# The Cameron Peak Fire:

# Use of Potential Operational Delineations and Risk Management Assistance Products


June 2021

CFRI - 2106

## Colorado Forest Restoration Institute

The Colorado Forest Restoration Institute (CFRI) was established in 2005 as an application-oriented, science-based outreach and engagement organization hosted by the Department of Forest and Rangeland Stewardship and the Warner College of Natural Resources at Colorado State University. Along with centers at Northern Arizona University and New Mexico Highlands University, CFRI is one of three Institutes that make up the Southwest Ecological Restoration institutes, which were authorized by Congress through the Southwest Forest Health and Wildfire Prevention Act of 2004. We lead collaborations between researchers, managers, and stakeholders to develop, synthesize, and apply locally-relevant, actionable knowledge to inform forest management strategies and achieve wildfire hazard reduction goals in Colorado and the Interior West. Our work informs forest conditions assessments, management goals and objectives, monitoring plans, and adaptive management processes. We help reduce uncertainties and conflicts between managers and stakeholders, streamline planning processes, and enhance the effectiveness of forest management strategies to restore and enhance the resilience of forest ecosystems to wildfires. We complement and supplement the capacities of forest land managers to draw upon and apply locally-relevant scientific information to enhance the credibility of forest management plans. We are trusted to be rigorous and objective in integrating currently-available scientific information into forest management decision-making. We do this through collaborative partnerships involving researchers, forest land managers, interested and affected stakeholders, and communities.

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## Summary

This report documents how Potential Operational Delineations (PODs) and USDA Forest Service Risk Management Assistance products were used on the 2020 Cameron Peak Fire on the Arapaho and Roosevelt National Forests and surrounding lands in Colorado. The report utilizes a case study approach and is informed by eight interviews with local managers and incident management team members involved in the Cameron Peak Fire. It is written primarily for land managers and decision makers involved with wildland fire policy and management, with findings organized around a set of lessons learned. We end with several recommendations to enhance the use and functionality of PODs as a tool to: plan for and manage wildfire; inform post-fire restoration and remediation efforts; and inform cross-boundary spatial fire planning efforts at local, regional, and national scales.

## Background

Wildland fire management in the western U.S. is increasingly complex. Climate change-driven increases in fire activity and fire season length, continued development in the wildland-urban interface, and interactions between fire and other large disturbances (e.g., pest and pathogen disturbances) combine to exacerbate risks to human lives and property, and increase suppression difficulty (Holden et al. 2018; Jolly et al. 2015; Radeloff et al. 2018). These challenges have increased emphasis on risk management principles and decision support tools that provide a framework and structure for collaborative, proactive spatial fire planning and management.

One such approach is the development of Potential Operational Delineations (PODs), and associated strategic responses to managing wildfire within them. PODs are a pre-season wildfire planning tool to "engage the fire before it starts." To date, they have been developed and deployed on over 40 National Forests, and are used to support incident management, prioritize mechanical treatments, and to bound prescribed fires (Caggiano 2019). PODs are delineated using high likelihood containment features (e.g., roads, ridgetops, changes in fuel type) that are identified using local firefighter knowledge, and analytical products from the USDA Forest Service Risk Management Assistance (RMA) team. Developing PODs is a collaborative and iterative process, which typically occurs over the course of several workshops with local fire managers and research scientists. Local experts are given RMA-developed maps of Suppression Difficulty Index (SDI – a raster layer indicating areas of high and low suppression difficulty), potential control locations (PCL – modeled likelihood of containment based on locations where historical fires burned and stopped) (Rodríguez y Silva et al. 2014, 2020; O'Connor et al. 2017), and reference layers. Local experts then draw effective control lines on the maps, which are subsequently digitized in a Geographic Information System (Figure 1).

> *Where the PODs really help you is the ability to carve the landscape up into pieces, one bite at a time, and [PODs] gives you a place where you can communicate back and forth easily with your partners and publics about what it is you are trying to do and why you are trying to do it.*
>
> *—Monte Williams, Forest Supervisor, Arapaho and Roosevelt National Forests and Pawnee National Grassland*

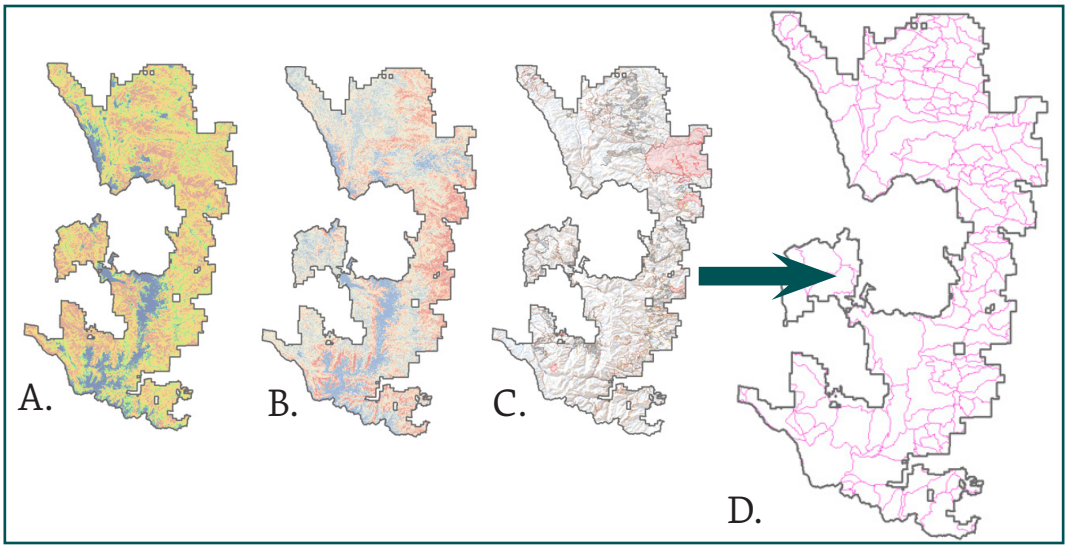


*Figure 1. Workshop participants use maps with Potential Control Locations (A), Suppression Difficulty Index (B), and reference layers (C) to hand draw lines identifying effective control lines across the landscape. Hand drawn POD boundary lines are then digitized into an electronic format using Geographic Information Systems (D).*

PODs are often integrated with other spatial decision support tools, such as Quantitative Wildfire Risk Assessments (QWRAs). QWRAs integrate modeled likelihood and intensity of wildfire with local knowledge of Highly Valued Resources and Assets (HVRAs) and their responses to wildfire (Scott et al. 2013). When combined with PODs, QWRAs can support the development of Strategic Response Zones, which formally communicate potential fire response strategies that align with land management objectives, and community or infrastructure protection needs (Figure 2).

The Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP) developed PODs with support from the USDA Forest Service Rocky Mountain Research Station (RMRS) and the Colorado Forest Restoration Institute (CFRI). PODs development began with a series of workshops in 2018, at which agency fire staff and cooperators met to delineate POD boundaries. After PODs were developed, electronic maps and geospatial data were shared with fire staff and cooperators to support cross-boundary project planning efforts.

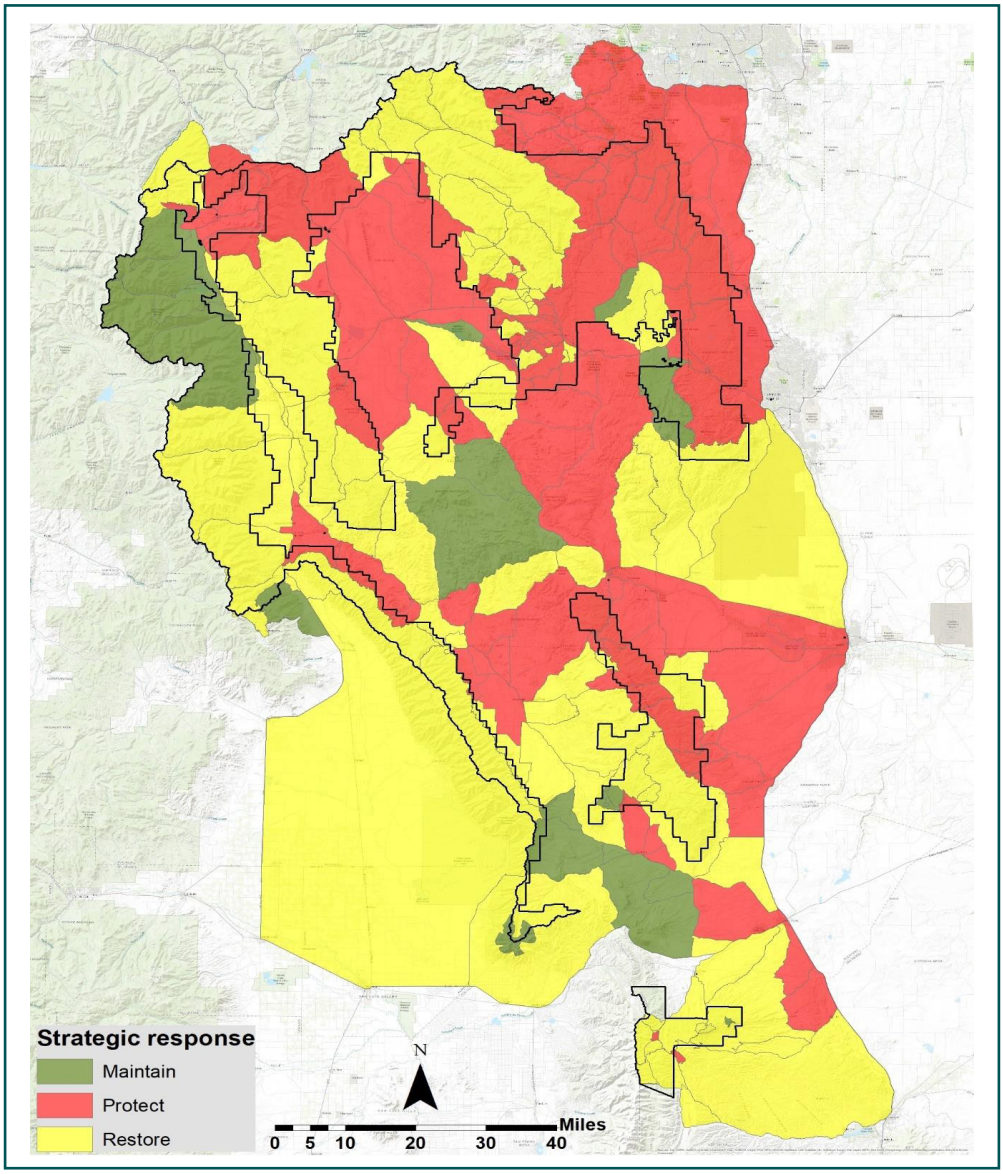


*Figure 2. On the Pike and San Isabel National Forests, PODs were used in conjunction with the Colorado Wildfire Risk Assessment to identify Strategic Response Zones. For example, in green/maintain zones, managers have determined that the values within the POD are at low risk from fire, and fire under the right conditions can be managed for resource benefits. In red/protect zones, fire should be suppressed and excluded when possible. In yellow/restore zones, values are at moderate risk from fire, and while fire under the right conditions could be managed for resource benefit, mechanical or prescribed fire treatments may be needed as a precursor to reintroducing fire. These Strategic Response Zones have not yet been developed on the Arapaho and Roosevelt National Forests.*

## Outline and approach

CFRI is currently helping several National Forests develop PODs to enhance decision support, and evaluating the use of PODs across management levels in the USDA Forest Service. The report herein examines how PODs and RMA products (including SDI and PCL maps) were utilized on the Cameron Peak Fire. We use a case study approach based on interviews with eight local managers and incident management team members conducted between November 1, 2020, and January 31, 2021. We organize our findings below around seven key themes. We conclude with several recommendations to inform future strategic fire planning efforts and incident response.

