

Challenges and Opportunities in Post-Wildfire Response and Recovery: A Case Study from the Hermit's Peak-Calf Canyon Wildfire

William Cole Buettner and Courtney A. Schultz



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About the Authors

William Cole Buettner is a Research Associate in the Public Lands Policy Group in the Department of Forest and Rangeland Stewardship, Colorado State University. He led the design and writing of this report, which is adapted from his M.S. thesis.

Courtney A. Schultz is the Director of the Public Lands Policy Group and Professor in the Department of Forest and Rangeland Stewardship, Colorado State University.

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For more information, please contact:

Dr. Courtney Schultz
Public Lands Policy Group
Department of Forest and Rangeland Stewardship
Colorado State University
Fort Collins, CO 80523-1472
970-491-6556
courtney.schultz@colostate.edu
sites.warnercnr.colostate.edu/courtneyschultz/



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Common Acronyms

FEMA	Federal Emergency Management Agency
NRCS	Natural Resource Conservation Service
USFS	United States Forest Service
FSA	Farm Service Agency
USACE	U.S. Army Corps of Engineers
BAER	Burned Area Emergency Response
EWP	Emergency Watershed Protection Program
EFRP	Emergency Forest Restoration Program
FMAG	Fire Management Assistance Grants
IRC	Interagency Recovery Coordination
HPCC	Hermit's Peak-Calf Canyon Fire
EMNRD	Energy, Minerals and Natural Resources Department
DHSEM	Department of Homeland Security and Emergency Management

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Wildfires in the western United States have become an increasingly complex management challenge, as effects are distributed across jurisdictional boundaries and occur at different temporal scales. In 2022, two escaped prescribed fires merged and became the Hermit's Peak-Calf Canyon Wildfire (HPCC) burning over 340,000 acres and becoming the largest fire in New Mexico state history. Utilizing qualitative methods, we interviewed 22 individuals with intimate knowledge of the HPCC post-wildfire response and recovery efforts, and who held positions across local, state, and federal agencies, to obtain detailed perspectives on the efficacy of post-wildfire programs. Our objectives were threefold:

1. Understand the major challenges that communities face in post-wildfire response and recovery in terms of effects on livelihoods and landscapes and how these were addressed through policy and governance.
2. Identify factors that allow organizations and agencies to navigate response and recovery policies.
3. Inform future policy changes to facilitate more effective post-wildfire response.

Key Findings

Interviewees perceived that FEMA Individual Assistance programs lacked the flexibility to address local contexts, resulting in low eligibility for program participation. Interviewees said FEMA would not provide temporary housing units to individuals who did not previously have sewer, water, or electricity connections, despite many rural New Mexican communities using alternatives like outhouses, river water, and solar or hydroelectric power. Strict policy guidelines contributed to low Individual Assistance eligibility, and interviewees perceived additional disincentives to participate because of funding available through the Assistance Act.

Interviewees perceived that FEMA Public Assistance programs had prolonged reimbursement and treatment timelines, and variable post-wildfire knowledge among federal employees. FEMA Public Assistance programs are based on reimbursements to applicants (state and local governments) which create barriers for communities that cannot pay project costs upfront; the agency does not guarantee which projects will receive funding and subsequent reimbursement, creating challenges for quick project implementation, given uncertainty about reimbursement. Interviewees said there is variable post-wildfire knowledge among FEMA staff; interviewees thought staff in Region 6 (New Mexico, Texas, Oklahoma, Arkansas, and Louisiana) did not have institutional knowledge of post-wildfire contexts, especially compared to other regions (e.g., Region 9 and 10).

Interviewees discussed challenges with the Hermit's Peak Assistance Act, including slow funding disbursement, an unfamiliar claim process, and were not certain how it would be implemented effectively. The Hermit's Peak Assistance Act provided \$4 billion in supplemental funding to settle damages or loss to property, businesses, critical infrastructure, economic loss, and physical or emotional damage. FEMA was tasked with creating a Claims Office to distribute the funding appropriated through the Act. Most interviewees said the disbursement of funding was slow because of the delayed establishment of the Claims Office and regulations. Interviewees already had familiarity with the Torts Claims process, the use of which could have reduced confusion across levels of governance and the public on how claims are processed. Most interviewees said they wanted the Hermit's Peak Assistance Act to

provide funding that can be implemented across jurisdictional boundaries, but instead provided payouts for claim settlements.

Most interviewees discussed challenges associated with the Stafford Act's policy guidelines, particularly the fact that disasters that result from wildfires, like subsequent floods, are not covered by initial disaster recommendations. The most common challenge mentioned was that cascading events (disasters that result from a post-wildfire environment) are not eligible for funding through the initial disaster declaration and must either go through a separate disaster declaration or be funded by the state. Many cascading events did not meet disaster thresholds, despite communities needing assistance. After data collection, multiple interviewees shared that an application extension was established to account for cascading events; the deadline was extended nearly two years after the disaster. This extension is HPCC-specific and does not apply to post-wildfire disasters more broadly.

