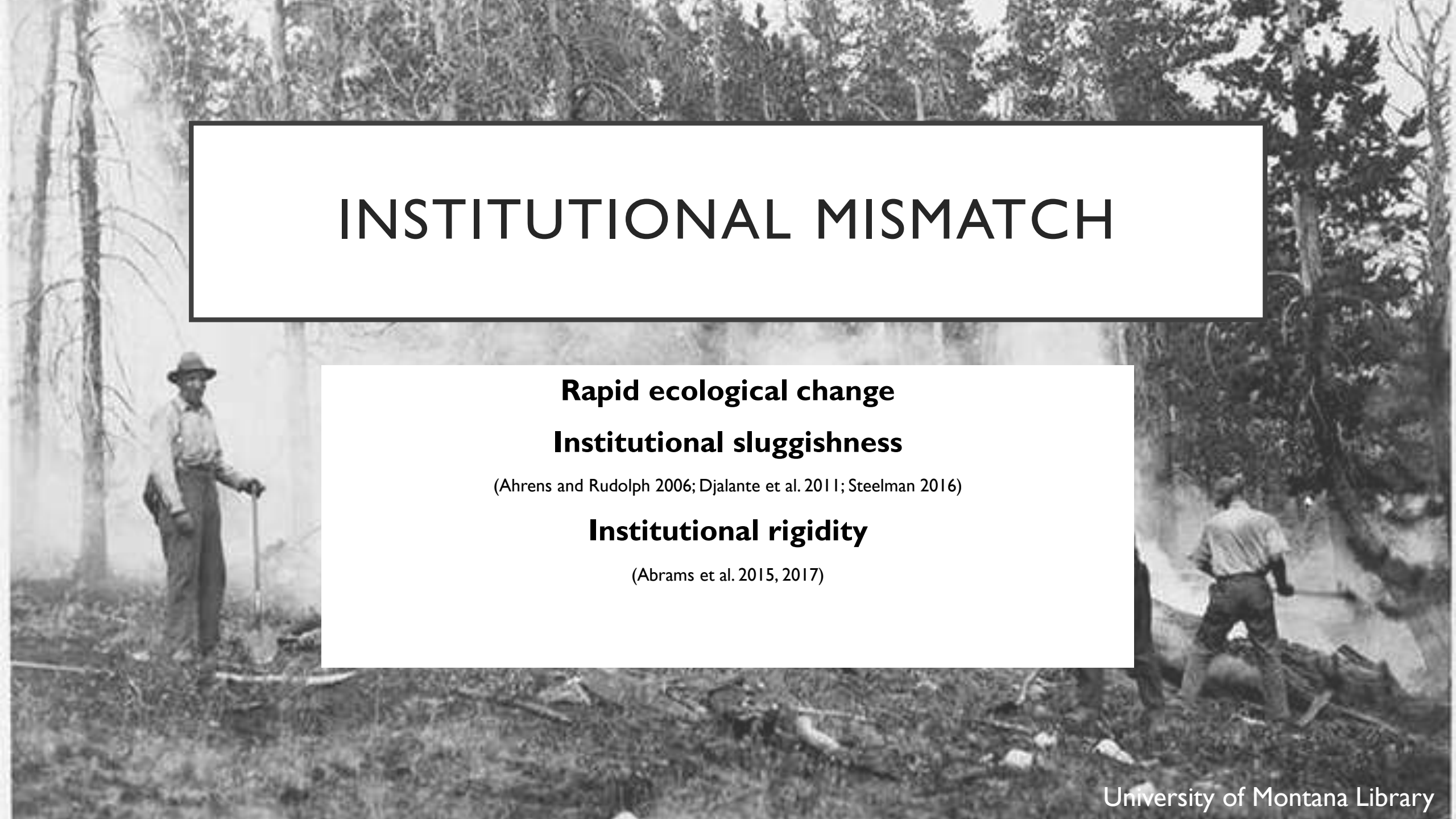
Rapid ecological change

Institutional sluggishness

(Ahrens and Rudolph 2006; Djalante et al. 2011; Steelman 2016)

