

SUMMARY: BURN BAN EFFECTIVENESS ASSESSMENT

ARE BURN BANS EFFECTIVE?

As a result of climate change, hotter and drier conditions are driving changes in fire behavior and activity, including longer fire seasons, larger areas burned, and higher-severity fires. In 2020, the top three largest wildfires in Colorado's recorded history occurred, and this trend is expected to persist into the future [4]. In fire-adapted landscapes, like much of Colorado, thinning and prescribed fire are management activities used to mitigate the effects of wildfire events before they occur [5,6]. These management practices have been shown to be highly effective at reducing the risk of high severity fire, especially when using a thin-plus-prescribed fire treatment approach [7]. However, with residential housing and landscape use increasing in fire-prone landscapes, there has also been an increase in human-ignited incidents; approximately 97% of wildfires that threatened U.S. residential homes between 1992-2015 were human-caused [8]. In order to reduce the number of human-caused ignitions, public officials may issue fire safety burn bans, which are fire restrictions that the public must legally follow. However, even with the implementation of burn bans, human-caused fires remain a significant ignition source for wildfire [9].



To explore this contradiction and gain insight on the effectiveness of these bans, an assessment was conducted to address several questions regarding the effectiveness of burn bans: 1) What tactics are currently being used to communicate information about fire safety burn bans to recreators and how successful or unsuccessful are these initiatives? 2) What are some unintended consequences of burn bans to forest and emergency management staff, as well as the communities which financially benefit largely from recreation and tourism? 3) How can we, as a community of fire practitioners, make these tactics more successful?

APPROACH

A questionnaire was sent to fire managers, operational fire staff, and emergency management staff, and other fire practitioners across the Southern Rockies Fire Science Network (SRFSN) region. The assessment was available from December 2020 to March 2021 and received a total of 75 responses. An anonymous submission format was provided for respondents to submit realistic and honest answers regarding problems they face without fear of retribution from employers or colleagues.

Of the total respondents, 92% were from the Rocky Mountain Region, 4% were from the Canyonlands/Desert Montane Region, with the remaining 4% from the Uinta Basin, Wasatch Plateaus/Mountains, and Black Hills Regions. Respondents' agency affiliation were mostly federal government agencies (27%) and local fire protection districts (15%), with the remaining respondents within county government, municipal government, non-profit or non-government organizations, and special districts.

QUESTIONS AND ANSWERS

What are some outreach methods that you have found to be the most successful for getting burn ban information out to the general public?

of Responses

- Social media **45**
- CDOT, highway signs, electronic signs, highway banners **32**
- Frequent sign posting (forest lands, trailheads, public buildings, etc.) **29**
- News outlets (tv station, radio, newspaper) **28**
- Other responses: notice at campgrounds, face to face interactions, emergency county-wide text service

What are the top factors do you think should be considered when determining whether a fire safety burn ban should be implemented?

- Current and anticipated weather forecast **69**
- Drought index or monitor **58**
- Fuels monitoring program **57**
- Other responses: time of year, number of fire incidents or current fire behavior, social pressure

What are some outreach methods you've found to be the least successful for getting burn ban information out to the general public?

- Local news (e.g. newspaper or radio) **21**
- Fliers and sign posting **20**
- Agency websites **14**
- Other responses: social media, face-to-face, press release

Has your organization used any of these services to inform the public about an upcoming or current burn ban?

- Social media (Twitter, Facebook, LinkedIn, etc.) **73**
- Road signage of any kind **60**
- Wooden or plastic signs, Fire Danger Spectrum Display **50**
- Radio or telephone announcements **31**
- Location-based social media (Next Door, Front Porch Forum, Nearify) **22**
- In-person meetings or public forum **20**

In the context of navigating effectiveness of a fire ban, what does failure look like? Is it something as simple as a new wildfire start in an area with fire restrictions, or more nuanced like an uninformed member of the public?

- Uninformed or confused public **30**
- Any unauthorized flame **22**
- People intentionally ignoring ban **12**

What methods does your group use to monitor for non-compliance during a burn ban? (Select all that apply).

- Public call-ins **57**
- Vehicle patrols **51**
- Lookouts **7**

What disciplinary actions has your group found to effective in improving public compliance with burn bans?

- Fines **45**
- Education **44**
- Limited or restricted access **24**
- Bans **20**

Do you currently have the appropriate resources to meet enforcement needs and implications?

- No **51**
- Yes **12**
- Somewhat, but understaffed **10**

What are the top three impacts to you and your job duty when burn bans are put in place?

