



8TH
INTERNATIONAL
WILDLAND FIRE
CONFERENCE

GOVERNANCE
PRINCIPLES:
Towards an
International
Framework

Collective Action in Prescribed Burning: A Social Network Analysis of Two US States

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Prescribed fires: Practice and Decision

The gap in the
fire science

The gap in the
social science

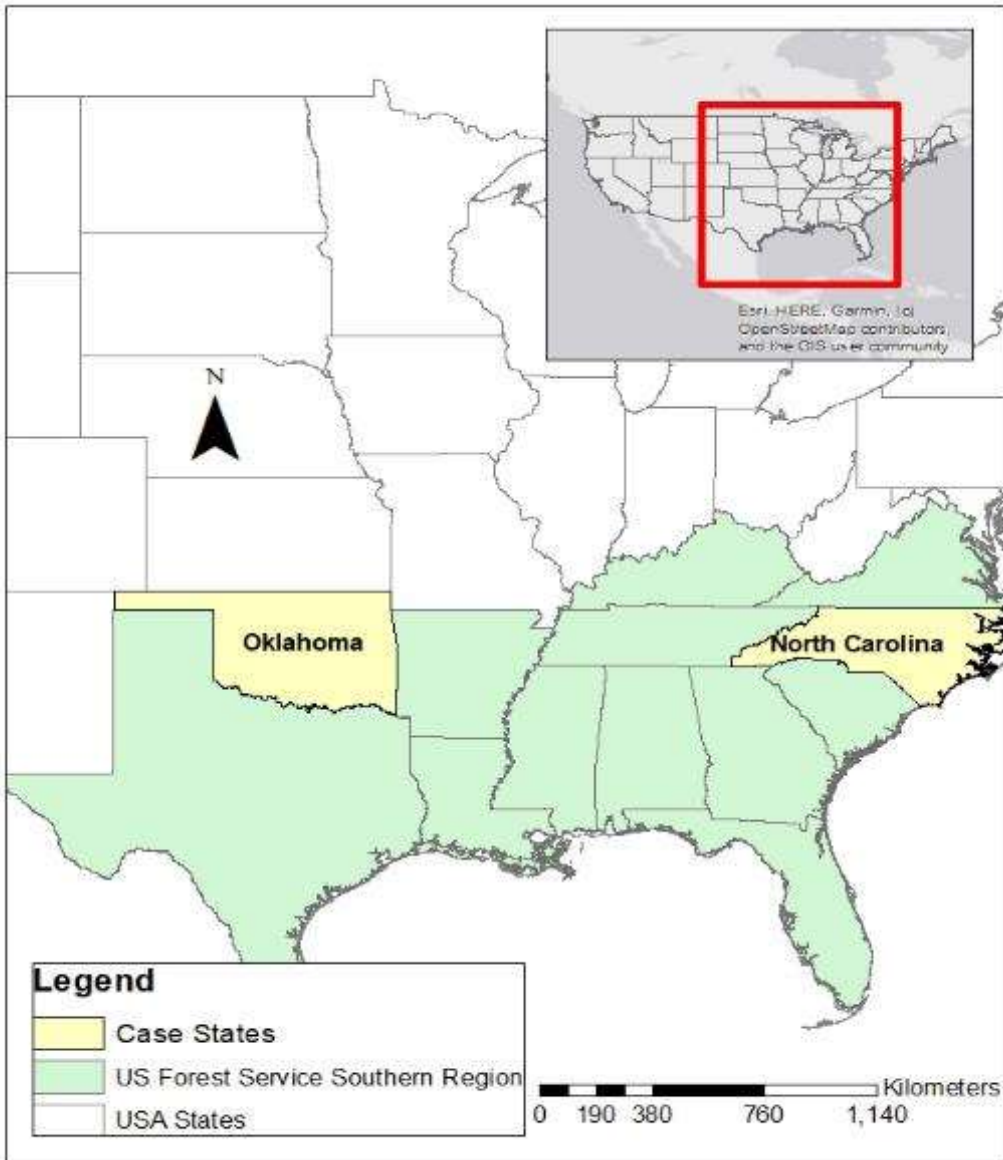
The structure of
prescribed
burning networks

“Any prescribed fire research agenda must include clear and prominent consideration of the full range of ways social science could help improve our understanding of prescribed fire management practices, the burden of intentional action, and how societies can better adapt to fire.”