Institutional *rigidity*

(Abrams et al. 2015, 2017)



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RESILIENT SUPPRESSION CULTURE

(BUSENBURG 2004; STEELMAN AND BURKE 2007; CALKIN ET AL. 2015; FISCHER ET AL. 2016; STEELMAN 2016)

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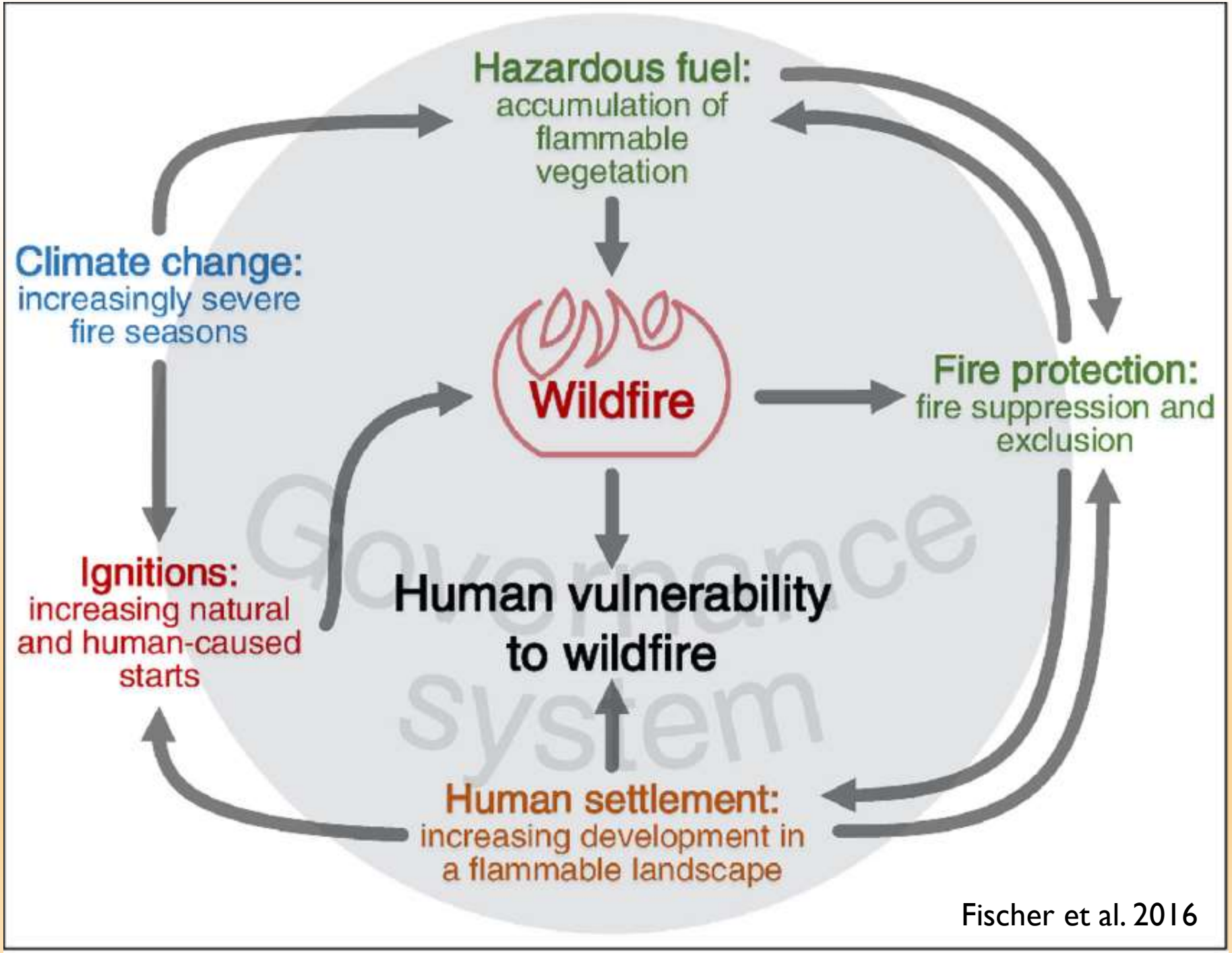
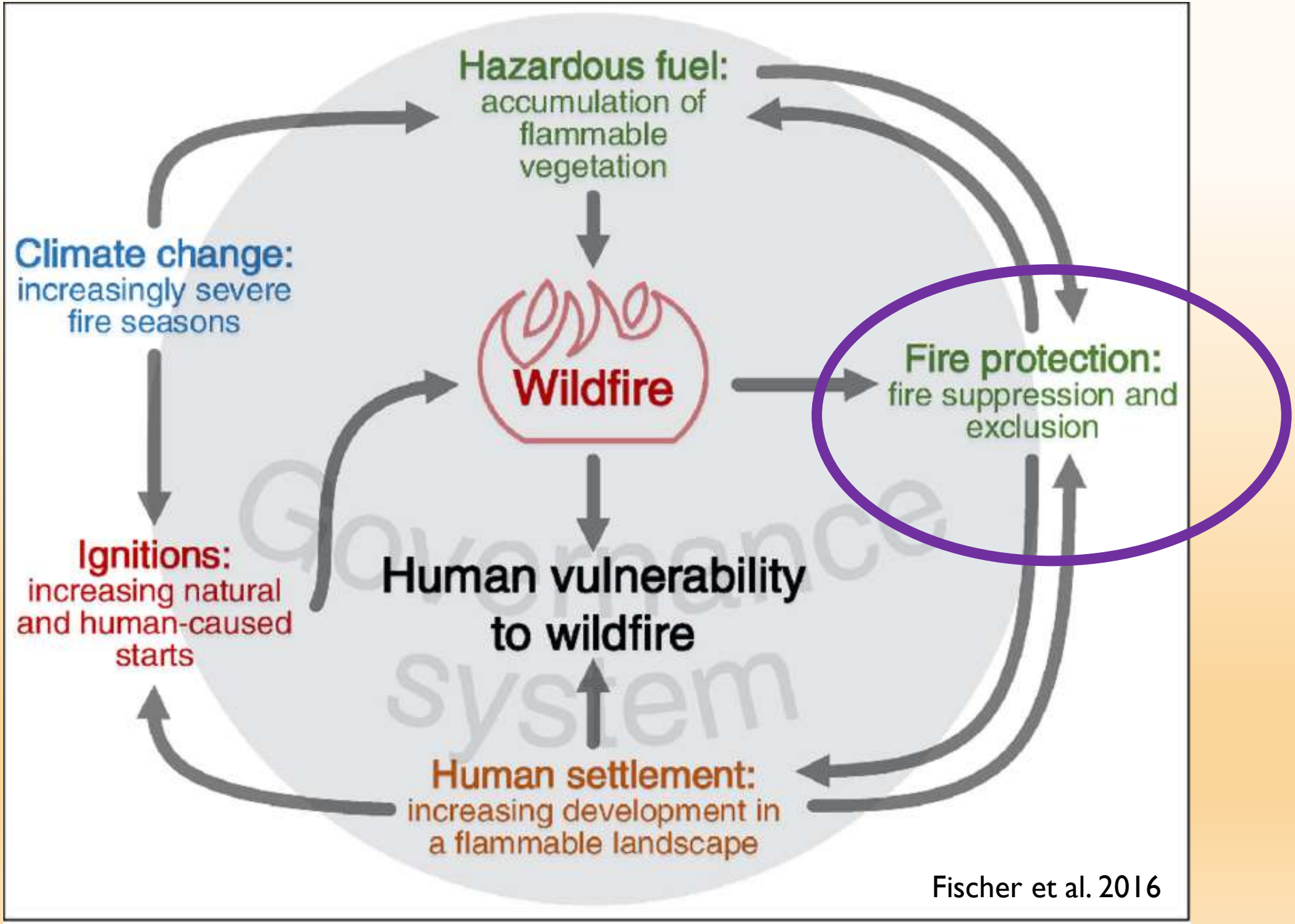