## Case study - The Cameron Peak Fire

> *We wanted to take a strategic look and say how do we manage fire in the large spaces. This set of PODs represents that strategy.*
>
> *—Monte Williams, Forest Supervisor, Arapaho and Roosevelt National Forests and Pawnee National Grassland*

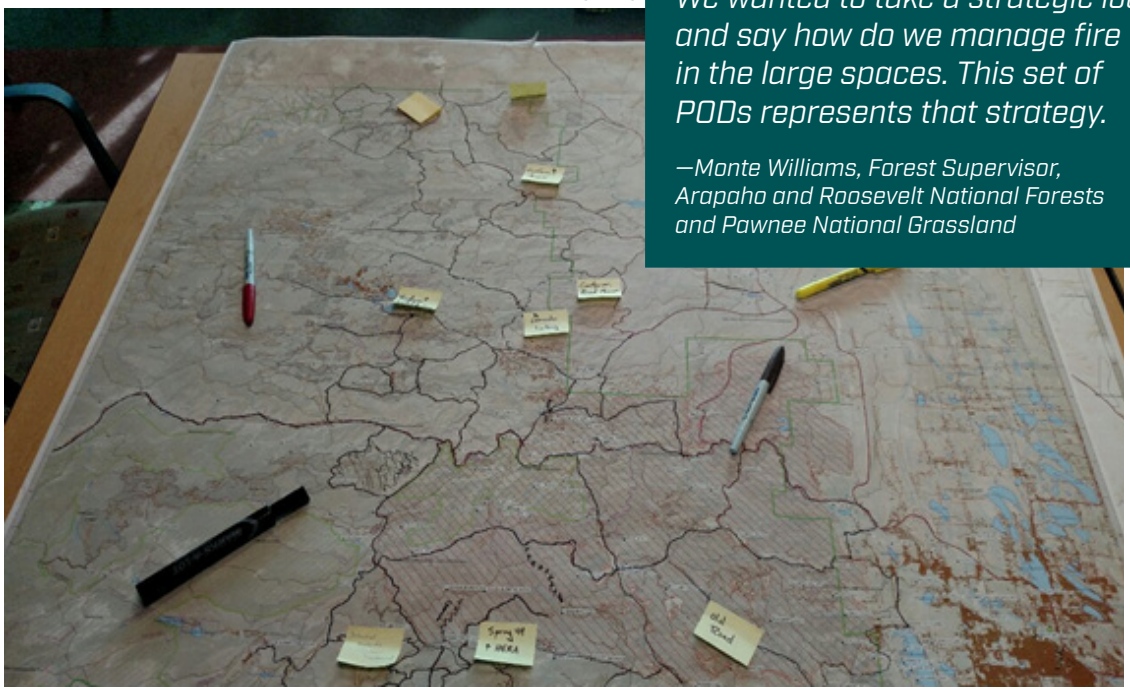

*Figure 3. Hand-drawn control lines from the initial POD workshop with the Arapaho and Roosevelt National Forests.*

Before the 2020 fire season started, the ARP had developed PODs (Figure 3), but because the QRA was out of date, the Forest had not recently developed and designated Strategic Response Zones. The ARP was also in the process of developing additional products to support pre-season and incident decision-making, including a spatial database and atlas summarizing HVRAs, potential fire behavior, and suppression challenges by POD (Thompson et al. 2020). However, the final PODs atlas was not produced in time for the 2020 fire season. The Forest had documented fire management zones in the previous land management plan (LMP) that roughly identified areas where different tactics were appropriate, but boundaries were not based on Potential Control Locations. Though not documented in the LMP, fire managers *had* discussed broad control strategies and tactics for fire response within each POD during the PODs workshop and in subsequent meetings. For example, it was generally acknowledged that the backcountry PODs were suited for indirect control strategies, where firefighters engage with the fire at POD boundaries and similar features, rather than engaging the fire in the middle of the POD. This strategy is especially cogent under extreme weather conditions when suppression difficulty is high and there are limited opportunities for firefighters to safely attack fires directly. Alternatively, PODs in or near the wildland-urban interface would require aggressive actions to limit fire spread and protect community assets.

The 2020 fire season ended with three of the largest wildfires in Colorado's history. The largest was the Cameron Peak Fire, which started on August 13th in steep and rugged terrain on the ARP, approximately 15 miles southwest of Red Feather Lakes, Colorado. It burned for over 90 days with several episodes of rapid growth (see the fire timeline (Figure 4) and fire progression map (Figure 5)). All told, the fire burned over 200,000 acres and destroyed more than 200 homes. Abnormally dry conditions during the 2020 fire season set the stage for large fires in Colorado and other western states (Higuera and Abatzoglou 2021) (See Box 1 for information about weather conditions during the Cameron Peak Fire). Destructive fires like this may become the new normal in many parts of the western United States, and cross-boundary fire planning efforts will be crucial to confront these large-scale disturbances. This case study about PODs use during the 2020 Cameron Peak Fire can inform future planning efforts.

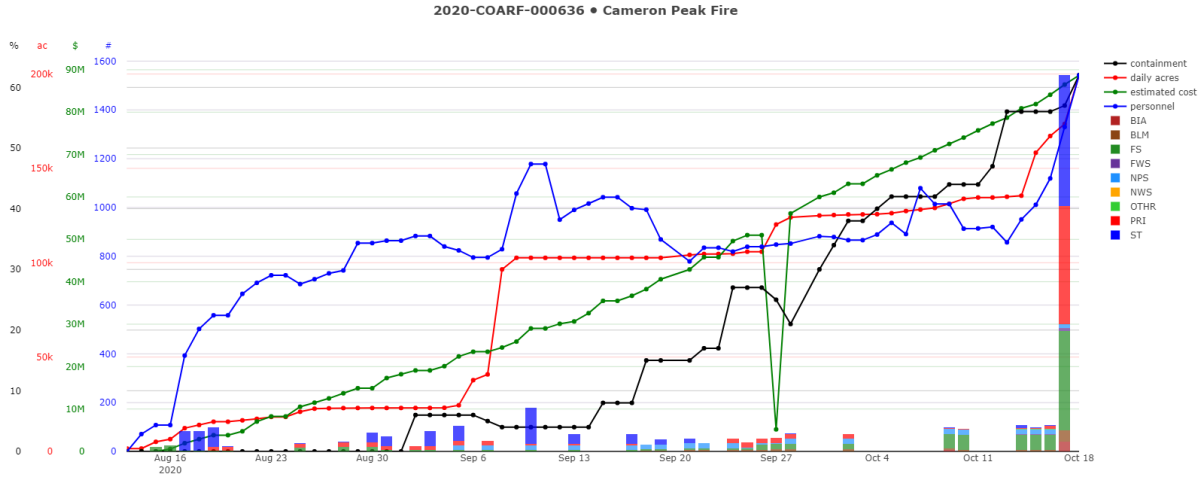


*Figure 4. Wildfire incident timeline showing daily fire growth, personnel, cost, containment, and jurisdiction*

