



United States Department of Agriculture



CoMFRT

Co-Management of Fire Risk Transmission Partnership

INITIAL PROJECT REPORT

DECEMBER 2018

Daniel R. Williams & Maureen Essen

USDA Forest Service

Rocky Mountain Research Station

**Daniel R. Williams**

Research Social Scientist
Organizational Learning and Resiliency

Forest Service
Rocky Mountain Research Station

p: +1-970-498-2561

c: +1-970-829-7012

daniel.r.williams@usda.gov

240 West Prospect Road
Fort Collins, Colorado 80526 USA

www.fs.fed.us/rmrs

<https://www.fs.fed.us/rmrs/people/drwilliams>

Maureen Essen

Social Science Analyst

Forest Service
Rocky Mountain Research Station

p: 406.329.2135

c: 406.546.9623

maureenaessen@usda.gov

800 E. Beckwith
Missoula, MT 59801 USA

Acknowledgments: The CoMFRT partnership would like to acknowledge the important contributions of Laurie Kurth, Jim Menakis, Clint Cross, Jan Engert, Andrea Watts, Eileen Chontos, and Brett Miller (partially supported by the National Science Foundation).

TABLE OF CONTENTS

Background	2
Project Overview	4
Useful Insights	6
Research Subteam Project Accomplishments and Activities	8
Wildfire Risk Transmission Modeling	8
Literature Synthesis	9
Community Capacity Analyses	9
Landscape Social Networks	10
Household-Scale Assessments	11
Governance System Analyses	12
Next Steps	13

BACKGROUND

Wildfires, and wildfire risk, do not recognize boundaries. Instead, fires and their associated risks are often transmitted from one land tenure to another (e.g., private lands to a national forest; Ager et al. 2015; Charnley et al. 2017; USDA 2018). In an attempt to mitigate that risk, the U.S. Department of Agriculture, Forest Service is engaged in a transition from fire management focused on suppression to ‘living with fire’ through building shared stewardship landscapes. This shift presents many challenges for the federal land management agencies, local communities, and other actors engaged in fire policy and management. These challenges emerge from both current and historical land use legacies where there is increasing development within the wildland-urban interface, a growing intensity of fires, and a fragmented approach to management.

However, activities, actions, and options related to fire cannot be managed by any one of these actors in isolation. Instead, a co-management approach to managing wildfire risk is necessary. What type of co-management works? How do we enable it? One must study the social and ecological diversity that exists in a variety of landscapes. Understanding and navigating the pathways that foster capacity to co-manage risk in different social and geographic contexts represents a core challenge to realizing shared stewardship and the National Wildfire Cohesive Strategy.

Project beginnings

In October 2016, at a meeting in Fort Collins, Colorado, Jim Hubbard, Deputy Chief State & Private Forestry, presented a challenge to the Rocky Mountain Research Station (RMRS): establish a long-term research program on community capacity to address cross-boundary fire risk in fire-prone areas most at risk of a wildfire coming from Forest Service-administered lands through integrated risk reduction and community adaptation.

During the course of this meeting, the initial geographic scope of the effort was outlined around Alan Ager’s risk transmission maps to target selected “hotspots” of risk transmission in the Western U.S. from Forest Service-managed lands to other lands. Key ideas generated from

“The challenges, goals and means identified by the Cohesive Strategy are spot on. Unfortunately, the pace of needed change isn’t keeping up with growing challenges. The key to getting ahead of the curve and accomplishing the goals of the Cohesive Strategy is cultivating relationships that enable us to work across boundaries, focusing our collective resources where and how they can have the biggest impact on the wildland fire system. CoMFRT holds the potential to ‘crack that nut!’”
—Harvey Forsgren,
former Regional Forester,
Forest Service