Hazardous fuel:
accumulation of flammable vegetation
Climate change:
increasingly severe fire seasons
Wildfire
Fire protection:
fire suppression and exclusion
Ignitions:
increasing natural and human-caused starts
Human vulnerability to wildfire
Human settlement:
increasing development in a flammable landscape
Governance system
Fischer et al. 2016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AD HOC APPROACH TO GOVERNANCE

(KIRSHNER ET AL. 2023)

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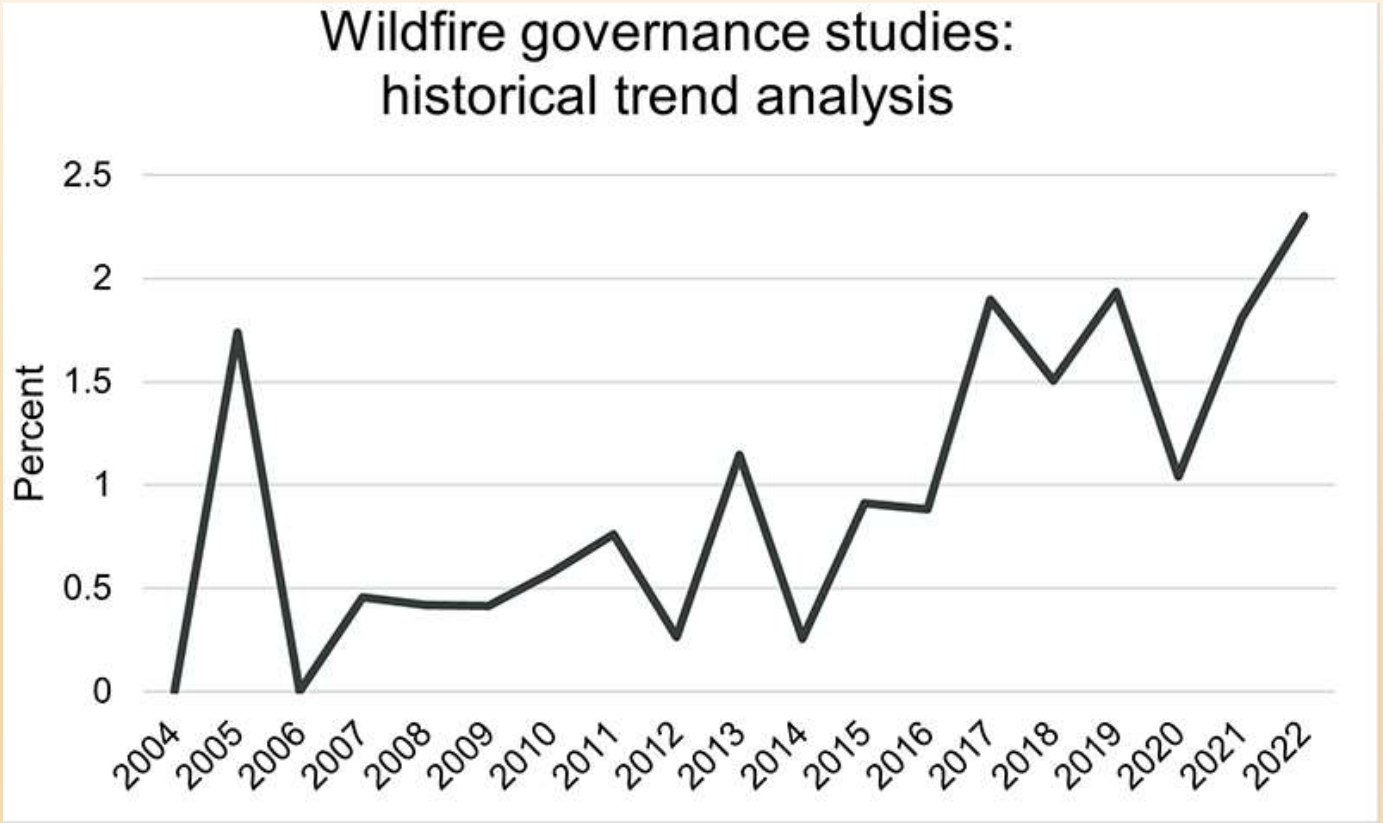
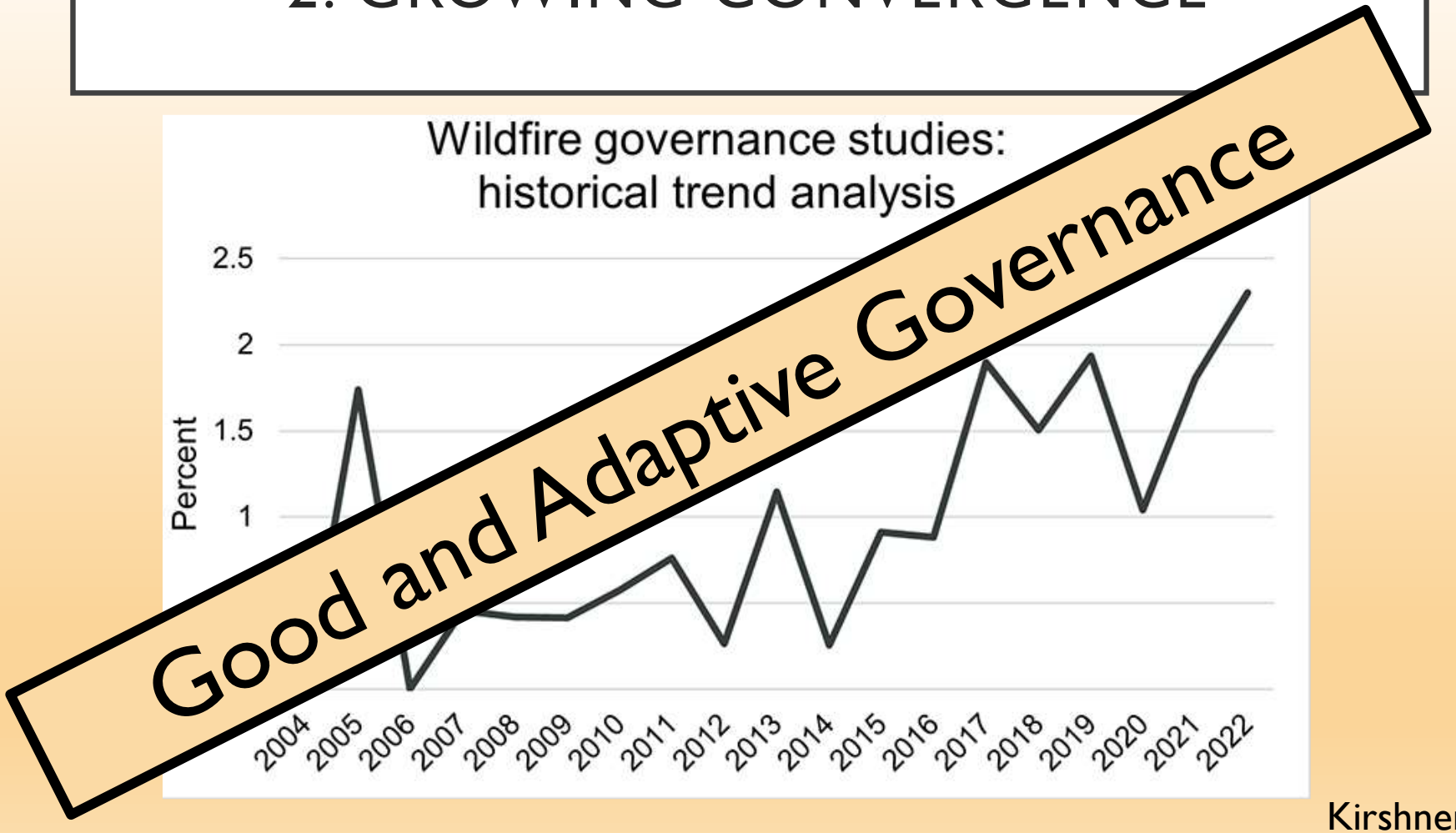
2. GROWING CONVERGENCE



