

# RISK-RISK TRADEOFFS AND PRESCRIBED BURNING DECISIONS IN COLORADO

TECHNICAL BRIEF: POLICY ATTITUDES

**AUGUST 2025** 

This project is supported by a grant from the <u>National Science Foundation's Decision, Risk, and Management Sciences and Humans, Disasters, and the Built Environment</u> programs.

# RISK-RISK TRADEOFFS AND PRESCRIBED BURNING DECISIONS IN COLORADO

# **Project Background**

Wildfire poses a major threat to communities across the country. The use of prescribed (Rx) burning to help manage this threat also entails risks. To inform decisions about RX burning, the **Risk-Risk Tradeoffs and Prescribed Burning Decisions in Colorado** project conducted a statewide survey from December 2024-March 2025 of 1,266 Colorado residents. For more information about the survey methods and content, please see the <u>Survey Methods technical brief</u>.

#### **Research Team**



Katherine Dickinson, PhD Colorado School of Public Health



Hannah Brenkert-Smith, PhD University of Colorado - Boulder



Colleen Reid, PhD University of Colorado - Boulder



Michael Hannigan, PhD University of Colorado - Boulder

#### **Additional Research Team Members**

Sean Benjamin, PhD candidate, University of Colorado - Boulder Evan Coffey, University of Colorado - Boulder Marissa Dauner, PhD candidate, University of Colorado - Boulder Annamarie Guth, PhD candidate, University of Colorado - Boulder Jackie Laundon, DrPH student, Colorado School of Public Health Carla Nyquist, MPH, Colorado School of Public Health Stephanie Pease, MPH, MS, Colorado School of Public Health

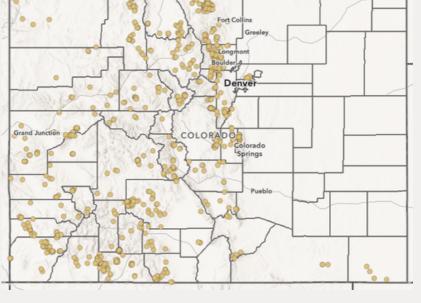
#### **Prescribed Burning Overview**

Wildfires and their environmental and social impacts are growing in the US and around the world. Prescribed (Rx) burning can be an effective management technique to reduce the risk of catastrophic wildfires. Despite its potential benefits, the annual extent of Rx burning has stayed the same or decreased across much of the country in recent years, partially due to risks of Rx burning, including smoke exposure and the possibility of a planned fire escaping control. Making Rx burning decisions requires informed tradeoffs between these risks and the risks of uncontrolled wildfires.

#### **Current Use of Prescribed (Rx) Burning**

Fire managers actively use prescribed burning as a wildfire mitigation practice in Colorado. The majority of Rx burns in Colorado occur on federal lands, conducted by federal burn managers with agencies like the U.S. Forest Service, Bureau of Land Management, and National Park Service [1,2]. Figure 1 shows data for Rx burns conducted from 2019–2023, accounting for over 175,000 acres of land managed with prescribed fire during this time period [1]. Smoke permit data from the Colorado Department of Public Health and Environment further echoes that federal agencies conduct the majority of Rx burning, with far fewer Rx burn permits issued to state, local, and private entities compared to federal agencies [2]. Since non-federal entities still manage large swaths of land in Colorado at risk of wildfire, increasing understanding may lead to more usage of this critical wildfire mitigation practice across land types.

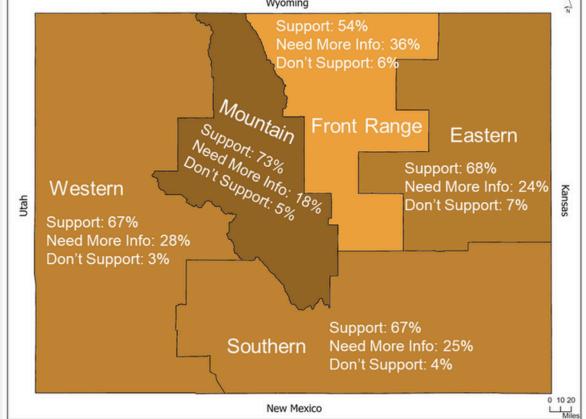
**Figure 1**: Prescribed Burns conducted in Colorado, 2019-2023 [2]



# Acceptability of Prescribed (Rx) Burning

The survey we conducted asked Colorado residents from different regions of the state about their perceptions of Rx burning and support for expanding this practice. Overall, 62% of respondents indicated they would support a statewide policy to expand Rx burning conducted by trained and certified fire professionals. Figure 2 illustrates regional differences in support for Rx burning, which ranged from 54% to 73%. Support was lowest among Front Range respondents; this region also had the highest percentage of respondents (36%) who indicated wanting more information. Very few respondents indicated opposition to expanding the use of Rx burning statewide (5% overall, 3% to 7% across different regions). Further, 85% of respondents indicated that they found the practice of conducting an Rx burn by trained and certified fire professional "completely" or "mostly" acceptable, ranging between 83%-89%, with highest acceptability ratings outside the Front Range.