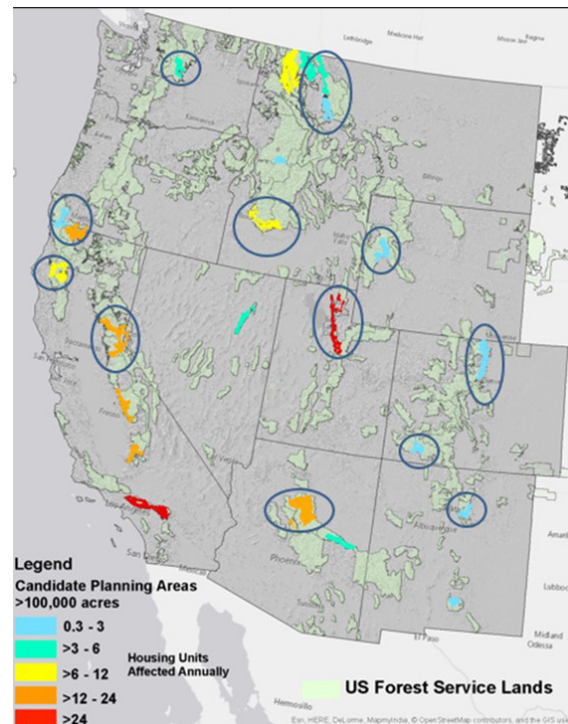
that meeting were to use a wildland fire system approach to:

- a) determine the biophysical and social characteristics of communities and the surrounding landscape that lead to successful reduction of wildfire risk or present barriers to risk reduction; and
- b) identify social learning/collaborative processes for engaging “fireshed” scale stakeholders that facilitate successful reduction of wildfire risk.

The anticipated outcome would be to use lessons learned in multiple hotspots to focus agency funding, strategies, and programs where reduction of wildfire risk is attainable, with a focus on meeting the goals of the Cohesive Strategy (resilient landscapes, fire adaptive communities, safe and effective response).

Following a subsequent meeting in late February 2017, the Co-Management of Cross-Boundary Fire Risk Transmission” (CoMFRT) project was further developed by a small core team of social scientists. The discussions lead to selecting initial “hotspots” (i.e., project study sites) of wildfire risk transmission from Forest Service-managed lands to other lands with Vicki Christiansen, Associate Chief State & Private Forestry, and Laurie Kurth, Assistant Director, Fire and Management.

The hotspot surrounding Wenatchee, Washington, was identified as the project study site, and the Wasatch area of Utah would be the second site.



The CoMFRT project focuses on areas with an especially high risk of wildfire transmission from Forest Service-managed lands to private property, represented in blue circles here. North Central Washington was the initial study site, followed by the Wasatch area of Utah.

Fire doesn’t respect community challenges and differences. How do we coordinate management approaches to manage risk transmission across boundaries?

“It is critically important that we learn with, not just from, communities in fire-prone landscapes. Communities want to be active and equal partners in the risk reduction equation—often, they just need the capacity to do more.”

**—Annie Schmidt,
Washington State Fire Adapted
Communities Learning
Network**

PROJECT OVERVIEW

The CoMFRT project is a partnership between different deputy areas of the Forest Service, specifically the Fire and Aviation Management's Office of Landscapes and Partnerships within State and Private Forestry and the Rocky Mountain Research Station within Research and Development. The research team is organized into subteams that include the Forest Service and academic partners from Portland State University, University of Colorado, Washington State University, University of Montana, University of Idaho, Florida State University, Utah State University, and Oregon State University.

The CoMFRT project is guided by four primary research questions:

1. What are the relationships and mechanisms that allow people to work together to share and co-manage risk?
2. What are the strategies to address wildfire risk that take into account community diversity and are able to work effectively in different social contexts?
3. What is the capacity for cross-boundary and adaptive governance, collaboration, and action?
4. What knowledge is used to address and enable adaptation to cross-boundary wildfire risk?

What is unique about the CoMFRT project is the use of a collaborative process called "Theory of Change" to map out the project goals, research questions, and initial methods. The Theory of Change is an approach that focuses on filling in the "missing middle." This missing middle is how a program or change initiative carries out its activities or interventions to accomplish the desired goals.

Through the use of the Theory of Change approach, six project components were identified as needed to achieve objectives of the CoMFRT project. Each of these six components was assigned to a subteam whose leader is a CoMFRT team member within their respective institution.



CoMFRT team members and local Wasatch area managers meet to discuss community fire mitigation issues and opportunities in October 2018.

"From a practitioner's perspective, the CoMFRT Project is taking a holistic look at how policy, governance, learning networks and programs are affecting our ability to effectively get work done on the ground. Understanding the complexities within these systems is critical to creating more fire-adapted communities in our region."