Kirshner et al. 2023: 6

Governance as a % of wildfire research

2. GROWING CONVERGENCE



Kirshner et al. 2023: 6

GOOD AND ADAPTIVE GOVERNANCE

(ADAPTED FROM ALMSTEDT AND REED 2013)

- Five principles
  - Inclusiveness
  - Fairness
  - Scale
  - Responsibility
  - Adaptiveness

GOOD AND ADAPTIVE GOVERNANCE

(ALMSTEDT AND REED 2013; O'NEILL AND HANDER 2012; VAN NIEKERK 2014; STEELMAN 2016; FISCHER ET AL. 2016; PLATT ET AL 2022; KIRSHNER ET AL. 2023)

- **Inclusiveness**
  - Social processes that incorporate participation by diverse interests
  - Stakeholders, rightsholders, others who are affected by actions taking place
    - Indigenous rights, people and practices
    - Recognition of importance of rural economies, culture and communities
  - Collaboration across boundaries
  - Incorporation of diverse knowledges
  - Access, equity, representation in process

GOOD AND ADAPTIVE GOVERNANCE

- **Fairness**
  - Accounting for historical path dependencies, place based differences and power relationships
  - Differences in human capital, capacity, development history, culture and ecology
  - Equity in outcomes

(Abrams et al. 2015; 2017, Carroll and Paveglio 2016; Paveglio et al 2017; 2019)

GOOD AND ADAPTIVE GOVERNANCE

- **Scale**
  - Matching the scale of the problem with the scale of the institutional approach

(Young 2001; Hardin 1982; Steelman 2016)

GOOD AND ADAPTIVE GOVERNANCE

- **Responsibility**
  - Efficacy and Accomplishment
  - Legitimacy and Accountability
  - Transparency, information sharing and a performance orientation that is interactive effective and efficient