*(Credit USFS Risk Management Assistance Dashboard)*

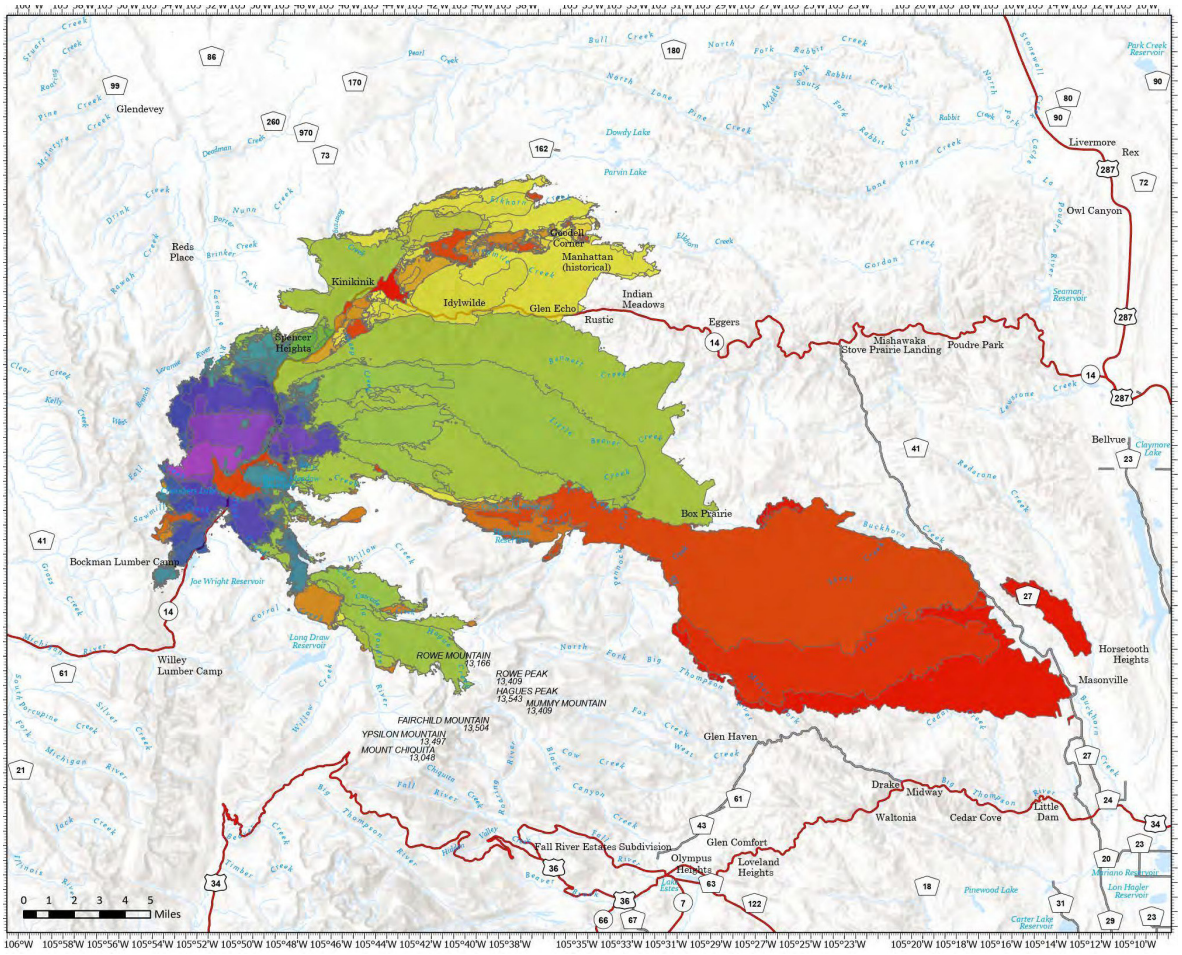


*Figure 5. Cameron Peak Fire progression map showing the daily growth from August 13th—October 20, 2020*

*(Credit: Inciweb)*

## Box 1. Extreme Fire Weather during the Cameron Peak Fire

Locally, the energy release component (ERC) and burning index (BI) from the National Fire Danger Rating System exceeded their historical 97th percentile values over several periods of the fire and matched or exceeded the conditions experienced during the 2012 High Park Fire (Figure 6). ERC, which is high when fuels are dry, was elevated for much of the event, dipping in response to snow in early September but increasing again as fuels dried through the middle of October. Peaks in BI correspond to windy conditions that drove episodes of rapid fire growth.

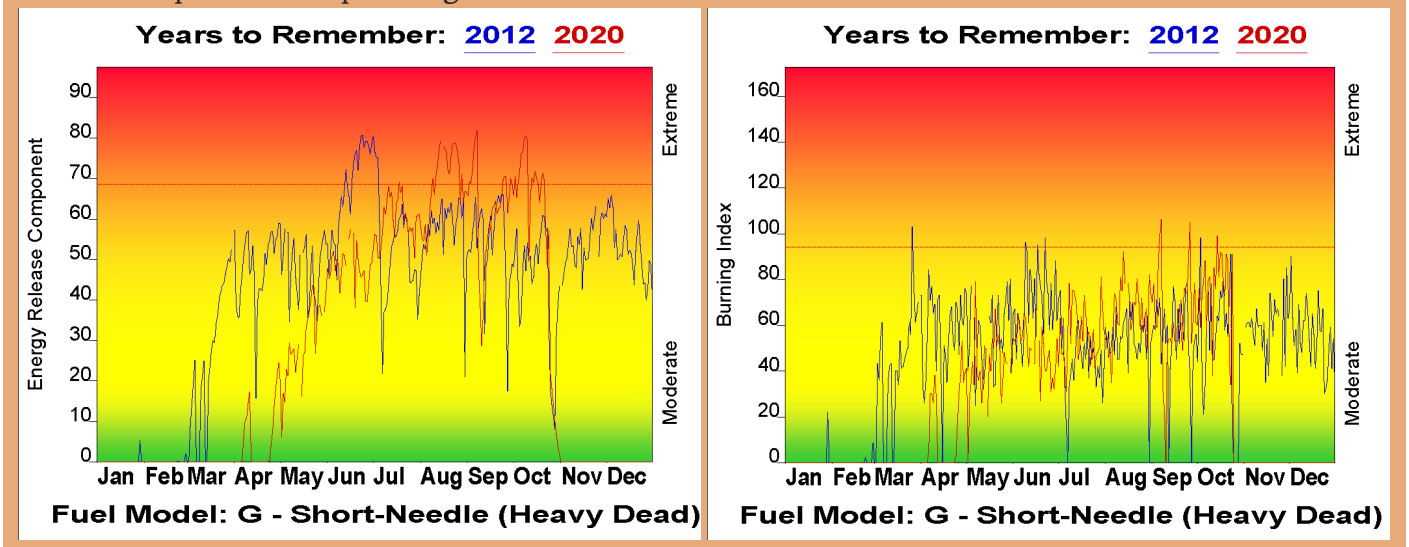


*Figure 6. Pocket cards were created with Fire FamilyPlus 5 using the data from the Red Feather Lakes Remote Automated Weather Station.*

