NATURAL HAZARDS CENTER

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RESEARCH BRIEF SERIES

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$7,470

This research brief is part of a call designed to help advance knowledge regarding how diverse community members perceive wildfire risk, prepare for wildfire threats, understand fire weather observations and forecasts, receive fire weather alerts and warnings, make evacuation decisions, and respond to and recover from the impacts of a wildfire.

RISK PERCEPTIONS AND EVACUATION DECISION-MAKING DURING WILDFIRE EVENTS IN RURAL TEXAS

SUMMARY

Timely, reliable communication and evacuation are critical aspects of wildfire preparedness and response. Despite the efforts made by local governments and organizations to share emergency information, little is known about how people in vulnerable areas receive alerts and evacuation notices and whether they act accordingly.

This study explored rural residents' experience and response during a spring 2024 wildfire outbreak across the Texas Panhandle. Through an online survey, we collected data from 318 rural residents to investigate their preparedness, risk perceptions, receipt and processing of fire alerts and warnings, and evacuation decision-making and behaviors.

Our study provides insights into factors that shape rural residents' response to wildfire threats and methods for effective and trusted communication about wildfire disasters. These findings can help to optimize evacuation planning and resource allocation, enhancing the overall resilience of rural populations to disasters.

Middleton Fire Near Stowell, Texas.
Photo credit: Mathew Risley, Shutterstock.

KEY FINDINGS

- Residents indicated that they have knowledge about wildfires, but their levels of wildfire preparedness during the 2024 Texas outbreak were low. Survey results indicate that while many people are aware of and talk about wildfire risk, fewer translate this awareness into practical action to mitigate wildfires' potential impacts.
- Age, risk perceptions, and exposure to disaster information were the primary factors that influenced people's evacuation decision-making during the 2024 Texas wildfires. That is, individuals who were older, those who believed that wildfires were likely to happen in the future, those who believed wildfires are severe disasters, and those who paid more attention to alerts, warnings, and updates showed stronger intentions to evacuate/took more preventive actions during the 2024 wildfires.
- Television, social media apps, and personal networks were the top three risk communication channels that people used to learn about wildfire information during the wildfire outbreak, while social media apps and governmental alerts were perceived to be the most credible sources of information during emergencies.

RESEARCH IMPLICATIONS

- Emergency messaging should emphasize the severity and likelihood of wildfires to enhance risk perception, thereby encouraging timely evacuation.
- Formal disaster preparedness programs are needed to better prepare rural residents for future wildfire disasters. Programs should provide clear, actionable steps that individuals can take to protect themselves and their property.
- The significant predictors of evacuation decision-making, such as age, risk perceptions, and attention to disaster information, highlight the need for tailored emergency communication strategies.
- More efforts are needed to encourage people to install disaster communication apps and subscribe to government alerts. Ensuring government-based disaster communication specialists are actively involved on social media during emergencies can reduce the influence of misinformation sent by unreliable sources such as conspiracist groups.

Rural wildland firefighters manage a prescribed burn in Fredericksburg, TX. Photo credit: LoneStarPress, Shutterstock.

Embers and dying smoke from Texas Panhandle grass fire. Photo credit: Lynn A. Nymeyer, Shutterstock.

AUDIENCE

This research is relevant for policymakers, local authorities, emergency services, and community organizations who are interested in strengthening communications and community preparedness around wildfires, especially in rural communities.

Full report: Xie, M., & Chen, L. (2025). *Risk Perceptions and Evacuation Decision-Making During Wildfire Events in Rural Texas*. (Natural Hazards Center Weather Ready Research Report Series, Report 19). Natural Hazards Center, University of Colorado Boulder. hazards.colorado.edu/weather-ready-research/risk-perceptions-and-evacuation-decision-making-during-wildfire-events-in-rural-texas

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