The Monsoon Taskforce and the Lines of Effort Framework were coordination and collaboration frameworks that helped establish a sense of familiarity among actors, create channels for communication, and reduce information overload (Box 2). The Monsoon Taskforce was created to provide a platform for daily updates where agencies could share progress on project planning, expected field conditions, and immediate emergency tasks. The Lines of Effort was an adaptation of the FEMA Interagency Recovery Coordination Framework; through this effort, actors organized according to the seven identified efforts (watershed mitigation, housing, community development, water quality, economic development, historic and cultural resources, and health and social services) to distribute resources efficiently and encourage collaboration among actors.

Recommendations

The following is a synthesis of the key recommendations our interviewees offered regarding post-wildfire response and recovery policies and frameworks:

- Increase standing and surge capacity, specifically at the state and local level, to better manage contract procurements, land assessments, project implementation, and community engagement.
- Improve/create federal and state education on programs and ecological considerations around post-wildfire response and recovery.
- Develop and implement a navigator concept (i.e., a post-wildfire caseworker) to connect individuals and agencies with expert post-wildfire knowledge as they traverse response and recovery programs and policies.
- Create funding that can be implemented across boundaries and allow for a holistic post-wildfire approach.

Based on our broader research, we add the following policy recommendations to consider:

- Policymakers should address, at the federal level, inconsistency with EWP program implementation on National Forests so that cross-boundary opportunities are not missed.
- The USDA should continue to consider how existing collaborative authorities, like the Collaborative Forest Landscape Restoration Program or the Joint Chiefs Landscape Restoration Partnership, can be leveraged in post-wildfire contexts.
- Federal support should be purposeful and not overextend state employees who regularly fulfill multiple responsibilities.

More Information

Find reports and other publications about this research at:

<https://sites.warnercnr.colostate.edu/courtneyschultz/plpg-practitioner-papers/>

For more information about this project, contact:

Dr. Courtney Schultz Courtney.Schultz@colostate.edu
Colorado State University Fort Collins, CO 80521-1472





Project Overview and Background

Post-fire response and recovery is an increasingly important topic in the wake of more catastrophic, extensive, and frequent fires in the US West. In 2022, the Hermit's Peak-Calf Canyon (HPCC) Fire burned more than 340,000 acres in northern New Mexico (InciWeb 2022). Both fires started in the Santa Fe National Forest. The Hermit's Peak Fire started from the Las Dispensas prescribed fire, and the Calf Canyon Fire started from a dormant pile burn that was conducted in January 2022. The two fires merged and resulted in the largest wildfire in New Mexico state history, burning approximately 200,000 acres of private lands (58% of the fire footprint), 141,000 acres of Federal lands (41%), and 745 acres of state land (.02%) (Albuquerque Journal 2022; NRCS 2022). Over 150 homes and 900 structures (barns, sheds, etc.) were lost to the fire (Albuquerque Journal 2022; NRCS 2022). The cause of the HPCC Fire and the damage that occurred reinforced New Mexican distrust of the federal government (see Box 1). In addition to the rekindled national debate over the future use of prescribed fire (USFS 2022), practitioner and community experiences with HPCC post-wildfire effects and challenges have contributed to the discussion on how communities and governments approach response and recovery (Haffey 2023, WFMMC 2023).

We researched federal post-wildfire policies, programs, and governance approaches after the Hermit's Peak-Calf Canyon Wildfire. Examining this fire offered unique and important perspectives on how rural communities respond and recover from wildfires. This work is part of a larger research effort to understand the major challenges to post-wildfire policies, potential recommendations, and governance approaches across the West. Our objectives were to:

1. Understand the major challenges that communities face in post-wildfire response and recovery in terms of effects on livelihoods and landscapes and how these were addressed through policy and governance.
2. Identify factors that allow organizations and agencies to navigate response and recovery policies.
3. Inform future policy changes to facilitate more effective post-wildfire response.

Box 1. Historical context on the New Mexico and Federal Government Relationships

The Treaty of Guadalupe Hidalgo, which ended the war between the United States and Mexico, was intended to recognize the existing property rights of the Hispanic landowners. However, during the land grant adjudication processes community land from these grants was declared public domain, eventually becoming part of the San Juan, Rio Grande, Carson, and Santa Fe National Forests (Raish and McSweeney 2008). The descendants of the original rightsholders still live in the surrounding area and claim rights to the land that once belonged to their ancestors. In addition, within New Mexico's boundaries are the Jicarilla Apache Nation, Navajo Nation, Mescalero Apache Tribe, 19 Pueblos and their trust lands, as well as the unceded ancestral lands of these and other Tribes, much of which is now considered U.S. public land.

From a wildfire perspective, New Mexico has already experienced catastrophic fires because of federal prescribed fire. The Cerro Grande Fire of 2000 also started from a prescribed burn in Bandelier National Monument and moved into Los Alamos, Santa Clara Pueblo, and San Ildefonso Pueblo, destroying over 280 homes and 40 laboratory buildings (Gabbert 2010). Recovery cost exceeded \$1 billion dollars and was prolonged for over a decade after the initial event (Gabbert 2010). Shortly thereafter in 2011, the Las Conchas Fire, which also started in Bandelier National Monument, affected more rural and Indigenous communities but received less federal attention. These fires still require restoration efforts. Centuries of broken treaties and agreements have contributed to federal distrust in many New Mexican communities, and past federally caused fires contribute to the difficulty in rectifying the harm caused by the HPCC Fire.

