



Implementing the Incident Strategic Alignment Process on the 2023 Quartz Ridge, Bear Creek, and Mosca Fires

What is the Incident Strategic Alignment Process?

The Incident Strategic Alignment Process (ISAP) is an emerging framework for considering risk and developing strategy during wildland fire management. It is an iterative, collaborative, risk-based dialogue informed by advanced spatial and fire behavior analytics that takes place among Incident Management Team (IMT) members, Agency Administrators (AAs), and external partners. Throughout these conversations, those engaged with ISAP focus on four “pillars”: critical values at risk (CVAR), strategic actions, risks to responders, and probability of success (see the [ISAP Story Map](#)) to co-construct durable incident-level strategy to minimize risks to communities, landscapes, and fire responders.

Approach

In partnership with ISAP developers and the United States Forest Service (USFS) Rocky Mountain Research Station, the Colorado Forest Restoration Institute and the Public Lands Policy Group at Colorado State University deployed a mixed-methods study that explored the ISAP on three incidents during the 2023 fire season. Field observations of, and in-depth interviews with, ISAP coaches, IMTs, AAs, and external partners who engaged with the ISAP on the 2023 Quartz Ridge, Bear Creek and Mosca fires in Southwest Colorado (Figure 1) revealed factors that facilitate and frustrate the implementation of the ISAP during wildfire response, and offered valuable lessons learned for the wildfire community.

Case Study 2/3: The Quartz Ridge, Bear Creek, and Mosca Fires¹

The Quartz Ridge, Bear Creek and Mosca fires were three individual lightning ignitions on the San Juan National Forest (NF) (Figure 1). Bear Creek was discovered on August 1, Quartz Ridge on August 5, and Mosca on August 7, 2023. All three fires were located in rugged terrain with limited containment options and presented hazardous conditions for firefighters including snags and extended evacuation times. Though they were not a “complex”², these fires were managed using a single command structure. In other words, one IMT simultaneously maintained responsibility for each fire.

The first team to assume command was a Type 3 team from the San Juan NF. San Juan NF AAs and the Type 3 team initiated risk and strategy conversations using the ISAP on August 8 before transferring command to a Complex Incident Management (CIM) National Incident Management Organization (NIMO) IMT on August 11. A rainstorm over August 12-14 moderated fire behavior. By this time, the Quartz Ridge fire had grown to 1,366 acres, Bear Creek had increased to 386 acres, while Mosca remained small at 8 acres. The CIM NIMO team continued ISAP conversations for each fire from August 11-15.

Following the rains and moderated fire behavior, the San Juan NF was interested in taking advantage of the weather window to suppress the Mosca Fire directly, due to the perceived level of community tolerance to season-long smoke impacts. Additionally, this would allow the Forest and CIM NIMO team to focus their limited capacity on the Quartz Ridge and Bear Creek fires. Using the ISAP as a guide, San Juan NF AAs and the CIM NIMO

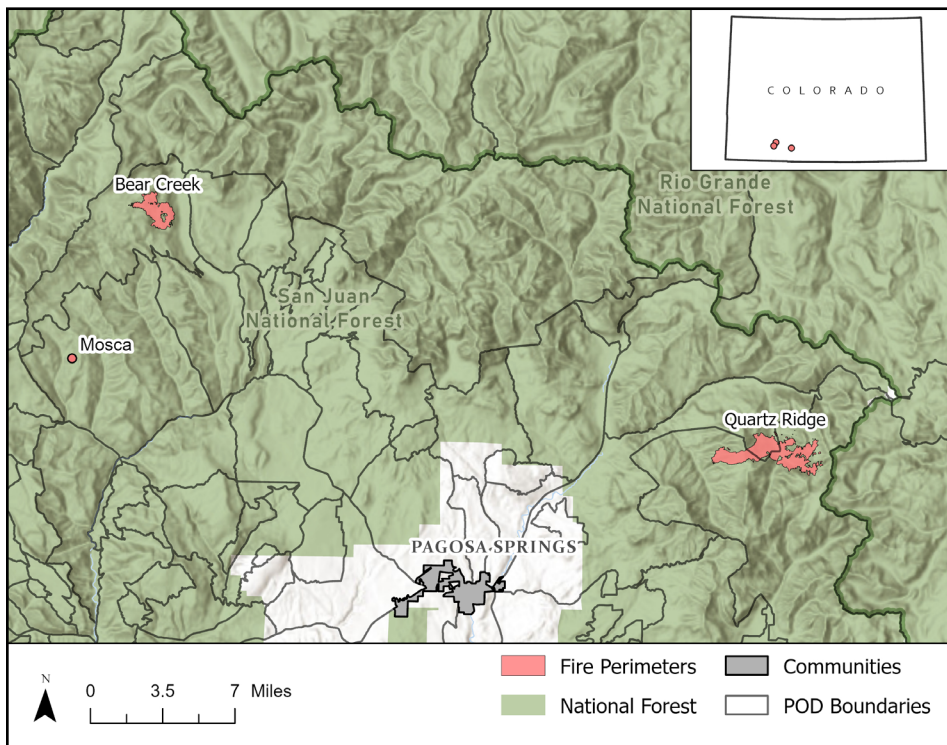


Figure 1. Map of the locations of the Quartz Ridge, Bear Creek, and Mosca fires in southwest Colorado. Potential Operational Delineation (POD) boundaries are shown. Though they were not heavily used for these fires as containment features, they still were important lines of reference that managers used to frame what opportunities for containment were available

