



# Communicating with the public about wildland fire smoke health risks

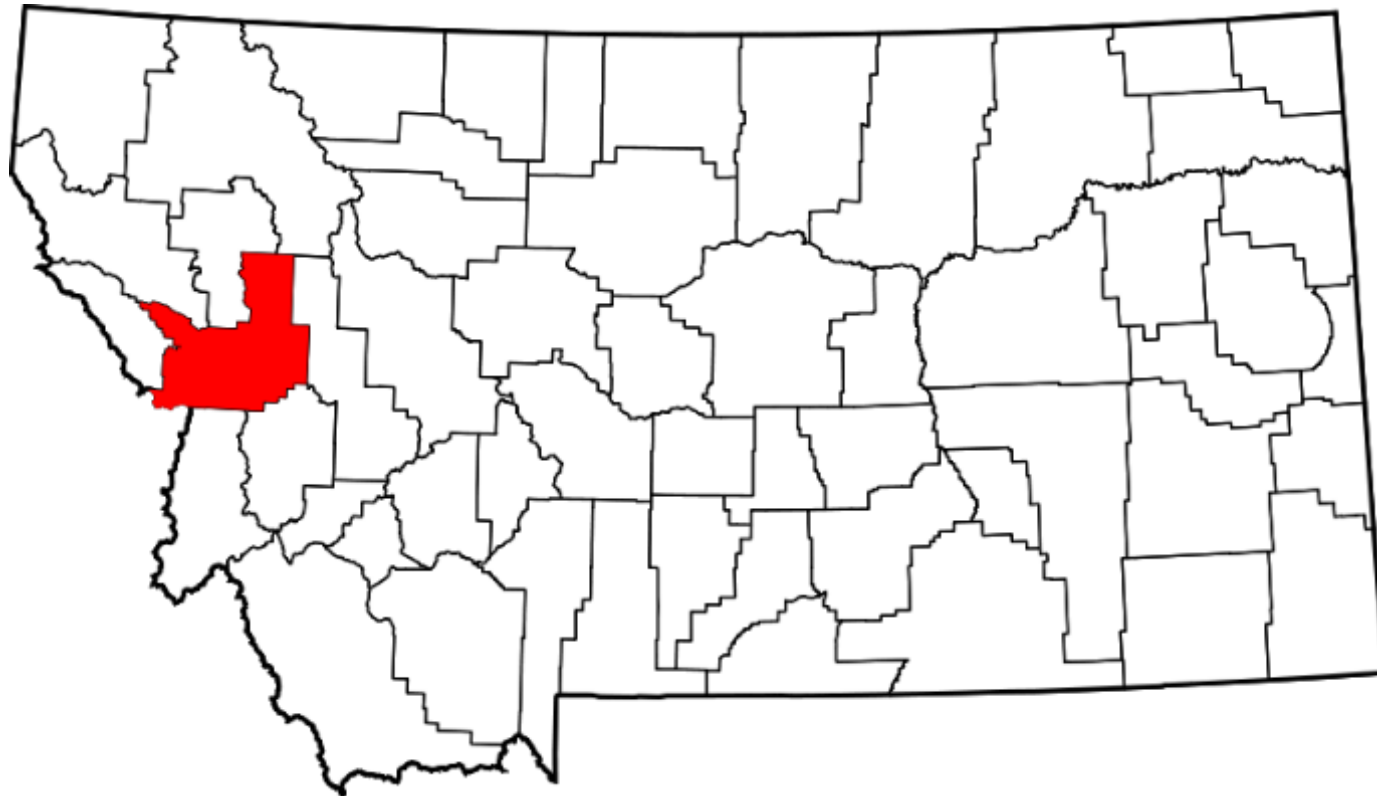
Sarah Coefield, Missoula Public Health

WESTAR Exceptional Events Workshop  
Saint Louis, MO  
February 29, 2024



# Missoula County

~117,000 Residents | 2,618 mi<sup>2</sup> | 2 Air Quality Specialists



# At-risk and hard-to-reach populations



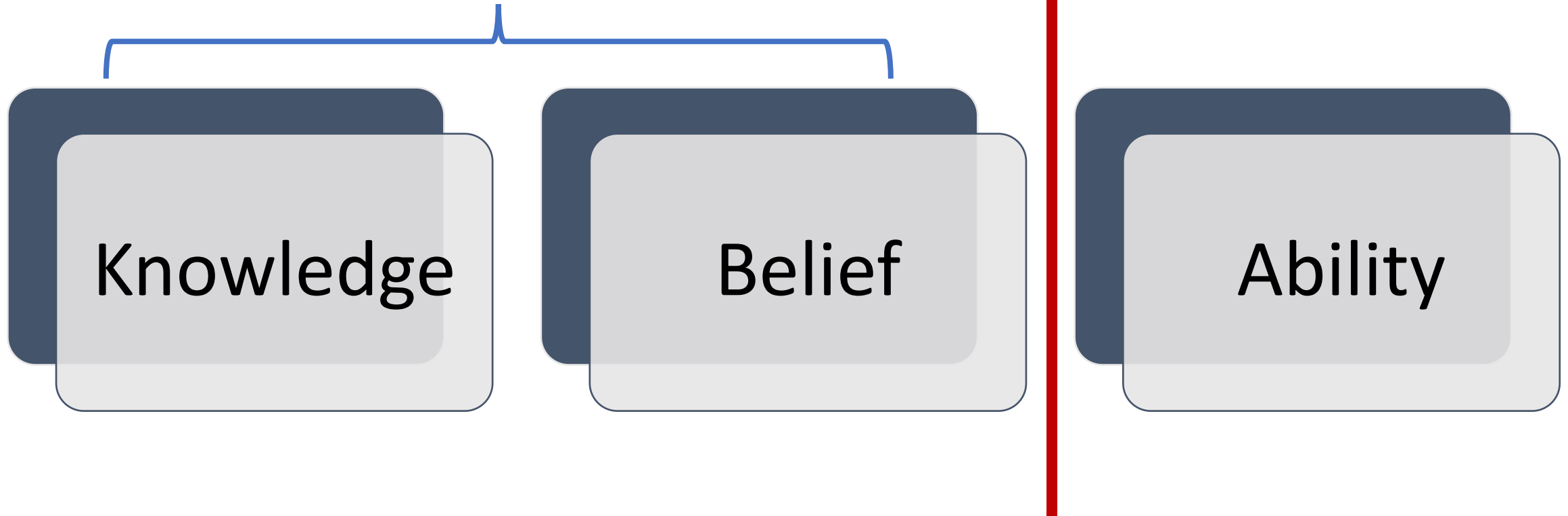
Photo: Candace Coefield

- Children
  - Older adults
  - Pregnant people
  - People with heart and lung disease
  - Lower SES
  - Outdoor workers
- Low literacy
  - Non-native English speakers
  - Non-English speakers
  - Undocumented
  - Disabled
  - Unhoused



Requirements for individuals to reduce their exposure (i.e. become smoke ready)

**Communication**



Smoke from the  
Rice Ridge Fire in  
Seeley Lake, MT  
(2017)





When the smoke rolls into our valley it affects all of us. Climate change is bringing longer, higher intensity wildfire seasons, and we all need to be prepared. There are things we can do to stay healthy during wildfire season!

This brochure gives you the information you need to be ready for hotter, smokier summers, with information on:

- Wildfire smoke's effects on your health
- Checking local air quality updates
- Behavior changes that reduce your exposure
- Tools to create clean indoor air at home or small businesses
- Staying cool when it's hot and smoky
- And more!