Background on Post-Wildfire Effects and Policy

Wildfires affect ecosystems and people across jurisdictional boundaries, at different temporal scales (e.g., sometimes over hours or days, and other times over multi-year timeframes), and at spatial scales too large for any one actor to manage. After a wildfire, hydrophobic soils and vegetation loss create optimal conditions for sediment movement and flooding (Wine et al. 2018). This can result in water quality impairment and recurrent damage to critical infrastructure, like water facilities, roads, and bridges. Watershed conditions remain dynamic for upward of a decade. In addition, climate change-driven weather (e.g., hot droughts and severe rainfall) compounds the effects of fires resulting in changes to hydrology and other ecosystem processes, as well as shifts in ecological composition and structure. (Millar & Stephenson 2015). Compounding events are making it less likely forests will recover to pre-wildfire conditions (Stevens-Ruman and Morgan 2019).

Federal post-wildfire response and recovery policies are administered by several agencies: the US Forest Service (USFS), the Department of Interior (DOI) agencies, the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), and the Federal Emergency Management Agency (FEMA). The USFS and DOI agencies administer two programs, the Burned Area Emergency Response (BAER) program, which allows emergency soil stabilization actions, and the Burned Area Rehabilitation (BAR) program, which allows infrastructure repair and restoration work to be conducted. The NRCS administers the Emergency Watershed Protection (EWP) program on private lands that require watershed stabilization. Likewise, the FSA works on private lands that were previously forested before the fire via the Emergency Forest Restoration Program (EFRP). None of the USDA programs require a disaster declaration to be activated. Additional information on each USDA program, jurisdictional limitations, implementation timeframes, and allowable treatments can be found in Table 1.

The primary FEMA programs are the Individual Assistance, Public Assistance, and Fire Management Assistance Grants (FMAG), each governed through provisions of the Stafford Act.¹ With exception to FMAG programs, FEMA programs are triggered when the Governor of the affected state declares a disaster and has taken appropriate response actions under state law.² The state must also be able and committed to distributing funding to alleviate the effects of the disaster, and comply with all cost-share requirements. Once U.S. Presidential approval is given for disaster relief, FEMA determines the total funding awarded based on county

¹ 42 USC § 5121 2024

² 44 C.F.R. § 206.35 2024

population, income, and damage incurred to the built environment. In addition, FEMA was tasked with creating a Claims Office to distribute funding appropriated in the Hermit's Peak-Calf Canyon Assistance Act.³ The supplemental funding totaled approximately \$4 billion to settle damages or loss to property, businesses, critical infrastructure, economic loss, and physical or emotional damage. Additional information on FEMA programs can be found in Table 2.

In New Mexico, post-wildfire response and recovery are a state-led and federally supported effort that requires coordination and collaboration at each level of governance. Communities are expected to respond to changing conditions during and after the emotional and physical trauma of a wildfire and often lack the financial resources to address short- and long-term recovery needs. Local-level actors (municipalities, county offices, and conservation districts) are responsible for addressing damage to transportation infrastructure and water filtration systems and managing evacuation but typically lack the capacity and technical expertise to address the full array of post-wildfire challenges. State-level actors help local governments and individuals address ecological or community-level challenges, identify potential policy shortcomings, advocate for waivers or exemptions, and coordinate post-wildfire efforts. Local and state-level actors can be sponsors for federal programs, making them responsible for contract procurement, land assessments, community coordination, maintenance costs, and sometimes treatment implementation. Federal-level actors may support the state during the response and recovery process. Federal agencies, like FEMA, the USFS Tiger Teams, and the U.S. Army Corps of Engineers (USACE), may deploy internal disaster experts to identify opportunities, expedite recovery, and increase workforce capacity. However, this surge capacity is limited by short deployment periods that lead to constant reeducation of local community contexts. Non-governmental organizations (e.g., collaborative groups, watershed coalitions, research institutes, or legal counselors) fill critical gaps that inevitably form across government efforts. The core group of organizations relevant to the HPCC Fire can be found in Table 3.



³ 117 P.L. 180 2022

Table 1: Summary of USDA post-wildfire programs, jurisdictional limitations, implementation timeframes, and allowable treatments.