**—Patrick Haggerty,
Project Coordinator,
Cascadia Conservation
District. Wenatchee,
Washington**

Project Component	Objective	Subteam
Wildfire risk transmission modeling	Identify fire-prone landscapes and communities	RMRS, Oregon State University, University of Idaho
Literature synthesis	Synthesize existing relevant literature, including past research on community wildfire risk mitigation, cross-boundary resource management, and natural hazards	RMRS, Florida State University
Household-scale assessments	Inform the development and improvement of local programs that attend to local opportunities, obstacles, and needs regarding wildfire risk reduction	RMRS, University of Colorado - Boulder, WiRē Center
Community capacity analyses	Identify avenues that allow communities to design fire adaptation efforts that best fit their local circumstances	University of Idaho, Washington State University
Landscape social network mapping	Understand risk perceptions, opportunities and barriers to collaboration, and relationships within wildfire management communities	Portland State University
Governance system analyses	Develop recommendations that can be used to facilitate governance innovations that improve cross-boundary management of wildfire risk	University of Montana, RMRS



USEFUL INSIGHTS

A number of interesting insights have resulted from work in the first project study site, North Central Washington.

While initial CoMFRT research suggests that fire suppression efforts in North Central Washington are well coordinated across agencies, additional information is needed to better understand how wildfire mitigation efforts are coordinated. What we do know is that 500 people, 100 organizations, and over 1,200 professional relationships are working in the areas of wildfire prevention and mitigation in the area. The institutional level relationships are primarily between the major institutional actors (e.g. the Forest Service and the State of Washington Department of Natural Resources). Survey respondents affiliated with State and local agencies and NGOs, however, reported about 35% more professional relationships than Forest Service and other federally affiliated respondents. In addition, Forest Service staff reported fewer professional relationships related to wildfire mitigation. In contrast, NGO staff reported being more connected to a broader array of people working to mitigate fire risk in the area.

Despite the number of institutions and individuals addressing wildfire prevention and mitigation in North Central Washington, the CoMFRT team found some key residents are not being reached. For example, local wildfire mitigation programs currently do not address how to conduct wildfire assessments in complex ownership patterns associated with a high risk of structure-to-structure fire transmission, such as mobile home parks. In a specific at-risk location

Managers, community groups, and the CoMFRT social science team get on the ground in North Central Washington.

"I have been working with communities on wildfire risk assessments and mitigation planning along the Wasatch - Cache for nearly a decade. I believe that bringing the CoMFRT project to this area will be extremely beneficial to local, State and federal partners as we continue to engage and prepare with communities. I am hopeful that by the end, communication between agency land managers, fire practitioners and community members will be increased along with strengthening our ability to remove barriers and assumptions that impede progress for everyone."

—Jennifer Hansen, Utah Division of Forestry, Fire and State Lands, Wildland Urban Interface Program Coordinator

in the Wenatchee, Washington area, one individual owns a large parcel of land with multiple residential structures, each owned by different individuals. Further complicating the situation, residents of mobile home parks are more likely to be lower income and have fewer resources required for fire risk reduction activities (i.e., possibly high socio-economic vulnerability).

According to the CoMFRT literature synthesis, the challenges underscored by survey work in the mobile home park is an example of two underlying barriers to effective co-management of wildfire across landscapes: structural barriers and process barriers. Structural barriers include a history of distrust, power imbalances, concerns about property rights, and uncertainty of return on investment of time and commitment to collaborate. Process barriers are a lack of organizational, political, or financial support; procedural, regulatory, or legal obligations that inhibit collaborative engagement; and declining participation over time or a changing cast of characters. Successfully addressing these barriers with targeted and tailored strategies will further co-management of wildfire risk.

More specifically related to the Forest Service in the North Central Washington area, CoMFRT interviewees reported that Forest Service engagement with the community is not adequate. Current perceptions about Forest Service responsiveness and responsibility potentially weakens the agency's legitimacy with collaborators. This provides community-based evidence of the aforementioned structural barriers to co-management. The literature synthesis component of the project highlights that meaningful support for a formal position with coordination responsibilities has been shown to be a highly effective way to ensure the leadership, communication, and coordination required for effective cross-boundary management. Such a coordinator may break down these barriers and improve cross-boundary management efforts in North Central Washington.



Team members and partners debate how project activities create change over the short and long term.

RESEARCH SUBTEAM PROJECT ACCOMPLISHMENTS AND ACTIVITIES

The CoMFRT research team has been busy interacting with stakeholders, collecting data, and synthesizing related research. Accomplishments include:

Interviews and surveys conducted	1,032
Stakeholder interactions	Over 312 hours
Wildfire parcel assessments	2,500
Literature synthesis	Part 1 of literature synthesis being finalized
Solicited feedback to further develop the CoMFRT project at International Association of Wildland Fire (IAWF) conference and International Symposium for Society and Resource Management (ISSRM)	
Organized and facilitated two face-to-face meetings with local stakeholders in fire-prone landscapes: Wenatchee, WA (August 2017) and the Wasatch area of Utah (October 2018).	