## Lessons learned

### 1. PODs were used to help delineate initial fire planning areas

Soon after the fire started, it became clear to managers that the fire would become a long duration event. Opportunities for direct attack were limited due to the remote location of the ignition, difficult access, and extensive mortality from insect outbreaks that have affected lodgepole pine and Engelmann spruce in recent decades. Further complicating things, the fire ignited at a junction of four large PODs and quickly established itself in each. Due to the fire's rapid growth and limited suppression opportunities, managers identified a large planning area based on POD boundaries and other existing control lines, which in many instances were miles from the fire perimeter (Figure 7).

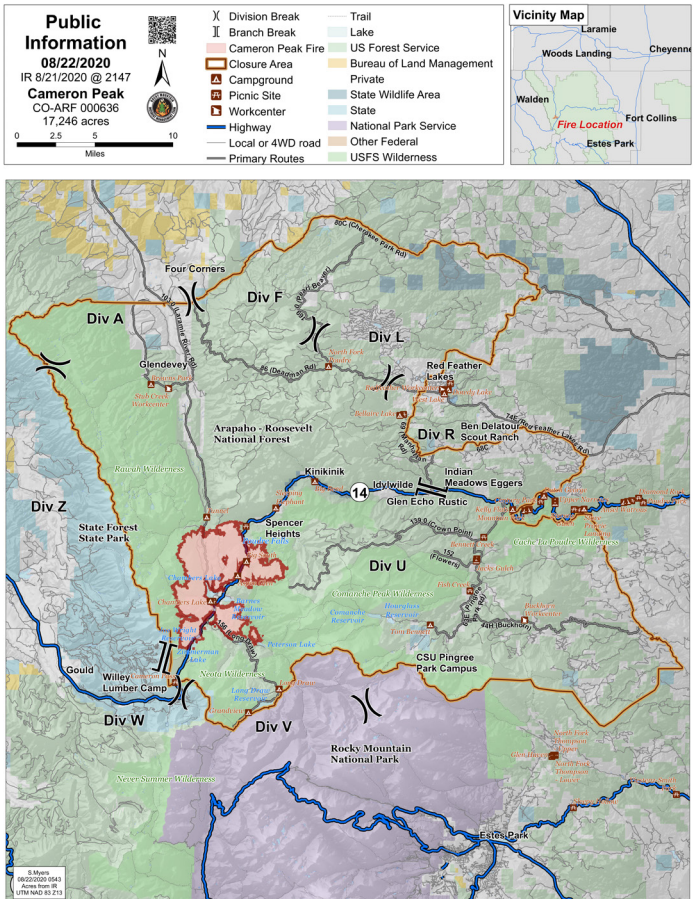


*Figure 7: Incident map showing the Cameron Peak Fire and the initial planning area partially based on POD boundaries as of August 21st, 2020. (Credit: Inciweb)*

## 2. The final fire perimeter and improved control lines aligned well with identified PODs

PODs were used to help identify contingency containment lines in case the fire breached primary lines. These POD boundaries and potential control lines were identified, scouted, and in many cases improved through mechanical thinning and burn out operations. A portion of these lines were engaged and held fire. Ultimately 159 miles of POD boundaries were identified as potential control lines and improved during the incident, and 93 miles of POD boundaries were directly utilized to contain the fire (Figure 8). POD boundaries comprised 29% of the total fire perimeter and 65% of all constructed or improved control line (assessed using a 200 meter buffer). Lines improved during the incident may be utilized as control lines on future fires, or as starting points for broader fuel treatments.

POD boundaries are not necessarily prescriptive, and incident managers may choose to construct lines away from POD boundaries, or through individual PODs. Despite likely higher costs, line construction away from POD boundaries may be desirable and can keep fire from spreading across an entire POD. This may be appropriate in areas with large PODs, residential areas with values at risk, or areas with high potential for fire spread. The Cameron Peak Fire demonstrated the high effort and cost required to contain the fire at certain locations. For example, incident management teams put in dozer lines to contain the blow-up of the northern "thumb" towards Red Feather Lakes, and more dozer line to close the southeast flank of the fire and surround the communities of Glen Haven and Storm Mountain after the blow-up by Comanche Reservoir. At times during the Cameron Peak Fire, fire managers leveraged SDI and PCL map products to assess the feasibility and probability of success of constructing new lines in locations previously not considered for POD boundaries. This illustrates how PODs and RMA products can act as flexible decision support tools that can be utilized together as needed.