Program	Jurisdictional Focus	Funding Mechanism	Operational Timeframes	Role in Post-fire Response and Recovery Process
USFS Burned Area Emergency Response (BAER)	Forest Service managed land and Tribal trust lands (i.e., reservations).	Agency wildfire suppression budgets.	Within one year of incident containment.	Emergency stabilization and treatments on federal lands to protect and prevent further degradation of natural and cultural resources threatened by post-fire conditions, assess post-burn soil, plant, habitat, and hydrologic conditions, and prepare integrated plans to respond to threats.
USFS Burned Area Rehabilitation (BAR)	Forest Service managed land and Tribal trust lands (i.e., reservations).	USDA Competitively awarded from Bipartisan Infrastructure Law	Within three years of incident containment.	Recovery of burned landscapes unlikely to recover without human intervention, including mitigation of invasive species threats, soil disturbance, reseeding/seedling planting, contouring for runoff control, or minor infrastructure/resource repairs.
NRCS Emergency Watershed Protection (EWP)	Privately owned land/property.	Supplemental congressional appropriations.	Projects must be completed within 220 days of EWP funding allocation for non-life-threatening disasters (10-day limit for such cases).	Conduct emergency measures to safeguard life and property and remove/reduce hazards caused by natural disasters, including streambank stabilization, channel sediment and debris removal, infrastructure repair, and slope stabilization.
FSA Emergency Forest Restoration (EFRP)	Non-industrial, privately owned forests.	Supplemental congressional appropriations.	Within two years of project approval.	Provides up to 75 percent of cost-share funding for debris/downed tree removal for establishing new stands, replanting costs, reconstruction of forest roads, fire lanes, fuel breaks and erosion control structures, fencing, and wildlife habitat enhancement.

Table 2: Summary of FEMA post-wildfire programs, jurisdictional limitations, implementation timeframes, and allowable treatments.

Program/ Policy	Jurisdictional Focus	Funding Mechanism	Operational Timeframes	Role in Post-fire Response and Recovery Process
Public Assistance (PA) program (Section 402)	Public land (state, county, or municipality)	Annual appropriations from Congress to the Disaster Relief Fund (DRF).	Must be submitted within one year of closing the incident period. A “lock-in” letter is provided with the total amount of funding assistance provided.	Emergency work: debris removal and emergency protective measures. Permanent work: infrastructure repair to roads, bridges, water facilities, public buildings, and utilities.
Individual Assistance (IA) program (Section 402)	Private land	Annual appropriations from Congress for Disaster Relief Fund (DRF), emergency appropriations.	Must be submitted within one year of closing the incident period. A “lock-in” letter is provided with the total amount of funding assistance provided.	Individual Assistance: housing assistance, social programs, crisis counseling, etc.
Hazard Mitigation Grant Program (HMGP) - Program available in the Fire Management Assistance Grants (FMAG)	Public land (state, county, or municipality)	Funding for HMGP is based on a percentage of PA & IA funding.	Within six months of the end of the fiscal year in which FMAG funding was awarded.	Actions to prevent long-term damage to life and property from natural hazards, e.g., soil stabilization, flood diversion, and reforestation.
Hermit’s Peak Assistance Act	Private land, businesses, governments, NGOs, and Tribal trust land	Congressional appropriations	Once a claim is submitted there is a 150-day timeline for required documents to be submitted, and a 180-day timeline for compensation determination.	Resolving damage claims for burdens placed upon claimants by the Hermit’s Peak-Calf Canyon Fire.
The Robert T. Stafford Disaster Relief Act (Stafford Act)	All non-federal lands.	Annual appropriations from Congress for Disaster Relief Fund (DRF), emergency appropriations.	N/A	Governing policy for every FEMA program.

Approach

To answer our research objectives, we utilized an exploratory case study approach and conducted 22 semi-structured interviews with individuals holding positions across local, state, federal, and non-governmental organizations who had intimate knowledge of the Hermit's Peak-Calf Canyon post-wildfire efforts (Table 3). We examined the HPCC Fire because of its size, severity, jurisdictional complexity, unique cultural dynamics, and noteworthy political attention. While this was a large fire, local, state, and federal personnel working on response and recovery efforts are a small network of individuals. We excluded private landowner perspectives from our sampling because we chose to focus on the organizational leaders who could provide insight into governance approaches for post-wildfire program implementation. To some extent, challenges faced by private landowners were captured through the lens of our interviewees, but we recognize that to capture the perspectives of landowners and private citizens, additional research is needed.

Interviews lasted approximately 60 minutes and were conducted during the summer of 2023. Interviews captured the first year of response and recovery following the HPCC Fire. Post-fire recovery efforts for the HPCC will continue to be planned and implemented over the next decade. Initial interviewee outreach was purposive and informed by contacts at the state level in New Mexico; we then transitioned to snowball sampling where initial interviewees recommended other contacts that could provide unique perspectives. Interviewee affiliations are listed in Table 3. We stopped collecting data after reaching saturation (i.e., we were not hearing new themes or new information on themes related to our research objectives).

The content of this report was reviewed by our interviewees to make sure their insights had been reported accurately. During the review process, several interviewees explained that conditions have changed since the time of data collection. These changes included: the long-term effectiveness of programs like EFRP and the Claims Office, additional FEMA extensions to include cascading events in disaster relief, and the use of the Lines of Effort Framework. We acknowledge that changes have occurred, and that we were only able to capture efforts during the first year of response and recovery. Where appropriate we referenced interviewee perceptions of later changes within the findings, recognizing there is a need and opportunity to study long-term recovery following the HPCC fire.