Wildfire Risk Transmission Modeling

Leads: Alan Ager (RMRS), Palaiologou Palaiologos (Oregon State University), Travis Paveglio (University of Idaho)

Key Points:

- Pinpointing the locations of all fuel treatments in the Wenatchee hotspot is underway
- Identify parcels, residents, and communities most proximate to treatments

Next Steps:

- Identify how communities decided on treatment locations with an eye toward cross-boundary cooperation.

Literature Synthesis

Leads: Sarah McCaffrey (RMRS), William Butler (Florida State University)

Key Points:

- Part 1 of the synthesis is being finalized and a draft will be ready in early winter of 2019.
- Work is underway to publish a general technical report describing the literature synthesis, related results, and recommendations.
- Cross-boundary collaboration also offers the potential for increased legitimacy and shared understanding of the nature of the problem and range of potential solutions.

Next Steps:

- Finalize part II of the synthesis and share key findings with project members, funders, stakeholders, and publish a general technical report.

"Meaningful support for a formal position with coordination responsibilities has been shown to be a highly effective way to ensure the leadership, communication, and coordination required for effective cross-boundary management takes place in a timely manner."

—CoMFRT Synthesis subteam

Community Capacity Analyses

Leads: Travis Paveglio (University of Idaho), Matt Carroll (Washington State University)

Key Points:

- Hours spent interacting with stakeholders: 200+
- Number of interviews or surveys conducted: 63 interviews with 69 participants
- Field days: 14
- Number of documents reviewed: 75

Next Steps:

- Data from interviews are being analyzed and focus groups are being designed.

Landscape Social Networks

Leads: Max Nielsen-Pincus (Portland State University), Derric Jacobs (Portland State University), Cody Evers (Portland State University)

Key Points:

- 42 hours interacting with stakeholders
- 288 surveys conducted
- Developed one-page briefing paper
- Presented at International Association of Wildland Fire (IAWF) Continuum Conference and International Symposium on Society and Resource Management (ISSRM) Conference

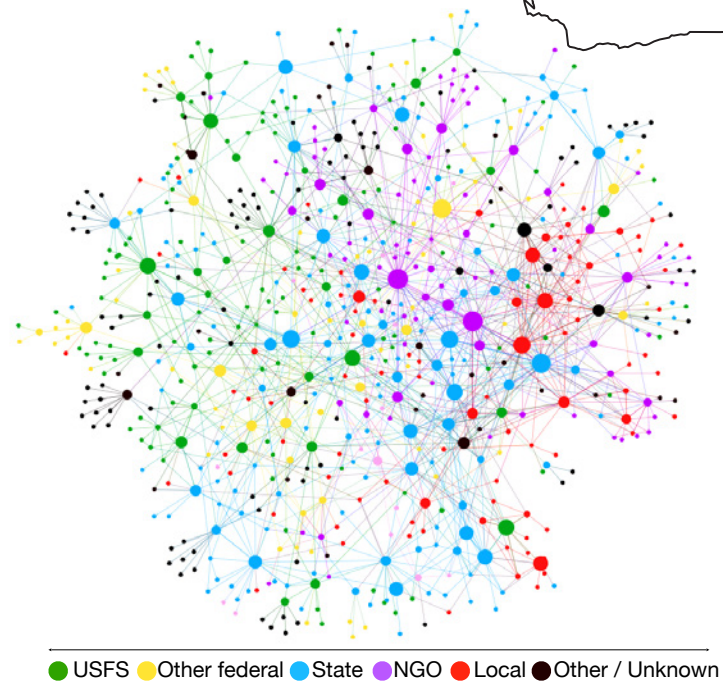
Outputs:

- o Evers, C., M. Nielsen-Pincus, and D. Jacobs. Wildfire collaboration networks: An Empirical Study of Network Governance of Wildfire Risk in North Central Washington. May 21, 2018. The Fire Continuum Conference: Preparing for the Future of Wildland Fire. Missoula, MT.
- o Evers, C., Max Nielsen-Pincus, D. Jacobs. Wildfire Management Networks. Hotspots of Innovation? June 19, 2018. International Symposium on Society and Resource Management. Snowbird, UT.

