Exploring Public Conversations About Wildfire Mitigation Across Social Media Platforms

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Introduction

Wildfire frequency, risk, and impact are increasing throughout communities around the world, and the United States is no exception (Margolis et al., 2017; Rasch & McCaffrey, 2019). The increase in the concern surrounding wildfire has led to an increase in conversations surrounding the wildfire risks and the organizations who attempt to mitigate these risks (Martin et al., 2008). One place the public discusses wildfire risks is through social media, where the public shares their emotions, perceptions, and other information across the world (Larson, 2018; Liu et al., 2021). In addition to the public, social media provides a platform for agencies, organizations, and companies to communicate on a large scale with the public (Larson, 2018; Liu et al., 2021). Thus, social media platforms have become an integral part of communication, providing organizations with a direct line to the public, allowing them to communicate and interact directly with each other via social media (Hruska & Maresova, 2020). To better understand how information is shared on social media, the purpose of this study was to identify and determine the platforms, sources, and sentiment of social media posts surrounding wildfire and wildfire mitigation conversations.

Theoretical Framework

Prior research has focused on how people seek out, attend to, and process risk-related information which can be explained by the risk information seeking and processing model (RISP) (ter Huurne et al., 2009). Through RISP, scholars can understand how public conversations and influence people's understanding and acceptance to mitigation efforts. In the context of communicating wildfire risk and mitigation, social media provides a platform where information is shared and processed, as users encounter risk related content, share information, and express their responses (Panagiotopoulos et al., 2016). Gauging public perceptions through social media allows us to see the emotions, acceptance, and overall conversation that is caused by a risk event, such as wildfire (Buzoianu & Bîră, 2021). Reviewing wildfire conversations through social media gives us the ability to see who is posting risk information and driving the conversation surrounding wildfire risk. Thus, social media listening allows us to observe where, who, and how wildfire is being discussed (Buzoianu & Bîră, 2021).

Methods

We used Sprout Social, a social media listening tool, to gather social media posts from a variety of platforms (Instagram, Facebook, X, Reddit, and the web) over the course of a month. We compiled a list of keywords, locations, and exclusion words that were entered into Sprout Social's Boolean keyword search query. Keywords (ex., USFS, fire, fuel, wildfire, smoke, prescribed fire) were chosen based on their connection to the topic, a review of the literature, and suggestions from experts in the field (USFS, 2022). The keywords helped the software to identify and select content from across the social media platforms selected.

There was a total of 6,161 posts collected in May 2025. First, we excluded retweets (duplicates) to ensure we were analyzing only authentic original messages, which brought the total posts to 665 posts. Next, we took a stratified sample of the total posts that were collected, which led to a final sample of 256 posts. Finally, we determined which of those posts were relevant, out of 256; only 102 of them were deemed relevant. A quantitative content analysis (Wimmer & Dominick, 2014) was performed to determine the platform's, source type, and sentiment of each post. A codebook was created to help categorize the platforms, sources, and

sentiment of each post. We conducted coder training to teach three graduate coders how to analyze the data using the codebook. Following, the three coders analyzed 10% of the final sample (Wimmer & Dominick, 2014). To ensure reliability, we calculated reliability using ReCal 3.0 calculation of Krippendorff's alpha, with results showing acceptable reliability for each variable, source type (0.89), sentiment (0.87), relevance (1), and platform (1) (Riffe et al., 2014).

Results

We found that the only platforms that hosted relevant posts were Facebook (n = 61) and X (n = 41), with Facebook accounting for 59.8% of posts and X accounting for 40.2%. Eight source types appeared in the sample. The news and media (n = 38) accounted for 37.3%, public (n = 21) accounted for 20.6%, governmental agencies (n = 21) accounted for 20.6%, other sources (n = 12) accounted for 11.8%, regulatory/policy members (n = 6) accounted for 5.9%, environmental groups (n = 2) accounted for 2.0%, tribal groups (n = 1) accounted for 1.0%, and artificial intelligence (n = 1) accounted for 1.0%. Sentiment was then coded for and identified that neutral posts (n = 58) accounted for 56.9%; negative posts (n = 31) accounted for 30.4%, and positive posts (n = 13) accounted for 12.7%.

Conclusions

Our findings suggest the main platforms used to discuss wildfire and wildfire mitigation are Facebook and X. Conversations surrounding wildfire and wildfire mitigation on Facebook and X show that the majority of the conversation is neutral in sentiment, with news and media outlets accounting for the majority of the conversation. These findings help to show the platforms being used to discuss wildfire risk and mitigation, where the public seeks out information, who is speaking about it and sharing information, and how they feel about the risk of wildfire and wildfire mitigation techniques.

Implications, Recommendations, & Impact on Profession

Through looking at the information environment (platform), the emotional responses to risk and mitigation strategies (sentiment), and who is discussing wildfire risk and mitigation (source), we were able to gain understanding of how the public views and accepts the risk and mitigation of wildfires. Since our findings propose conversations surrounding wildfire happen primarily on Facebook and X, we recommend wildfire risk communicators use these platforms to communicate with their audience and drive the conversation (Hruska & Maresova, 2020). News and media sources were most often identified sharing posts about wildfire; we recommend using media platforms to help share pertinent information regarding wildfire risk and mitigation efforts to your audience (Liu et al., 2021). For future research, we recommend expanding the scope of what is being evaluated to include message content, to gain a deeper understanding of the conversation topics that are being discussed the most.

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