This study is part of a larger research effort to investigate response and recovery policy and governance across the West. To date, our approach has been consistent across case studies, which have also included two 2020 fires in Colorado, the Cameron Peak and East Troublesome Fires. A comparative analysis of these events with HPCC is forthcoming. Interviews were conducted according to an approved human subject research protocol and were recorded, transcribed, and thematically analyzed. Quotations are provided sparingly herein and denoted with a unique number to maintain interviewee confidentiality. For the majority of this document, we summarize key findings from our data.

Table 3: Summary of Interviewee and Agency Information

Governance Level	Organization	Number of Interviewees
Local	Cities of Las Vegas and Santa Fe, and San Miguel County	4
State	DHSEM, EMNRD	6
Federal	FEMA, DOT, NRCS, USFS, USACE	8
Non-Governmental	WFLC, Universities, Consultants, Watershed Alliances	4

Findings

What Were the Major Challenges that New Mexico Faced During Post-Wildfire Response and Recovery?

Interviewees shared challenges with FEMA and the Public and Individual Assistance Programs, including limited access to temporary housing, low eligibility for Individual Assistance, problems with the reimbursement process and timelines, and lack of knowledge as to how to navigate the process. Details include the following:

- Due to policy guidelines, FEMA would not provide temporary housing units to individuals who did not previously have sewer, water, or electricity connections, despite many rural New Mexican communities using alternatives like outhouses, river water, and solar or hydroelectric power.
- Strict policy guidelines contributed to low Individual Assistance eligibility, and interviewees perceived additional disincentives to participate because of the funding available through the Assistance Act.
- FEMA Public Assistance programs are based on reimbursements to applicants (state and local governments), which create barriers for communities that cannot front project costs; the agency does not guarantee which projects will receive funding and subsequent reimbursement, creating challenges for quick project implementation, given uncertainty about reimbursement.
- Post-wildfire knowledge varied among FEMA staff; interviewees thought staff in Region 6 (New Mexico, Texas, Oklahoma, Arkansas, and Louisiana) did not have institutional knowledge of post-wildfire contexts, especially compared to other regions (e.g., Region 9 and 10).

Most interviewees discussed challenges associated with the Stafford Act's policy guidelines, particularly the fact that disasters that result from wildfires, like subsequent floods, are not covered by the initial disaster declaration. The most common challenge shared was that cascading events (disasters that result from a post-wildfire environment) are not eligible for funding through the initial disaster declaration and must either go through a separate disaster declaration or be funded by the state. Many cascading events did not meet disaster thresholds, and according to interviewee feedback, resulted in an extension of the application period to account for cascading events.⁴ This amendment was specific to the HPCC fire and does not apply to other fires within New Mexico or across the West.

Interviewees discussed challenges with the Hermit's Peak Assistance Act, including slow funding disbursement, an unfamiliar claim process, and uncertainty on how it would be implemented effectively. Details include the following:

- Most interviewees said the disbursement of funding was slow because of the delayed establishment of the Claims Office and regulations.
- Interviewees said they already had familiarity with the Torts Claims process, the use of which could have reduced confusion across levels of governance and the public on how claims are processed.
- Most interviewees said they wanted the Hermit's Peak Assistance Act to provide funding that can be implemented across jurisdictional boundaries, but instead it provided payouts for claim settlements.

Challenges with the Forest Service BAER program included a lack of external education on the program's scope, limiting assessment and treatment timelines, and restrictive authorities for cross-boundary assessments. Interviewees with the Forest Service said BAER implementation often requires educating the public and other coordinators that the program is for emergency response that, at best, can stabilize conditions until long-term projects can be implemented. BAER has short implementation timelines; assessments are conducted within two weeks and treatments must be implemented within one year of wildfire containment. Interviewees said BAER assessments can only be conducted on Forest Service land, even if the burn scar is on state or private land. Proposed treatments must help protect Forest Service assets, despite the need and opportunities to help protect downstream communities

⁴ FR Doc. 2022-19591

through work on National Forest lands. This is a challenge when communities are affected by post-wildfire flooding that originated on Forest Service land.

Challenges arose with the timing and applicability of Farm Service programs because they had not been utilized in a post-wildfire context. For instance:

- The Energy Minerals and Natural Resource Department (EMNRD) worked with the Farm Service to initiate the EFRP program for quick treatment implementation on private lands, but a lack of workforce capacity led to slow implementation as 700 applicants sought assistance.
- The Emergency Conservation Program (ECP) is a sister program to the EFRP and is focused on restoring agricultural land. The Farm Service struggled to determine the distinction between the two programs when landowners had previously forested land that was also used for agriculture.

Challenges with the Emergency Watershed Protection program included poor NRCS communication and coordination, use of aerial seeding and mulching, and vague program guidelines. Details include the following:

- Most interviewees with the state and NGOs shared that the NRCS demonstrated poor communication with landowners and other actors, including a lack of communication with landowners on a final treatment decision.
- Most interviewees found it difficult to coordinate with the NRCS, reporting that the agency routinely failed to share important information, such as program timelines and updates, during coordination meetings.
- Most interviewees at the state level criticized the NRCS' treatments (aerial seeding and mulching) because of the lack of effectiveness that has been shown in the literature.
- Some interviewees shared that the EWP program has been implemented on Forest Service land, but, according to these interviewees, the New Mexico NRCS was unwilling to investigate how to use existing authorities to allow this. Ultimately, the NRCS said this was due to a lack of clear policy around this use of the program and that they were waiting for formal policy guidelines.