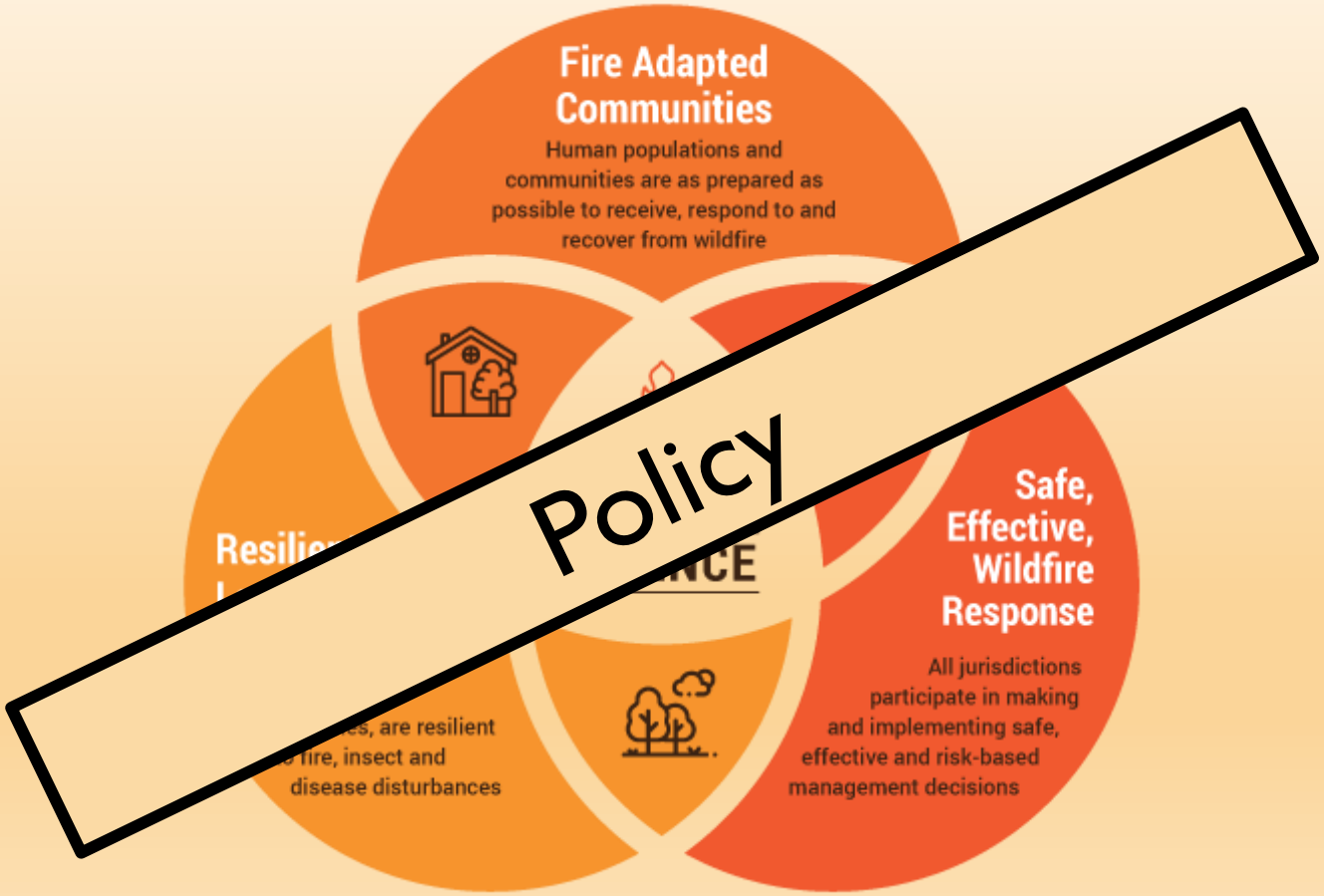
(Almstedt and Reed 2013; Steelman and Burke 2007; Graham et al. 2003 [from UNDP 1997])

GOOD AND ADAPTIVE GOVERNANCE

- **Adaptiveness**
  - Demonstrate capacity for learning, innovation, iteration and anticipation
  - Anticipatory; Forward looking as opposed to backward looking
  - Aligning structures, incentives consistent with intentions

(Butler and Goldstein 2010; Goldstein and Butler 2009; Steelman 2016; Kirshner et al. 2023; O'Neill and Handmer 2012)

2. GROWING CONVERGENCE



WILDLAND FIRE POLICY

- Creating fire resilient landscapes
- Creating fire resilient communities
- Facilitating safe and effective fire response
- Restoring rural livelihoods and Indigenous and cultural fire regimes

https://www.portugalresident.com/wp-content/uploads/2022/07/bombeiros.jpg

Photo by Bob Wick, Bureau of Land Management via Flickr Creative Commons

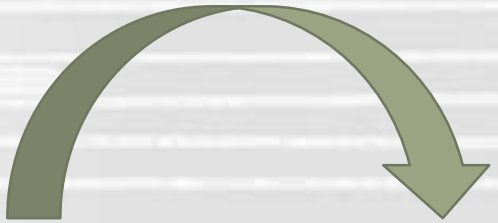
NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY

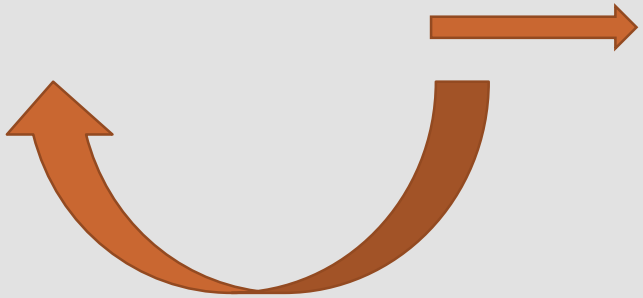
3. GETTING SMARTER FASTER

- **Can we use insights from good and adaptive governance to accelerate learning for more just, effective, timely impact?**