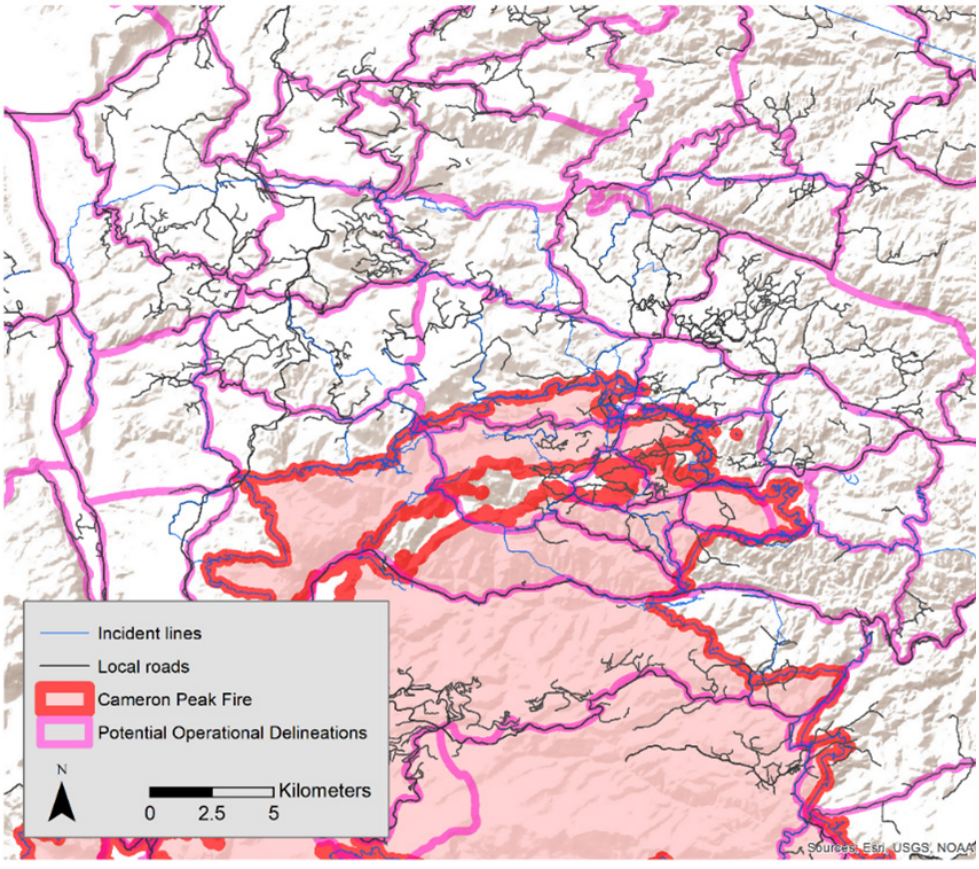


*Figure 8. A map of the Cameron Peak Fire showing 159 miles of contingency lines that followed POD boundaries; 93 miles of POD boundaries were directly engaged by fire.*

## 3. Mechanically treated and burned POD boundaries can increase control line effectiveness

> *Our strategy actually made a difference in the places we had work done and it significantly altered the outcome of that fire. The PODs are critical to that.*
>
> *—Monte Williams, Forest Supervisor, Arapaho and Roosevelt National Forests and Pawnee National Grassland*

The mechanically treated and burned POD boundaries were some of the most effective control lines used on the fire (See Box 2). Although POD boundaries are depicted on maps as discrete lines, observations from the field indicated in some cases the fire reached and crossed the edge of a treatment, but did not reach the POD boundary as delineated on the map. For example, often large prescribed burns did not stop the fire immediately at the POD boundary, but instead acted as a transition area to moderate fire behavior over distances up to half a mile. Research scientists from Colorado State University are currently engaged in treatment effectiveness monitoring within the Cameron Peak Fire footprint, which should provide additional information about the effectiveness of treatments and POD boundaries.

## 4. POD boundaries are not created equal

POD boundaries are created using the most effective control lines within a local landscape. However, the effectiveness of control lines and POD boundaries in containing fire is variable—a boundary that could hold fire under mild or moderate conditions might not be an effective control line under extreme conditions. It is important to evaluate POD boundaries proactively, and re-evaluate them throughout the fire incident depending on: dynamic fire behavior; characteristics of the line itself (e.g., road width, road condition, slope position); resource availability to prepare and hold the line; and when and how the line is engaged. PODs on the ARP were delineated using major highways, old fire scars, ridgelines, forest roads, trails, fuel type transitions, and fuel treatments as boundaries (Figure 9). Given the terrain and extensive roadless areas impacted by Cameron Peak Fire, there were few good opportunities for control in many areas. Because PODs were delineated in 2018, the ARP had not had the opportunity to improve many POD boundaries through additional forestry treatments (e.g. mechanical fuel reduction and prescribed fire); in fact, almost all POD boundaries used to suppress the Cameron Peak Fire were in some way improved during the incident. The PODs development process indicates where agencies can coordinate treatments to improve POD boundaries before fire.


*Figure 9: Photographs show different types of POD boundaries and control lines used on the Cameron Peak Fire: (A) paved county road, (B) bulldozer line, (C) hand line, (D) burn out from forest road into previously treated area.*

*(Credit: Inciweb)*

## Box 2. POD Boundaries Engaged on the Cameron Peak Fire

We highlight several previously treated POD boundaries that were engaged during the Cameron Peak Fire (Figure 12). We briefly discuss their role during the Cameron Peak Fire and effectiveness with regards to containing the fire and/or moderating fire behavior. They include three mechanical treatments, one prescribed fire, and three historical wildfires.

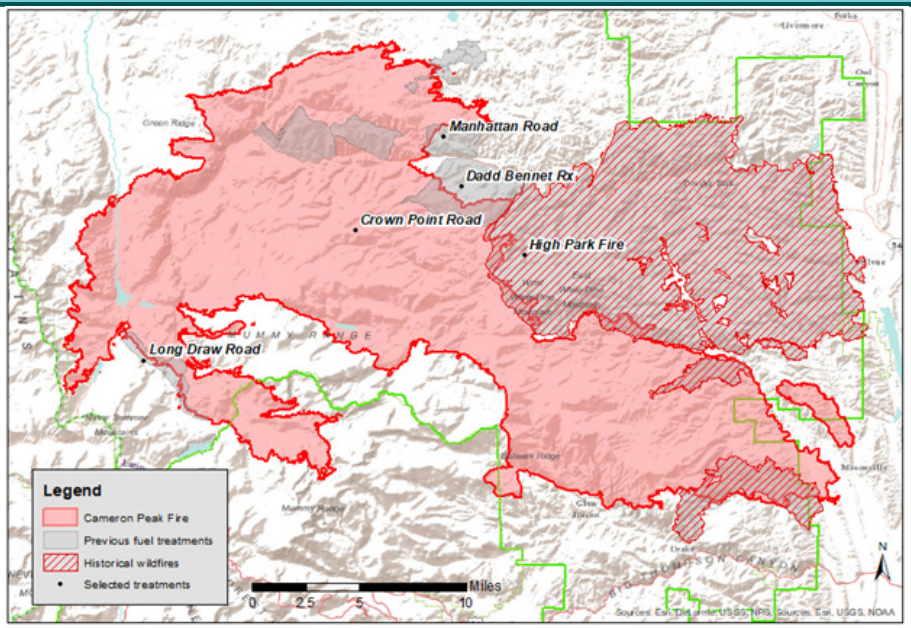


*Figure 12: Map shows the Cameron Peak Fire footprint with selected treatments and historical wildfires that modified fire behavior and, in most cases, provided control opportunities along POD boundaries.*

1. ***Dadd Bennet Prescribed burn:*** This 5,500 acre burn (conducted 1999—2003) helped moderate fire behavior during Cameron Peak Fire. Although the burn was 20 years old, an open canopy and reduced surface fuel loading moderated fire behavior facilitating containment along Pingree Park Road.