State-level challenges include problematic state authorities and a lack of wildfire preparedness and institutional knowledge. State-level interviewees said the anti-donation clause in the New Mexico state constitution⁵ prohibits the use of state funding for projects on private property, further limiting the state's ability to conduct post-wildfire work. Interviewees said state agencies had vague authorities for post-wildfire response and recovery work. They added that it took time and state authorities to determine how they, as state agency employees, fit into broader efforts. Furthermore, most interviewees said New Mexico lacked institutional knowledge about post-wildfire response and recovery and did not have a structure set in place to fully operationalize federal assistance. This was further complicated by a lack of state and local workforce capacity that put pressure on employees, many of whom were personally impacted by the fire, leading to information overload and burnout. Ultimately, few individuals had post-wildfire experience at the local scale to cope with disasters of the magnitude of the HPCC Fire.



⁵ The anti-donation clause in New Mexico law prevents the state from providing funding for projects on privately owned land (N.M. Const. Art. IX, § 4).

What Factors Allowed Organizations and Agencies to Navigate Response and Recovery Policies?

The Monsoon Taskforce and the Lines of Effort Framework were coordination and collaboration frameworks that helped establish a sense of familiarity among actors, create channels for communication, and reduce information overload (Box 2). The Monsoon Taskforce was created to provide a platform for daily updates where agencies could share progress on project planning, expected field conditions, and immediate emergency tasks. The Lines of Effort was an adaptation of the FEMA Interagency Recovery Coordination Framework; through this effort, actors organized according to the seven identified efforts (watershed mitigation, housing, community development, water quality, economic development, historic and cultural resources, and health and social services) to distribute resources efficiently and encourage collaboration among actors.

Box 2. Coordination and Collaboration in New Mexico

Monsoon Taskforce: During the first monsoon season, daily flooding occurred, affecting private landowners and local governments. EMNRD and FEMA organized the Monsoon Taskforce to provide a platform for daily updates where federal, state, and local actors could share progress on project planning, expected field conditions, and immediate emergency tasks. This helped New Mexico track progress and become more familiar with the varying federal entities. The Monsoon Taskforce was state-organized and formed to fill a coordination and communication void. The Monsoon Taskforce was only active during the monsoon months following the HPCC and was replaced by the Lines of Effort Framework, which facilitates greater project collaboration.

Lines of Effort: The State of New Mexico created the Lines of Effort to align agencies with similar goals and formalize coordination. After the 2022 monsoon season, DHSEM used the Interagency Recovery Coordination (IRC) framework to develop the Lines of Effort. The IRC program was intended to connect state and federal partners with similar efforts, but interviewees said FEMA had difficulty navigating New Mexico's agencies. The Lines of Effort are made up of seven initiatives: watershed mitigation, housing, community development, water quality, economic development, historic and cultural resources, and health and social services. Each effort contains local, state, and federal entities that are working on those specific specializations. Each line of effort was further delineated into smaller task force groups that allow partners to work together on more granular issues. For example, within the watershed line of effort, there was a task force centered around acequia⁶ clean-ups. Overseeing all the Lines of Effort were DHSEM, FEMA, and the Governor of New Mexico. The Lines of Effort was intended to help reduce information overload across each effort and funnel resources to specific tasks.

Despite there being a lack of collaborative programs specific to post-wildfire, interviewees utilized existing authorities, such as Shared Stewardship, Good Neighbor Authority, and the Wyden Authority, to achieve cross-boundary results. Agencies like the Department of Transportation were able to secure Memoranda of Understanding and agreements that would allow them to work across jurisdictions. Interviewees with EMNRD said they utilized Shared Stewardship and the Wyden Authority to conduct cross-boundary projects with the Forest Service. The Forest Service said they used the Good Neighbor Authority to work with the state, indicating some inconsistency in people's understanding of the use of these different authorities. Ultimately, EMNRD was able to use state dollars on Forest Service land, and in return, the Forest Service provided grant funding for EMNRD to implement treatments on private lands.

Waived EWP cost-share requirements and expedited BAER funding removed barriers for program usability on the HPCC Fire. The Bipartisan Infrastructure Law (BIL) was used to supplement the EWP 25% cost-share requirement (~\$31.3 million). Interviewees said this exemption provided opportunities for the State because there was no financial commitment linked to being a sponsor. In addition, the Forest Service Washington Office approved the implementation of BAER treatments before the costs were determined, which allowed expedited project implementation.

⁶ Acequias are culturally significant irrigation ditches governed by Acequia Associations, and New Mexico has prioritized debris removal in these waterways (see Montoya 2024).