-Hiers et al. 2020

McCaffrey et al. 2012:

- “Examining the ability of intermediary organizations and social networks to help build community capacity for wildfire mitigation; and
- Assessing the role and contributions of local, state and federal agencies in building and maintaining community capacity”



Research Questions

1. In what ways do organizational networks of non-profit prescribed burn practitioners differ between Oklahoma and North Carolina?
2. Do the network structures suggest different interventions leading to more adaptive capacity and collective action outcomes?



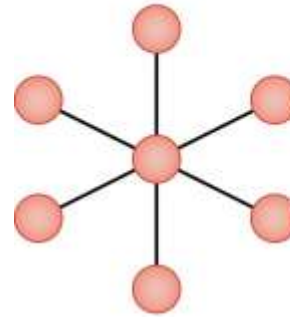
Research Design

- North Carolina and Oklahoma networks
 - Similar, yet different
- Data collection:
 - Focus groups to start
 - Interviews and surveys to snowball out
 - Web information to close out
- How do you know when your network is complete?

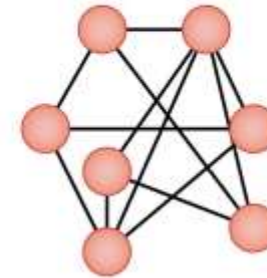
Social Science and Social Networks

- Social networks are groups of interrelated actors and are often analyzed according to actor attributes and connection types