- **What management actions are working?**
- **Where is action taking place?**
- **What do current interventions tell us about which problems are being addressed and which ones are being neglected?**

Good and Adaptive Governance





Adaptive Management

Specific Policy Interventions

- Resilient Landscapes
- Fire Adapted Communities
- Safe and Effective Fire Response
- Restoring Rural Livelihoods and Indigenous Fire Regimes

GOOD AND ADAPTIVE GOVERNANCE

(ADAPTED FROM ALMSTEDT AND REED 2013)

- Five prisms
  - **Inclusiveness**– who is involved in decision making? Who is not? Equality of opportunity
  - **Fairness**– for whom is the intervention effective and for whom is it not? Equality of outcome
  - **Scale**– At what scale is the intervention? How is institutional scale matching addressed?
  - **Responsibility**– is the theory of change clear? Is it working? Are decision makers held accountable? Are actions transparent?
  - **Adaptiveness**– how/does the structure demonstrate adaptiveness, anticipatory thinking and capacity for learning?

SMARTER, FASTER MATRIX

Policy Interventions → Evaluation Criteria ↓	Resilient Landscapes	Fire Adapted Communities	Safe and Effective Fire Response	Restoring Rural Livelihoods and Indigenous & Cultural Fire Regimes
Inclusiveness				
Fairness				
Scale				
Responsibility				
Adaptiveness				

RESILIENT LANDSCAPE PROJECTS

- **Colorado Wildfire Risk Reduction Grant Program**

(Cheng and Dale 2020)

- INCLUSIVENESS/FAIRNESS: Bias toward higher capacity organizations and communities; capacity begets capacity; inequities in community capacity
- SCALE: Institutionalize scale mismatches in what the communities can support in terms of capacity and what is needed at the landscape level
- RESPONSIBILITY: Demonstrated reduction in crown fire potential, but heightened risk for surface fuels
- ADAPTIVENESS: Limited capacity for learning due to structural barriers

FIRE ADAPTED COMMUNITIES

- Inclusiveness
- Fairness
- Scale
- Responsibility
- Adaptiveness

SAFE AND EFFECTIVE FIRE RESPONSE

- Inclusiveness
- Fairness
- Scale
- Responsibility
- Adaptiveness

RESTORING RURAL LIVELIHOODS AND INDIGENOUS & CULTURAL FIRE REGIMES

- Inclusiveness
- Fairness
- Scale
- Responsibility
- Adaptiveness

Muskrats to Moose Project Team (2023). We Are Fire: A Toolkit for Applying Indigenous-led Fire Practices and Western Fire Management in the Saskatchewan River Delta. http://www.wearefire.ca.

SMARTER, FASTER MATRIX

Policy Interventions → Evaluation Criteria ↓	Resilient Landscapes	Fire Adapted Communities	Safe and Effective Fire Response	Restoring Rural Livelihoods and Indigenous & Cultural Fire Regimes
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WHAT IS THE PROBLEM?

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4. MAPPING FUTURE ACTION

- Tensions
- Fragmentation
- Socio-Ecological Forcings
- Institutional Mismatch
-

- Inclusiveness and Scale
- Fairness and Responsibility
- Scale and Adaptiveness

4. MAPPING FUTURE ACTION

- Tensions
- Fra
- So
- Institutional Mismatch
-

Restoring rural livelihoods and Indigenous and cultural fire regimes

JUST, EFFECTIVE, ACCOUNTABLE AND ADAPTIVE GOVERNANCE

- We need a map that guides us in the right direction and a compass to keep us on track

WILDLAND FIRE POLICY

- Creating fire resilient landscapes
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NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY

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RESEARCH AND ACTION AGENDA

- Regional to global working groups who can harvest lessons learned to accelerate learning
- Scholars, practitioners, managers
- Global representation
- Intentionally involve global South, Africa, China, Russia