Non-governmental organizations (NGOs) helped fill gaps, facilitate collaboration, and initiate recovery across federal, state, and local efforts. Examples include the following:

- The New Mexico Forest and Watershed Restoration Institute created the Hub Site⁷ for all agencies to input updates about their operations so that community members did not have to search for information across agency websites.
- High Water Mark, an environmental consulting firm, acted as a navigator for New Mexico by sharing knowledge and expertise on federal assistance programs that interviewees perceived to provide value at the private landowner, local, and state levels.
- The Hermit's Peak Watershed Alliance is a local watershed group in Northern New Mexico that leveraged existing grants to help implement quick, small-scale watershed and slope stabilization projects. Interviewees said the Watershed Alliance acted as an alternative to other federal programs on private land.
- NGOs were not considered authorized post-wildfire actors by agencies like FEMA and were therefore limited on how they could engage in post-wildfire efforts.

What Were the Recommendations to Inform Future Policy Changes to Facilitate More Effective Post-Wildfire Response?**Interviewees commonly recommended an increase in workforce capacity for post-wildfire efforts. Details included:**

- Increase standing and surge capacity, specifically at the state and local level, to better manage contract procurements, land assessments, project implementation, and community engagement. While redundancy in roles and authorities across different positions may also reduce burnout, dedicated post-fire staff can help ensure pre-existing (non-post-wildfire) state and local initiatives continue to be implemented.
- Most interviewees recommended that FEMA be more purposeful with the personnel they resource order and recommended FEMA only bring individuals who provide clear value and can push post-fire efforts forward.
- Some interviewees mentioned that USFS Tiger Teams and the USACE helped increase workforce capacity but should not be relied on because these resources may not always be available for longer-term project implementation.
- Some interviewees said rural communities have relevant skills and equipment that could be leveraged to expand capacities by conducting work on their lands, rather than using out-of-state contractors that do not understand local contexts.

People at all levels of governance need greater education on post-wildfire response and recovery programs and ecological considerations. Interviewees shared that some federal agencies did not know how their programs could be used in a post-fire context. Interviewees explained that most personnel who were ordered to assist with response and recovery efforts did not bring new information to the table, and, when they did, it was not relevant given New Mexico's available capacity and funding. Education should center around disaster readiness and how geographic and cultural variation can influence post-wildfire needs.

Develop and implement the navigator concept (i.e., a post-wildfire caseworker) to connect individuals and agencies with expert post-wildfire knowledge as they traverse response and recovery programs and policies.

Various iterations of this concept emerged during data collection, but the core idea is to embed experts within a community to help individuals or governments identify the best programs based on personalized contexts. Interviewees pointed out that New Mexico already has a caseworker framework that could be used to legitimize this role. Navigators will need to be authorized actors within the post-wildfire space or else they will not be able to fully engage with some federal agencies. This was a challenge for High Water Mark, as they were never acknowledged by FEMA as an authorized actor in the post-wildfire space.

⁷ See: NMFWRI (2023)

Create funding that can be implemented across boundaries and allow for a holistic post-wildfire approach.

Interviewees recommended creating a funding source that can be utilized across multiple jurisdictional boundaries, which could either be a new funding source or an amendment to existing programs like the EWP, EFRP, or BAR. Interviewees also wanted authorities to allow BAER teams to analyze the entirety of the burn scar rather than just on federal land. Others recommended changes to the Stafford Act that would link post-fire flooding and debris flows to the wildfire disaster declaration or expand the disaster window.

Develop an incident command structure similar to wildfire management to work across multiple jurisdictions and connect funding sources. Those in favor of an incident command structure liked the idea of a unified control approach that would require greater coordination across programs and an increase in capacity and knowledge. However, others thought an incident command structure would not be suitable in post-fire environments because of the long-term realities of post-fire needs and the fact that no real delegation of authority could be provided for private lands. Unified control could be facilitated through collaborative frameworks like the Lines of Effort or could fall under the navigator concept.



Conclusions

We found varying challenges with post-wildfire programs that result from scale mismatches and limiting policy guidelines. Post-wildfire effects are experienced across multiple jurisdictional boundaries, occur at different times, and may not follow similar patterns across disasters. Moreover, the programs available are siloed and do not have mechanisms that allow for or encourage collaboration across boundaries. Each post-wildfire program follows a short operational timeframe that provides minimal consideration for the extended nature of post-wildfire needs. Furthermore, policy guidelines are rigid and not consistently implemented across regions of the West. Programs have limited flexibility to tailor approaches to local contexts. This is exacerbated by limited institutional knowledge of post-wildfire programs, policy, and ecology.

Throughout our research, interviewees shared the following recommendations:

- Increase workforce capacity, specifically at the state and local level, to better manage contract procurements, land assessments, project implementation, and community engagement.
- Improve/create federal and state education on programs and ecological considerations around post-wildfire response and recovery.
- Develop and implement a navigator concept (i.e., a post-wildfire caseworker) to connect individuals and agencies with expert post-wildfire knowledge as they traverse response and recovery programs and policies.
- Create funding that can be implemented across boundaries and allow for a holistic post-wildfire approach.