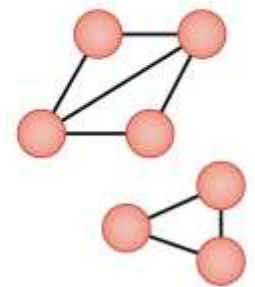
a Centralized



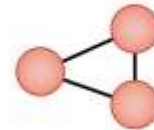
b Dense, not centralized



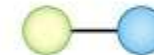
c Fragmented



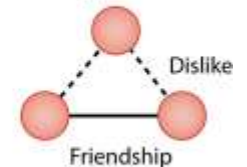
d Closure



e Ties between actors with different attributes



f Two types of ties

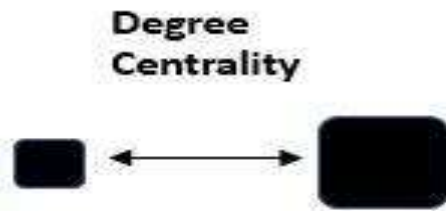
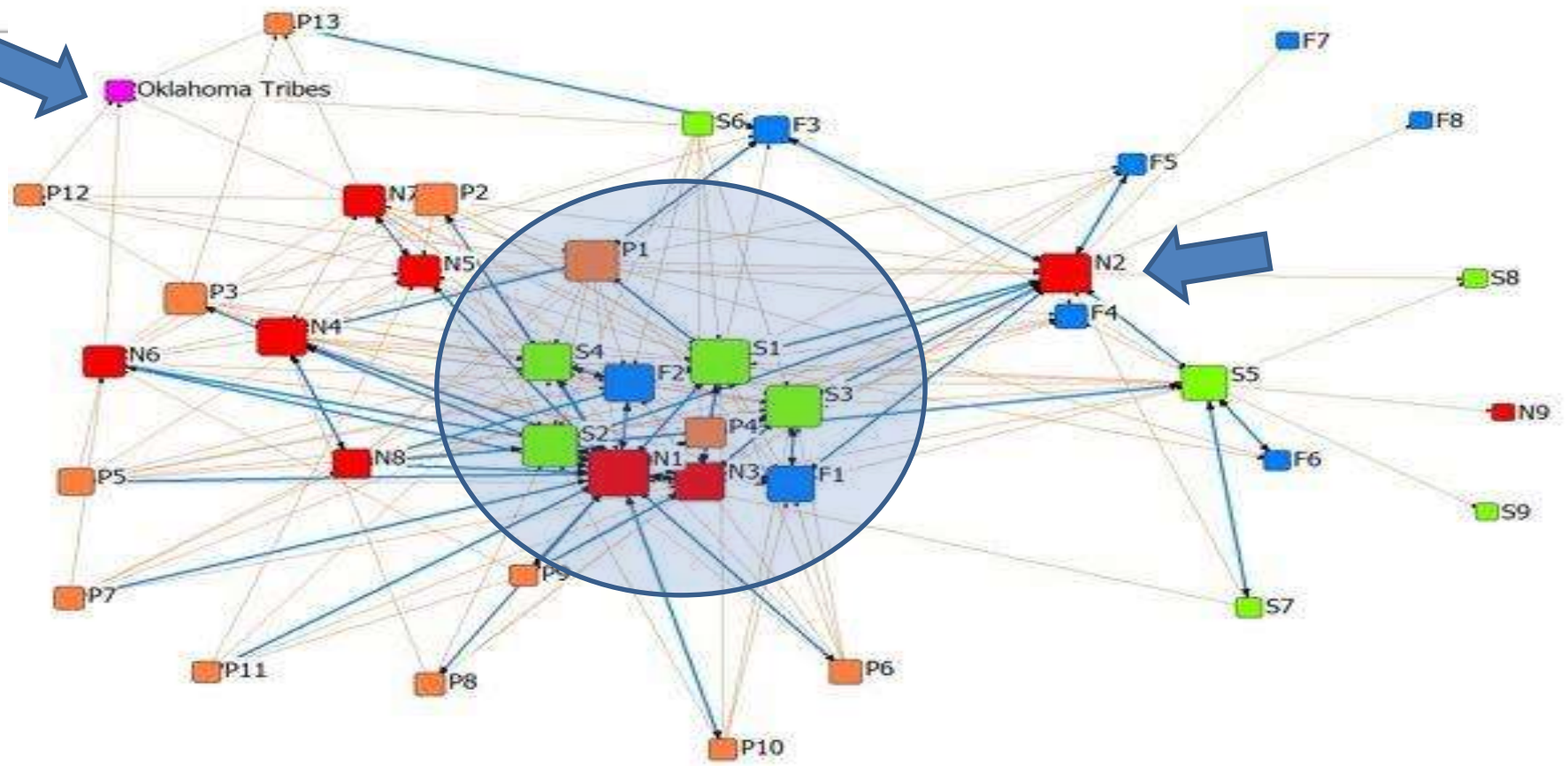


