



Fire Learning Network Notes from the Field

June 2018

Burned Area Learning Network

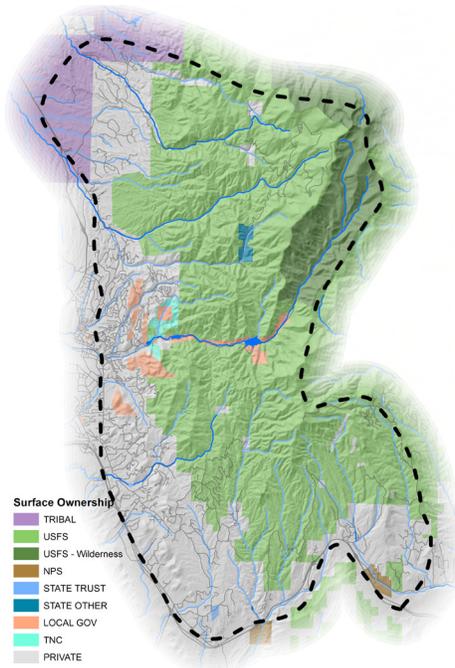
The Greater Santa Fe Fireshed Coalition: Demonstrating the Value of “Pre-Fire Planning to Improve Post-Fire Response”

The FLN’s Burned Area Learning Network (BALN) initiative is working before the fire to respond smartly during and after the fire to move communities and watersheds toward a more resilient future. The Greater Santa Fe Fireshed Coalition is demonstrating what working smarter can look like.

It is no secret that wildfires are burning with greater frequency and severity across larger areas in the Southwest than in the past. While fire is an inevitable and essential ecological process in our wildlands, the size and severity of many fires we see today deviate from what is considered “natural” and beneficial, and these fires are often occurring where human values are at risk. What we are discovering is that risk to values can result from post-fire events that occur some time after the fire itself, so that integrating this reality gives a much better evaluation of what risk means.

THE APPROACH

Wildfire risk is a result of a complex interplay between dynamic natural and human systems. As noted in the 2016 journal article, “Wildfire as a Socioecological Pathology” (Fischer et al.), successful solutions to wildfire risk require attention to both natural and human systems. The partners in the Greater Santa Fe Fireshed Coalition (GSFFC) are working to model this approach.



Landownership in the Santa Fe Fireshed (indicated by the dashed line). The largest proportions are owned by the U.S. Forest Service (green) and private landowners (gray).

THE GREATER SANTA FE FIRESHED

The Santa Fe Fireshed encompasses a landscape defined by the scale of fire threats and the values at risk

from wildland fire; it is a 107,000-acre area that crosses jurisdictional boundaries.

Values under threat include drinking water, homes, and traditional use areas and irrigation systems used by Hispanic and Native American communities; there are also important recreational values, including a ski area and hiking and biking trails. The GSFFC’s strategy relies on a landscape-level risk assessment to identify high priority on-the-ground projects that will build resilience for forests and communities.

The GSFFC includes federal, state, tribal and local agencies; non-governmental and community-based organizations; fire fighters; universities and soil and water conservation districts. Residents and private landowners in the fireshed participate either as representatives of a partnering organization or indirectly through groups and public activities organized by partners. Although partners represent a wide range of interests and perspectives, all have endorsed the vision, mission, strategy and operating principles of the coalition.

Improving the health and long-term resilience of forest watersheds and communities requires this broad collaborative effort.

WHAT IS A FIRESHED?

A fireshed is an analysis landscape large enough to incorporate the risk large wildfires pose to values people care about.



Flooding and debris flows followed the 2011 Las Conchas fire in New Mexico.

Credit: USACE

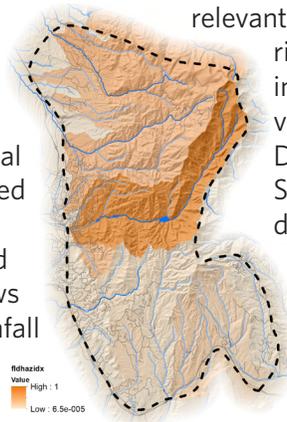
CONSIDERING POST-FIRE THREATS

As wildfires become larger and more severe, soil and geomorphic impacts also become more evident. Hot fires can strip the vegetation off the slopes and harden soils. Denuded slopes cannot capture rainfall; it simply runs off. The heavy downpour produced by a summer monsoon comes off the slopes in a flood that gains momentum as it moves across the landscape. Soil, rocks and debris in its path are captured by the flood. The mass and velocity of the flow continues to increase as it flows downhill, potentially destroying homes and roads, and endangering people who survived the fire itself.

Increasing the readiness and resilience of communities and landscapes to wildfire needs to include consideration of these floods and debris flows that typically follow. The cooperative, cross-boundary approach used by the GSFFC offers an opportunity to demonstrate the value of “pre-

fire planning to improve post-fire outcomes.” This effort requires a proactive collaborative approach as well as the application of the best science and technology.

The Nature Conservancy has modeled the likely sources of flooding and debris in the Fireshed, along with the potential fire risk using methods developed by the USGS. Together these model the potential sources and volume of water and debris flows under different burning and rainfall scenarios.



Along with fire behavior, the flood and debris flow risk assessment will help guide priority treatment areas and emergency preparedness. The GSFFC is experimenting with products

relevant for addressing post-fire risks; these include incorporating post-fire values into the Wildfire Decision Support System (WFDSS), and development of a post-fire preparedness and response plan.

Action Can be Taken Before, During and After Wildfire to Address Post-Fire Impacts

Before the fire, areas that could be likely sources of damaging floods can be prioritized for treatments aimed at reducing fire severity.

During the fire, managers can act to reduce the severity of burning in these areas. Even when a fire is too powerful to stop, managers work hard to reduce its impact to critical values (with that the protection of people always being the highest priority).

After the fire, Burned Area Emergency Response (BAER) teams can use flood and debris flow risk information to target their responses, which may include mitigation work aimed at slowing the flow of water and debris. The information can be used by FEMA and others to prepare for post-fire emergencies on state and private land as well.

Post-fire responses may include:

- Requesting a declaration of emergency or disaster, and access to federal disaster funds
- Protecting or even evacuating communities
- Mitigating threats to roads and infrastructure
- Mitigating threats to water intake systems

Learn More

Greater Santa Fe Fireshed Coalition
www.afterwildfirenm.org

GSFFC Wildfire Risk Assessment
<http://www.santafefireshed.org/blog2/2018/6/11/greater-santa-fe-fireshed-wildfire-risk-assessment>

USGS Landslide Hazard Program
https://landslides.usgs.gov/hazards/postfire_debrisflow/background2016.php

Wildland Fire Decision Support System (WFDSS)
<https://wfdss.usgs.gov/>

“Wildfire as a Socioecological Pathology” paper
<https://doi.org/10.1002/fee.1283>

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Or visit: <http://www.conservationgateway.org/ConservationPractices/FireLandscapes/FireLearningNetwork/RegionalNetworks/Pages/BALN.aspx>

The Burned Area Learning Network is an initiative of the Fire Learning Network, which is part of *Promoting Ecosystem Resilience and Fire Adapted Communities Together*, a cooperative agreement between The Nature Conservancy, USDA Forest Service and agencies of the Department of the Interior. For more information about PERFECT, contact Marek Smith at marek_smith@tnc.org.

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