Figure 2: "Would you support a statewide policy that would expand the use of prescribed burning conducted by trained and certified fire professionals in Colorado?" (n=1266) Wyoming Support: 54% Need More Info: 36%

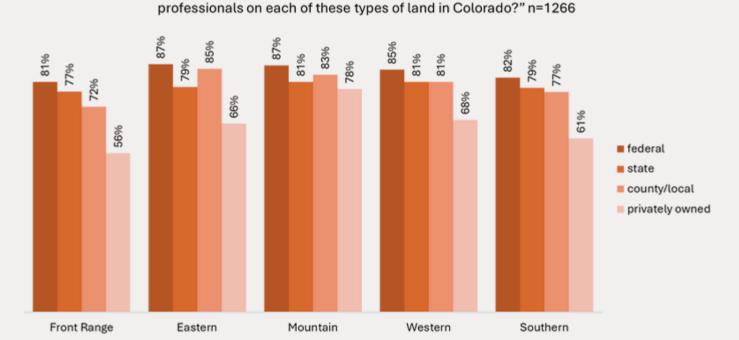


# RISK-RISK TRADEOFFS AND PRESCRIBED BURNING DECISIONS IN COLORADO

In addition to the question about expanding Rx burning <u>statewide</u>, respondents were also asked to indicate their level of support for policies that would expand Rx burning in their <u>local</u> area. Results were similar to the statewide policy question: **58% overall would support a local policy**, while 29% wanted to know more or had reservations, and 5% did not support a local policy. Support varies across the regions, ranging from 51%-73%, with highest support outside the Front Range.

We also assessed acceptability of conducting Rx burning on different types of land. Conducting Rx burning on federal lands was the most acceptable (83%), followed by state (79%) and county/local (76%) lands. Respondents found Rx burning on private lands to be somewhat less acceptable, though the majority of respondents in all regions still indicated that they found it acceptable to conduct Rx burns on this type of land. Once again, Front Range respondents consistently rated Rx burning less favorably than respondents in other regions for all land types.

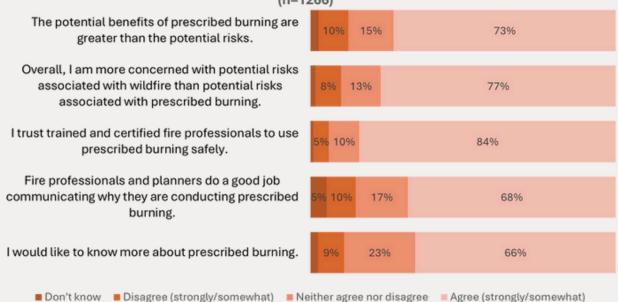
Figure 3: Acceptability of Rx burning on land type (completely / mostly acceptable)



# **Prescribed Burning Risks and Benefits**

Respondents overall agree that the potential benefits of Rx burning as a fire mitigation strategy outweigh the potential risks (73%), and that the risk of a wildfire is more concerning than the risks of an Rx burn (77%). Respondents highly trust trained and certified fire professionals to use Rx burning safely (84% in agreement). Approximately two-thirds (66%) of respondents across Colorado would like to know more about Rx burning, and about 68% agree that fire professionals do a good job communicating why they are conducting Rx burning.

Figure 4: Risk Trade-offs and Other Comparisons "How much do you agree or disagree with the following statements?"
(n=1266)



This trust in fire professionals to conduct Rx burning safely is echoed in the open-text responses in the survey, where participants shared additional thoughts and reflections on the subject of Rx burning risks and trade-offs.

"I strongly believe that our fire department can and should do more prescribed burns, and can do them extremely safely. I also know that they would have every possible eventuality planned for. This needs to be better communicated to the general public. Right now, the public is unaware of just how good our experts really are, and how much goes into preparing fire breaks before a prescribed burn takes place."

— El Paso County respondent

#### **Discussion**

While some community members may have reservations or concerns, our data indicate that the Colorado public has high levels of trust and support to expand the practice of Rx burning by certified and trained professionals as a means of reducing the risk and impacts of wildfire in the future. Levels of opposition are quite low overall across the state. However, respondents also expressed a desire for more information about Rx burning, including how it works, benefits to the forest ecosystem and surrounding areas, and how to reduce risks to individual and community health. Residents of the Front Range, which includes many urban and suburban areas, may have less exposure to Rx burning as well as direct wildfire hazards. This may explain why Front Range respondents were less supportive of expanding Rx burning and more likely to indicate needing more information to form an opinion.

Similarly, support for burning on federal lands is higher than for other land types, including state, local, and private lands, a pattern which reflects where the vast burning majority of Rx is currently happening. As policy makers implementers seek to conduct more Rx burning across the state as part of an overall wildfire risk management strategy, engaging and communicating with the public about this practice is essential.

"This topic can be a little confusing. I could see where [Rx fire] can have benefits but I can also see...the downfalls from it as well."

- Larimer County respondent

#### **More Information**

For more information about our study findings, updates will be available via our website.



https://www.rxburn-risktradeoffs.com/



# RISK-RISK TRADEOFFS AND PRESCRIBED BURNING DECISIONS IN COLORADO

#### References

- 1. Colorado Forest Restoration Institute. Colorado Forest Tracker Website [Internet]. [cited 2025 Aug 25]. Available from: <a href="https://experience.arcgis.com/experience/7eac80a824a64d778643e0948ff4fle/page/Dashboard">https://experience.arcgis.com/experience/7eac80a824a64d778643e0948ff4fle/page/Dashboard</a>
- 2. Colorado Department of Public Health and Environment. CDPHE prescribed fire map [Internet]. Looker Studio. 2025 [cited 2025 Jun 18]. Available from: <a href="http://lookerstudio.google.com/reporting/a47f6478-13b9-4107-a893-96e5ec3ld053/page/p\_3oaemqdkid?feature=opengraph">http://lookerstudio.google.com/reporting/a47f6478-13b9-4107-a893-96e5ec3ld053/page/p\_3oaemqdkid?feature=opengraph</a>