Brought to you by:



[MontanaWildfireSmoke.org](http://MontanaWildfireSmoke.org)

# Key messaging topics before smoke arrives

- Health concerns
- Creating cleaner indoor air in homes
- Creating cleaner indoor air in commercial spaces
- What to know about filters, portable air cleaners and DIY fan/filter combos
- Outdoor safety
- How to check the current air quality

# Missoula County Smoke Messaging: A multi-pronged, saturation approach.

## Traditional Media

- News releases
- Op-eds in local papers
- Radio ads
- Radio talk shows
- Newsletters

## Online

- Website
- Smoke Blog
- Social Media Campaign
- Streaming ads
- Email distribution lists
- Newsletters

## In-person

- Table at community events (Farmer's Markets, Downtown Tonight, Out to Lunch, etc.)
- Public meetings
- Workshops
- Special events (smoke-ready beer taste testing, trivia night)
- Local government proclamations

## Print Documents

- Posters
- Bookmarks
- Pamphlets
- One-pagers for targeted groups
- Water bill inserts



# It's Time to Get Wildfire Smoke Ready!

Air pollutants from wildfire smoke affect your heart, lungs and immune system, but there are things we can do to reduce exposure. We all need to prepare and look out for each other.

## STAY HEALTHY DURING SMOKE SEASON



Reduce the intensity of outdoor physical activity. If you must be outside, consider using an N95 respirator. Do not use it if you have difficulty breathing.