 Bodin O, et al. 2020.
Annu. Rev. Environ. Resour. 45:471-95

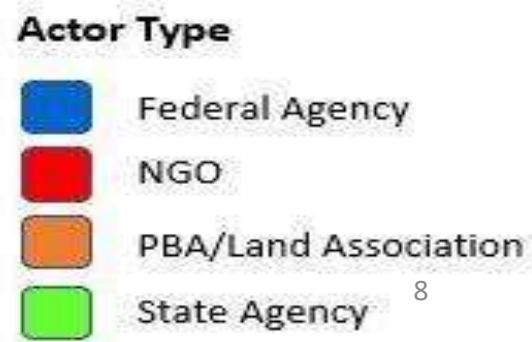
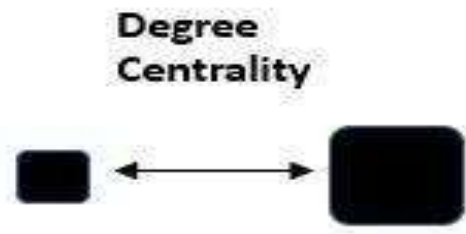
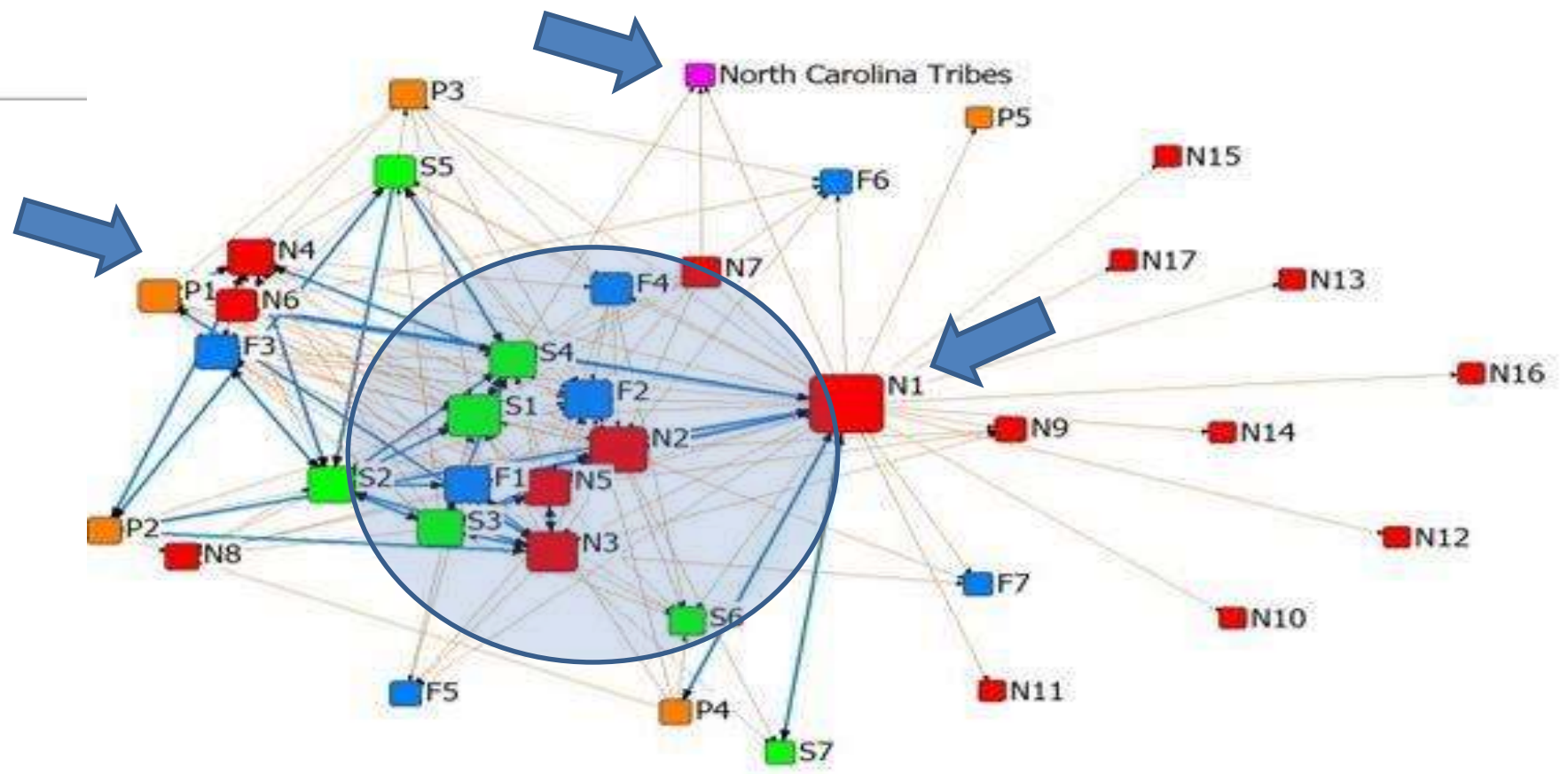
Social Networks Analysis

- Provide insight into the adaptive capacity of networks and communities of practice
- Insights into availability of resources, capacity for collective decisions, use of new knowledge, diversity, and redundancy in systems, equity of membership, and relation to local ecosystems
- Organizational networks provide opportunities to **enhance adaptive capacity through collective action and learning**. They can link groups of stakeholders that are otherwise multiscale, polycentric, and multilevel in their relationships with one another

Oklahoma Network



North Carolina Network



Whole network measures

*Index score significantly larger than permutation test suggests (95% confidence)

Network	Density	Centralization	E-I Index
Oklahoma	0.22	0.44	0.629*
North Carolina	0.20	0.45	0.456

How to use this information

- Connect workforces to long-term planning and funding
- Use these networks as templates for other locations
- Improve representation and interconnection of peripheral actors for stronger decisions.



Conclusions

- Prescribed fire organizations like PBAs, as a part of FLNs and other types of learning networks, are instrumental in reaching private landowners, especially in parts of the country where most lands are in private land ownership
- local PBAs and other local land cooperatives are often peripheral in nature and are not interconnected but do generally have access to various other actors through statewide burn councils and government agencies.
- Because we can show which actors exist in the core of the network structures, peripheral actors can seek out new connections beyond those they already have.

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- Members of the North Carolina Extension service



References

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