Next Steps:

- Phase II will be launched in early 2019 in Washington. Initial planning for phase I is underway for the Wasatch hotspot.

**North Central Washington
Wildfire Risk Management Network**



The figure above shows relationships (lines) between individuals (dots) engaged in wildfire risk management in North Central Washington. Bigger dots represent individuals with more professional relationships in wildfire risk management.

Household Scale Assessments

Leads: Hannah Brenkert-Smith (University of Colorado – Boulder), Patty Champ (RMRS), Pam Froemke (RMRS), Colleen Donovan (The WiRē Center)

Key Points:

- 40-50 hours interacting with stakeholders
- 671 surveys conducted
- 800 parcel risk assessments in the Squilchuck, Wenatchee study area
- 1,700 rapid wildfire risk assessments on the WUI boundary
- Building of myhome webpage for future Nudge experiment with CCFD1, which leverages parcel risk data for risk reduction, is underway

Next Steps:

- Preliminary findings and recommendations will be identified and shared with project members, funders, and stakeholders.

"As a result of the household surveys being conducted by the WiRē team, we are able to connect with landowners and spread the message regarding the risk of wildfire and the programs available to help landowners mitigate the risk. We're hopeful that from the survey results, we can create new programs such as Nudge to improve our outreach efforts."

—Jon Riley, the Community Wildfire Liaison with the Chelan County Fire District 1 in Wenatchee, Washington

Chelan Fire Protection District and CoMFRT team discuss fire mitigation programs and community engagement.



Governance System Analyses

Leads: Laurie Yung (University of Montana), Carina Wyborn (University of Montana), Benjamin Gray (University of Montana), Kristin Sleeper (University of Montana)

Key Points:

- 20 hours interacting with stakeholders in Wenatchee, Washington
- 10 interviews with local government agencies in Wenatchee, Washington
- Initiated Development of CoMFRT website and related communication materials
- Presented at International Association of Wildland Fire (IAWF) Fire Continuum meeting
- Outputs:
 - o Sleeper, K. 2018. Co-Management of Fire Risk Transmission Field Reporting Template and Field Work Communications Guide.
 - o Sleeper, K. 2018. Co-Management of Fire Risk Transmission Quarterly Report Template.
 - o Sleeper, K., Essen, M., Williams, D.R., and L. Yung. 2018. Co-Management of Fire Risk Transmission Project Overview.
 - o Yung, L., Wyborn, C., Williams, D.R., and M. Essen. 2018. Resilience and Wildland Fire Governance. The Fire Continuum Conference: Preparing for the Future of Wildland Fire. May 21-24, 2018. Missoula, Montana.
 - o Essen, M., Evers, C., Jacobs, D., Yung, L. Wyborn, C. and D.R. Williams. 2018. Cross-Boundary and Adaptive Governance to Facilitate Adaptation to Wildfire Risk. The Fire Continuum Conference: Preparing for the Future of Wildland Fire. May 21-24, 2018. Missoula, Montana.
 - o Wyborn, C., Essen, M., Brenkert-Smith, H., Champ, P., Yung, L. and D.R. Williams. 2018. Co-Producing Research and Responses to Wildfire Risk. The Fire Continuum Conference: Preparing for the Future of Wildland Fire. May 21-24, 2018. Missoula, Montana.

Next Steps:

- Interview data will be analyzed and inform subsequent workshops.



NEXT STEPS

The CoMFRT research team will continue to interact with stakeholders in North Central Washington. Further data collection, including additional interviews and workshops, will be completed by specific project subteams. Simultaneously, other project subteams will begin fieldwork in the Wasatch area of Utah, the second project study site. This fieldwork will incorporate lessons learned from the initial project study site and also tailor research components to better address the specific wildfire context of the Wasatch area.

Beyond fieldwork, the CoMFRT research team is working to integrate data from different project components. This will reveal new and actionable findings to inform strategic and effective investments at an all-lands scale. This furthers shared stewardship of the wildland fire environment, and highlights approaches to co-managing risk for desired outcomes at appropriate scales.

The Woodland Hills community near Spanish Fork, UT has been working with the State Department of Natural Resources for many years to help make their community more resilient to wildfire.



United States
Department of
Agriculture



University of Colorado
Boulder



FLORIDA STATE
UNIVERSITY



University of Idaho



Oregon State
University



Portland State
UNIVERSITY



Utah State
University



USDA is an equal opportunity provider and employer.