- Increased workload or change in job duties (e.g. patrolling, issuing permits, putting out signs) **39**
- More time spent educating public on ban, answering public questions, increased public outreach **37**
- Public confrontations **13**
- Need for communicating with other agencies and agreeing on ban **11**
- Other responses: enforcement, reduction in resources for other work, ensuring staff are trained

Do you see collateral or unintended consequences from fire safety burn bans?

- Yes (examples: confused campers and tourists on what is allowed, economic impacts to local business and outfitters, impacts to hunters) **39**
- No **26**
- Some, but minor **10**

How are your partners (neighboring jurisdictions, forests, agencies, etc.) impacted when your agency implements a ban?

- No impact or minimal impact **25**
- Unintended pressure to follow suit **22**
- Public and agency staff confusion due to differences in jurisdiction restrictions **13**
- Other responses: recreators going to least enforced jurisdictions, changes in partner workload

What changes to make in the current system of fire safety burn bans?

- Improve consistency, partnership, and collaboration across agencies **33**
- Base bans on best available science **18**
- Use clear communication and common language when addressing bans **17**
- Implement more strategic placement of sign posting **10**
- Other responses: would not change anything, make bans timely (not before fires become problematic), give agencies more authority and personnel

What are some suggestions for making burn bans more effective?

- More staff, including jobs for patrolling, enforcement, prevention, and outreach **24**
- Local restrictions should be consistent across jurisdictions and based on fire-danger indices **19**
- Education and outreach (e.g. how to extinguish fire, what ban stages mean, why bans are needed, include Spanish translation, weather safety) **17**
- Consistent state-wide terminology, definitions, and standards for implementing burn **13**

- Consistent and/or greater consequences for offenders, including larger fines or legal action **12**

Did COVID-19 force your group to change your burn ban policy/process during the 2020 fire season? If so, how? What challenges did your group experience that could have been handled differently?

- No **40**
- Yes (common challenges: limited staffing, increased recreation and forest traffic, bans put into place due to limited response capacity and respiratory concerns, fewer outreach/education opportunities) **33**

RESPONSE SUMMARY

What tactics are currently being used to communicate information about fire safety burn bans to recreators and how successful or unsuccessful are these initiatives?

When initiating a ban, respondents think that current and anticipated weather forecast, drought index, and fuels monitoring programs are the most important factors to consider. Most reported methods to communicate burn bans to the public include social media (i.e. Twitter, Facebook), signage on major roads and highways, frequent posting along forest roads and at trailheads, and through news outlets via newspaper, radio, and television. While these are the most common practices, most respondents also reported feeling that these methods are largely ineffective and ignored by the public. Further, unclear language and different restrictions across management/political boundaries cause confusion, likely leading to more cases of non-compliance. Fines, education, limited/restricted access, and bans were the most commonly reported disciplinary actions that improve public compliance.

What are some unintended consequences of burn bans to forest and emergency management staff, as well as the communities which financially benefit largely from recreation and tourism?

For forest and emergency management staff, unintended impacts include a shift in workload and job duties, including more time spent patrolling, enforcing the ban, answering calls, and educating the public. Burn bans also cause agencies to reallocate resources, including money and staff, towards

enforcement and monitoring, which may impact whether land management goals are met. Local economies and businesses are affected by tourists or campers choosing to visit other districts that do not have bans in place, and hunters are impacted.

How can we, as a community of fire practitioners, make these tactics more successful?

When initiating a fire safety burn ban, practitioners may consider using clear and common language when communicating about burn bans to the public (i.e. avoiding “Stage 1 Fire Ban” and instead saying what that means), promoting consistency and partnership across agencies, and basing fire protection burn bans on the best available science (including drought index, ecoregion or elevation, localized weather station conditions), not social pressure or politics. When burn bans are put into place, the following suggestions may increase public compliance: allocating resources or increasing funding for staffing needs (including patrol, enforcement, and education), making sure bans are consistent locally and are put into place in a timely manner, adopting state-wide terminology and definitions to avoid public confusion, and implementing greater consequences/punishment for offenders, including legal action and greater fines.

CONCLUSION: COMMUNICATIONS AND CONSISTENCY

Responses highlighted the need to improve our communication effectiveness, because old methods of communication may be less impactful in the digital age. We also need to further assess how burn bans are implemented. When burn bans are initiated, discussion about resource and personnel allocation with affected staff will be critical for enforcement.

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