Based on our broader research, we add the following policy recommendations to consider:

- Policymakers should address, at the federal level, inconsistency with EWP program implementation on National Forests so that cross-boundary opportunities are not missed.
- States should invest in greater post-wildfire planning and preparation to create more opportunities and to be aware of existing capacities. This could include communication with non-governmental or local government organizations to determine and train them in how they could assist in recovery, relieve state responsibilities, and increase community robustness and trust.
- The USDA should continue to consider how existing collaborative authorities, like the Collaborative Forest Landscape Restoration Program or the Joint Chiefs Landscape Restoration Partnership, can be leveraged in post-wildfire contexts.
- Federal support should be purposeful and not overextend state employees who regularly fulfill multiple responsibilities.
- The federal government should put funding towards “all lands” soil burn severity assessment and analysis reports with requirements for long-term monitoring and report updating to ensure that they are delivered in a useful timeframe and at the right scale.
- Soil burn severity assessments should be conducted by inter-agency teams with members of local state offices to ensure usable recovery recommendations and improve accountability among stakeholders.
- Provide funding to local entities to support landowner education and proactive values at risk discussions before post-wildfire impacts.

Our research captures the first year of response and recovery following the Hermit’s Peak-Calf Canyon Fire. Although our work can serve as a baseline to track and inform initial efforts, it will be important to study how long-term efforts are implemented. We hope this work provides value for other communities by highlighting the importance of pre-post-wildfire planning and investments in capacity. We did not capture private landowner perspectives on post-wildfire governance, but interviewees said communities valued controversial practices like aerial seeding because it visually represented recovery. These dynamics should be further researched to determine the psychological impacts of response and recovery actions. Future research should consider how state capacities are leveraged during response and recovery and how learning from past events might position communities for greater success during the next event. And finally, research should determine if subsequent state disasters soften rigid policy and fill gaps in governance. Ultimately, any post-wildfire community of practice will need to ensure that they have a vision for post-wildfire policy “success” and are not addressing challenges with a piecemeal approach. State-level interviewees were wary of additional federal support because of the increased workload it may entail. Federal support and policy recommendations must be purposeful and create opportunities for successful recovery.

References

- Albuquerque Journal. (2022). 166 homes gone, high winds feared. Albuquerque Journal. https://www.abqjournal.com/news/local/166-homes-gone-high-winds-feared/article_a9c5211d-b4f4-5774-9e6d-57e1732c798d.html
- Gabbert, B. (2010). Cerro Grande fire, 10 years ago today. Wildfire Today. <https://wildfiretoday.com/2010/05/10/cerro-grande-fire-10-years-ago-today/>
- Haffey, C. (2023). Stuck in the Mud: Gaps in Post-Fire Recovery Programs. Fire Adapted Communities Learning Network. <https://fireadaptednetwork.org/stuck-in-the-mud-gaps-in-post-fire-recovery-programs/>
- Hjerpe, E.E., Colavito, M.M., Edgeley, C.M., Burnett, J.T., Combrink, T., Vosick, D., & Meador, A. S. (2023). Measuring the long-term costs of uncharacteristic wildfire: A case study of the 2010 Schultz Fire in Northern Arizona. *International Journal of Wildland Fire*, 32(10), 1474–1486. <https://doi.org/10.1071/WF23036>
- InciWeb (2023). Hermit's Peak-Calf Canyon Incident Information. <http://inciweb.nwcg.gov/incident-information/nmsnf-calf-canyon>
- Montoya, R. (2024). Acequia Recovery after the Hermit's Peak Calf Canyon Fire: Part 1. Available at: <https://lasacequias.org/2024/04/22/acequia-recovery-after-the-hermits-peak-calf-canyon-fire-part-1/>
- New Mexico Forest and Watershed Restoration Institute. (2023). Hermit's Peak and Calf Canyon Fire. ArcGIS StoryMaps. <https://storymaps.arcgis.com/stories/d48e2171175f4aa4b5613c2d11875653>
- NRCS. (2022). NRCS New Mexico's Hermit's Peak/Calf Canyon Disaster Assistance | Natural Resources Conservation Service. USDA Natural Resources Conservation Service. <https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/new-mexico/nrcs-new-mexicos-hermits-peakcalf-canyon>
- Raish, C., & McSweeney, A. M. (2008). Land Grants and the U.S. Forest Service Symposium on Land Grants and the Law: The Disputed Legal Histories of New Mexico's Land Grants. *Natural Resources Journal*, 48(4), 1039–1056.
- Stevens-Rumann, C. S., & Morgan, P. (2019). Tree regeneration following wildfires in the western US: A review. *Fire Ecology*, 15(1), 15. <https://doi.org/10.1186/s42408-019-0032-1>
- WFMCC (2023) ON FIRE: The Report of the Wildland Fire Mitigation and Management Commission. Available at <https://www.usda.gov/sites/default/files/documents/wfmcc-final-report-09-2023.pdf>
- Wine, M.L., Cadol, D. and O. Makhnin. 2018. In ecoregions across western USA streamflow increases during post-wildfire recovery. *Environmental Research Letters*, 13 (1), p.014010. <https://doi: 10.1088/1748-9326/aa9c5a>