2. ***Long Draw Road:*** This 2,200 acre mechanical treatment along the road (conducted 2007—2015) was authorized by the Mountain Pine Beetle Environmental Analysis. This treatment helped moderate fire behavior when the fire was flanking there during its third week.

3. ***Crown Point Road:*** Several hundred acres of mechanical treatments along the road (conducted 2009—2018) were ineffective in containing the fire. The road was oriented parallel to fire spread direction, the fire encountered Crown Point Road during one of the most extreme periods of fire weather, and fire crews were pulled out due to safety and exposure concerns after the fire established itself on both sides of the road.

4. ***Manhattan Road and Kelly Flats area:*** 2,600 acres of mechanical and prescribed fire treatments were implemented along Manhattan Road and the surrounding area (conducted 2010—2019). During the fire, fire crews improved this control line using additional mechanical treatments and burn outs. This treatment and POD boundary was used to successfully contain the fire. A gradual fuel type transition extending west of Manhattan Road to Kelly Flats paired with several more recent prescribed burns helped moderate fire behavior allowing for successful containment in this area.

> *As the fire moved down canyon from Boston Peak, the fire pushed into the prescribed burn unit [and POD boundary of Manhattan Road], and because the fuels had been treated, specifically those surface and ladder fuels, the fires energy was significantly diminished to the point where that evening it essentially went out in the recently burned ground. It provided a building block to redirect aggressive wildfire movement and provide firefighters a foothold to build suppression opportunities and have a safer location to do so.*
>
> *—James White, Forest Fuels Specialist*

5. ***Historical wildfires:*** The High Park fire burned 89,000 acres in 2012. The High Park Fire scar moderated Cameron Peak Fire behavior and spread, and was ultimately used to help contain the fire. The burn scar contains grass, so it did not fully stop fire spread, but the comparative lack of fuel in the burned area provided an opportunity for aerial and ground resources to suppress the fire more effectively. Assessing the effectiveness of the High Park Fire for containing the Cameron Peak Fire was complicated by a major weather shift from extremely hot, dry, and windy conditions to rain and snow near the time the actively burning fire encountered the historical fire scar.

## 5. PODs and RMA products were used to support incident decision making

As noted earlier, the Cameron Peak Fire had several large runs which required the incident management teams to be flexible and adopt alternative response and containment strategies. During the fire, some of the incident management teams requested and utilized PODs and RMA products to support this real-time decision-making. At several points during the fire, managers assessed SDI and PCL values at POD boundary edges and other places on the landscape while developing strategies and identifying potential control lines (Figure 10). POD boundaries and other existing features with low modeled suppression difficulty and high potential for control were then identified for improvements.

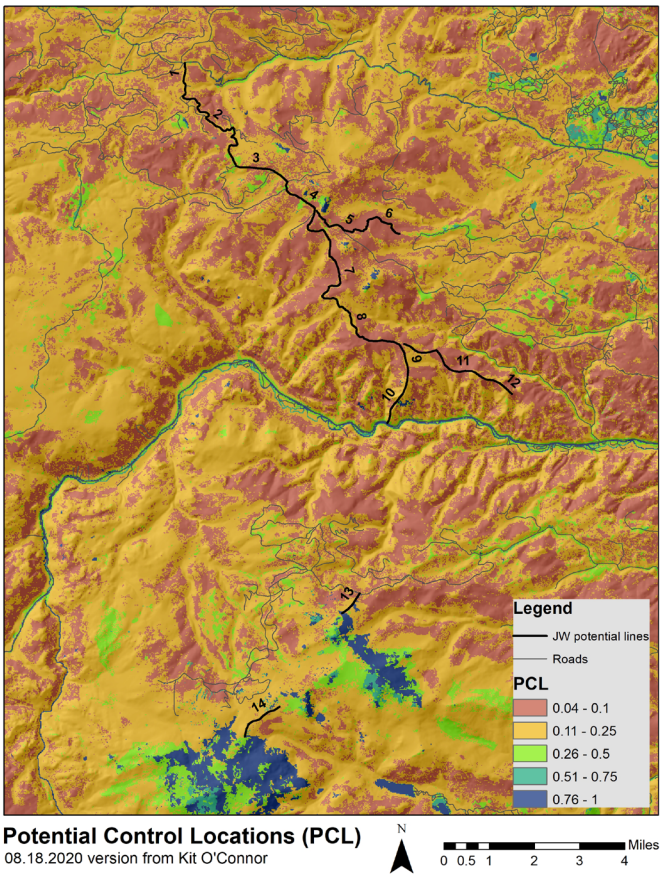


*Figure 10: RMA products used on the Cameron Peak Fire. Managers assessed the potential for control for various contingency lines using visual assessment and by comparing summary statistics generated from within a narrow buffer around the lines.*

> *I found it beneficial to use POD's in my initial strategy and implementation as a Division Supervisor on Cameron Peak. Having POD boundaries and implementation strategies pre-identified saved me countless hours of scouting. The challenge I found with POD's is disseminating the information to the personnel in charge of implementation, as connectivity to WiFi and/or cellular service is limited when operating in the field.*
>
> *—Nathan Hallam, Initial Response & Division Supervisor*

## 6. PODs improved interagency coordination before and during the incident

The USDA Forest Service, the Colorado Division of Fire Prevention and Control, Larimer County Sherriff's Office, and local fire chiefs all discussed possible incident strategies with one another during annual preseason planning meetings. These POD pre-planning and other related interagency strategic planning efforts improved interagency coordination during the incident. This coordination and experience collaboratively developing PODs helped ensure the Forest, State, and local partners understood the rationale for employing indirect response strategies during extreme conditions, and the need to focus containment efforts in areas with high likelihood of success.

One incident management team worked with local fire districts to quickly plan evacuations in several residential neighborhoods when the Calwood Fire ignited near the Cameron Peak Fire. Fire districts used previously shared POD maps to help plan evacuations within affected and potentially affected neighborhoods. This helped ensure evacuations were coordinated with incident response strategies.

## 7. PODs for Fuels Planning before and after the Cameron Peak Fire

The ARP began using PODs to plan and prioritize timber and fuels treatments in 2018. PODs were not the sole justification for placing fuel treatments, but acted as an additional consideration to further integrate land and fire management decision making. Despite this intention, the ARP did not have the opportunity to implement many POD-based treatments before the fire occurred. The fire does, however, present several opportunities for future fuels projects. Many of the contingency lines that were originally identified using PODs and then improved during the incident may now be used to anchor future prescribed fires, lessening the need for pre-burn preparation (Figure 13). Expected post-fire hazard tree removal and salvage projects can be prioritized along existing POD boundaries to strengthen them, or used to delineate new PODs.