1. The timeline for this fire was developed from our observations (which took place from August 9 – 15), interviews, and documentation located on the website “inciweb.wildfire.gov”.
2. A group of individual fires can be ‘complexed’ when there are multiple fires and they can be combined under the unified command structure of a single IMT. This often done to increase organizational efficiencies. A group of fires may or may not be ‘complexed’ due to a host of contextual factors. For more information, visit: https://dem.nv.gov/uploadedfiles/demnvgov/content/raining/ics400_completesm_sept2011-part2.pdf

team met with leadership from the assigned Interagency Hotshot Crew (IHC) to discuss the risks to responders and potential mitigations associated with inserting their crew. The IHC leadership articulated what tactics they would likely employ, risk mitigation actions they would take, and voiced confidence in their crew's ability to suppress the fire. Subsequently, the AAs and the CIM NIMO team decided to insert the crew to suppress the Mosca Fire. The San Juan maintained indirect strategies on the Quartz Ridge and Bear Creek fires which continued to burn, away from CVAR, until November when they were extinguished by snow at 2,850 and 1,093 acres, respectively.

Facilitating and Frustrating Factors Impacting ISAP Implementation

Facilitating Factors

Most participants said that clear leader's intent and active support for the ISAP by AAs and IMT Command and General staff facilitated implementation of the ISAP. For example, said one participant,

"If you've got an AA that really wants to implement the ISAP and then you've got a team that's trained and is doing it, that's a really good thing. [The team] is an important factor because the team is working for that AA. If that AA is then lukewarm towards the idea of the ISAP, that's also a factor that's going to create an issue."

Additionally, participants said the ISAP structure and common terminology created alignment across IMT functional areas, between IMTs and AAs, and among local partners, which, in turn, helped the IMT and AAs effectively communicate risks and strategic actions.

Frustrating Factors

Some participants said they struggled to understand how to interpret and operationalize the ISAP probability of success pillar. These participants felt the probability of success output could be bent to individual perceptions, and that they believed it was possible to inadvertently bias success probabilities to favor one action over another. Said one participant,

"There's the potential for the element of subjectivity to creep in...I do feel like [the probability of success] can be potentially swayed in the direction of whoever is driving the process."

Rather than discard this pillar, many said additional training may be warranted to effectively implement the probability of success portion of the ISAP and minimize subjectivity.

Another factor that frustrated the ISAP implementation were different perspectives on the influence and value of spatial analytics on the Risk Management Assistance (RMA) dashboard – commonly used during the ISAP – relative to fire management experience. For example, some participants said during risk and strategy conversations they believed that tools such as the Suppression Difficulty Index (SDI) and Potential Control Locations (PCL) should be a focal point. However, others felt

real-world firefighting experience should have greater influence on decisions. The two quotes below highlight this discrepancy:

"It's the culture around using the products. We have a lot of firefighters that have this great intuition about risk and a landscape and how fire may behave after they've observed it for a little bit, but I think there's a hesitancy to dive into these toolboxes...I think there is still somewhat of a culture block to wanting to start with the tools and then validate."

"I have seen moments where these tools might actually help decision makers make good decisions...but what I think [the firefighting operations] world has been trying to figure out is how to get involved and make people realize that when you have crews, the approach needs to be slightly different. You've got to look at it from the standpoint of the superintendents. If they agree [while evaluating a situation], that's what can be done."

Effectively operationalizing the ISAP requires balancing fire management experience with advanced analytical tools to evaluate risks and strategic opportunities while counteracting potential biases common to human judgement. However, data from these incidents suggest this balance may be challenging when the assessments of experienced firefighters and the outputs of analytical tools disagree.

The ISAP was used to build a common operating picture of CVAR between IMTs, AAs, and local community partners and was used to develop and evaluate strategies driven by these CVAR that balanced the risks to responders with nuanced social and political concerns of the area. Overall, participants indicated broad support for the ISAP and cited clear leader's intent, as well as the ISAP's structure and common language facilitated the use of the ISAP. However, participants noted that the probability of success pillar was difficult to operationalize, and different perspectives of how to pair spatial analytics with firefighter expertise frustrated the ISAP.

Quartz Ridge, Bear Creek, and Mosca Fires Lesson Learned – Using The ISAP To Engage With Ground Resources

The Mosca Fire demonstrated the utility of including operational resources (i.e., an IHC) in risk and strategy conversations of the ISAP. Following the rain storm and diminished potential fire behavior, the IMT and AAs invited the IHC superintendent in the ISAP to evaluate strategic actions. The group used RMA tools (e.g., ground evacuation time and snag hazard) to frame the conversation, and the IHC superintendent was then able to articulate his crew's skills, competencies, and risk mitigation actions. Participants said the ISAP allowed the AAs, IMT, and IHC leadership to collectively consider how much risk is acceptable in relation to the critical values at risk, before deploying a strategy.

"It was very beneficial to invite some of the IHC into the conversation and actually have the boots-on-the-ground articulate what that real life risk looked like on the ground versus us just looking at models and maps on a wall."



This report was funded by USDA Forest Service State, Private, and Tribal Forestry, Office of Fire and Aviation Management (22-CA-11132543-056) and USDA Forest Service Rocky Mountain Research Station (19-JV-11221636-170).

Contact: Ty Aldworth - Tyler.Aldworth@colostate.edu August 2024 • CFRI-2412

Authors: Aldworth, T.¹, Buettner, W.C.², Greiner, M.², Beeton, T.¹, Schultz, C.A.²

¹Colorado Forest Restoration Institute, Colorado State University ²Public Lands Policy Group, Colorado State University