## 8. Barriers and constraints

PODs were discussed at virtual public meetings during the fire, and in many cases spatial data on POD locations was provided to incident management teams. However, POD data was not consistently transferred to incoming teams, nor was it consistently made available to incident management team operations and planning sections, nor to boots-on-the-ground fire resources. Local managers may not have effectively communicated how PODs could help the incident management team save time by more efficiently identifying potential control lines to scout, improve, or use during the fire. When engaging with incident management teams and other stakeholders, local managers may not have thoroughly explained PODs or the comprehensive process of creating them in the preseason.

> *During the transition between the first two IMTs on Cameron Peak, it became apparent to me that either the existing PODs work on the Forest was not communicated to the IMT/ Operations section or utilizing the PODs developed on the Forest to help inform tactical strategies and decisions were not identified as part of leaders intent. As incident continued, PODs delineations were eventually utilized. They were compared with containment lines identified by operations, and they informed both direct line construction/ preparation to decrease the footprint of the fire in areas of opportunity, and they expanded indirect line construction in areas where initial line construction was unsuccessful.*
>
> *—Brian Keating, Branch Chief - Rocky Mountain Black Team, August 25-September 6, 2020*

*Figure 13: Roadside clearing and brushing to make the road defensible. This work along POD boundaries improves its potential for control.*

*(Credit: Inciweb)*

## Recommendations for regionwide POD development and utilization

### 1. POD products can be customized and leveraged with other products to act as a communication tool between stakeholders and provide rapid situational awareness during emerging incidents

Because the process of developing PODs requires that managers work together to delineate potential control lines before the fire starts, PODs can help communicate potential fire suppression opportunities to line officers, resource specialists, and cooperators. The PODs framework can also support risk-informed decision-making. Combining potential control line information with QRAs and other spatial data related to resources, hazards, and values at risk can help incident managers quickly understand the consequences of fire on different parts of the landscape (Thompson et al. 2020). Pre-season planning to analyze risks and develop response strategies before fire starts can provide situational awareness to fire staff, forest leadership, and incident management teams. This planning can facilitate communication between land management agencies and stakeholders, and help to create a common operating picture for wildfire response.

### 2. Regional direction can provide resources, guidance, and consistency

Regional guidance and resources will be helpful for developing PODs. This includes setting expectations for how PODs are developed and used for initial response, how they inform interagency coordination and planning, and their role in incident management team delegations. Setting expectations will help local forests strategize how to best implement PODs. Increasing familiarity of PODs across units and within regional incident management teams, providing training opportunities, and evaluating if and how PODs are being used will help socialize and institutionalize their use. Further, regional guidance could suggest how POD boundaries and potential control lines should be considered in fuels treatment prioritization and land management planning more broadly.

### 3. POD development and use needs to be continuous

It will take time to fully integrate PODs into strategic planning. The more people who are involved in developing and using PODs, and the more PODs can be integrated with other land management planning tools and objectives, the more likely the PODs framework is to be used. The PODs Atlas and other spatial decision support tools could enhance situational awareness of critical fire and resource considerations during both fire preplanning and response. PODs and associated tools and products must be updated and maintained over time if they are to stay relevant in a dynamic landscape.

### 4. PODs for strategic fuels planning—need to improve POD boundaries and control lines before the fire starts

On Forests with crown fire or stand replacement-type fire regimes, effectively keeping fire inside a POD will require improvement of POD boundaries and control lines in the preseason. Roadside Hazard Tree environmental analyses and categorical exclusions may present a framework for improving POD boundaries and control lines. Roadside engineering, mechanical thinning, and prescribed fire should be considered as tools to improve and widen POD boundaries to make them more effective, especially in extreme conditions with high spread potential.

> *From a strategic level we can look at these large firescapes, and say what do we need to do and then we can start working on those pieces, one POD at a time.*
>
> *—Monte Williams, Forest Supervisor, Arapaho and Roosevelt National Forests and Pawnee National Grassland*

### 5. Dynamic effectiveness of POD boundaries should be considered during operations and planning

While some POD boundaries are linear (e.g. roads) and can be delineated using a single line, others can moderate fire behavior over a wider distance (e.g. prescribed fires or alpine areas). This speaks to the "fuzzy" nature of POD boundaries—effectiveness can vary both spatially and temporally. POD boundary effectiveness likely has an inverse relationship with fire behavior; in other words, PODs are likely to be less effective under more extreme conditions. For example, hiking trails or snowpack might act as a good control line for a shoulder season wildfire or prescribed fire, but those features will likely prove ineffective during the kinds of extreme conditions present on certain days during the Cameron Peak Fire. Similarly, resource availability can play a critical role, as lines are more likely to be effective if they are improved, used to anchor suppression firing, or staffed with firefighting crews to hold the fire when it engages the line. This concept, which has been termed "dancing PODs" by some practitioners, suggests the need to clearly attribute the physical characteristics of POD boundaries based on expected efficacy under different fire weather scenarios. This may require additional follow-up and validation beyond the initial step of identifying POD boundaries during the POD delineation workshops.

## Conclusion

This evaluation of PODs use during the Cameron Peak Fire provides several important insights for managers and decision-makers involved with spatial fire planning and general land management. This report demonstrates how PODs can support flexible decision-making on active fire incidents; it also speaks to the ways in which PODs can integrate with cross-boundary hazardous fuels planning. The collaborative planning process that is used to develop PODs and Strategic Response Zones is a framework for engaging in shared stewardship, and aligns the three legs of the National Cohesive Wildland Fire Management Strategy. As communities across the country seek to live with fire, PODs provide opportunities to strategically plan at the scale of the disturbances we expect in the future, and better integrate fire and land management planning.

> *Time is the most valuable nonrenewable resource in a wildland fire environment. During the Cameron Peak Fire, time was in short supply with unprecedented fuels conditions, wind events, and fire behavior. We spent a lot of time scouting contingency lines. Knowing where the POD boundaries were would have been really helpful and saved time. However, knowing the potential for control and the suppression difficulty on every POD boundary and line segment would have been even better, and saved even more time.*
>
> *—Joe Sean Kennedy, Operations Branch Director*

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