## CREATE CLEAN INDOOR AIR



Shut your doors and windows. If it's hot and smoky, let cool air in briefly to avoid dangerous temperatures.



Use a HEPA portable air cleaner, box fan/filter combo, or high efficiency filters in your HVAC system to clean your indoor air.



Check local air quality at [TodaysAir.mt.gov](http://TodaysAir.mt.gov) or look outside. If you cannot see at least five miles, the air is unhealthy - stay inside in cleaner air as much as possible.



Learn more and prepare: [MontanaWildfireSmoke.org](http://MontanaWildfireSmoke.org)

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Missoula Public Health  
City-County Health Department

Missoula COUNTY

WILDFIRE READY MISSOULA

United Way  
United Way of Missoula County

MISSOULA COUNTY

[MontanaWildfireSmoke.org](http://MontanaWildfireSmoke.org)

**Air Quality Can Change Hourly: Stay Informed with Air Quality Updates**

- ✓ Check Today's Air at [todaysair.mt.gov](http://todaysair.mt.gov)
- ☎ Call the Missoula area air quality hotline at **406-258-3600**
- 👍 Know the visibility "rules of thumb"  
Cannot see 5 miles: **Unhealthy**  
Cannot see 2 miles: **Very unhealthy**  
Cannot see 1 mile: **Hazardous**

Learn and Prepare:  
[MontanaWildfireSmoke.org](http://MontanaWildfireSmoke.org)

Multi-page handout with multiple topics

Posters and pamphlets

Short, distilled message for general consumption



# Outreach at Farmer's Market: Helping our farmers be prepared

**SUMMER SMART**

## Outdoor Workers and Wildfire Smoke

When the smoke rolls into our valley it affects all of us, and climate change is bringing longer and more intense wildfire seasons. While we don't have control over smoke, there are steps outdoor workers can take to stay healthy.

**How to know when the air is unhealthy:**  
**3 ways to find out**  
**LOOK outside!**

Basic visibility rules are:  
• Cannot see 5 miles?  
Unhealthy  
• Cannot see 2 miles?  
Very Unhealthy  
• 1 mile?  
Hazardous  
• 0.5 mile?  
Very Hazardous

City's Air Quality Index: [www.mt.gov](http://www.mt.gov)  
258-3600  
Bozeman area  
Hotline

### What's the problem?

Wildfire smoke contains harmful chemicals, as well as small particulate matter called PM. These microscopic particles can easily enter our lungs or even enter our bloodstream.

### Who is at risk and why?

Wildfire smoke is unhealthy for everyone, but especially outdoor workers including farmers and farmworkers who are at a greater risk due to the nature of their work and long shifts. These tiny particles can cause an inflammatory response and frequent and severe asthma attacks, COPD symptoms, increased hospitalizations, and even strokes, reduced cognitive function, and more. It's important to understand the risks of wildfire smoke and the air is on any smoky day.

### What do people experience?


Outdoor & agricultural workers may experience burning eyes, runny nose, throat irritation, pain, fatigue, coughing, difficulty breathing, exacerbation of asthma, rapid heart rate, stress, anxiety, or depression.

### What should outdoor workers do during a smoke event?

- Monitor the air quality** at the start of each shift and continue to monitor while you are working.
- Pay attention to your body.** If the air quality is worsening or you feel sick or have difficulty breathing, stop working. Don't wait for an emergency.
- Consider using an N95 respirator** if air quality is unhealthy or worse. Cloth face coverings do not provide protection from wildfire smoke. If you use a respirator, make sure it seals close to your face. If you have difficulty breathing through the respirator, do not use it.

### N95 Respirator Basics:

- Double strings: 1 above ear, 1 below
- Pinch at nose
- Labelled NIOSH + N95 or P100
- Mask should collapse as you breathe and not let air in at sides.



### How do I create clean indoor air?

- Use a HEPA Portable Air Cleaner (PAC)**  
HEPA PACs cost ~\$100-\$200. Get one large enough for the room it's in, and place it where you spend the most time. Close the doors and windows in that room so air can circulate through the filter. Ensure you have extra filters & replace when dirty.
- Make a DIY box fan/filter combination**  
High efficiency filters (MERV 13) can be purchased at a hardware store or online and easily attached to a box fan. They are louder than a HEPA PAC, but lower cost and nearly as efficient. Use a newer fan (manufactured after 2011). See our website below for simple directions and safety guidance.
- Central Air and HVAC systems**  
Keep the furnace fan on (i.e., uncouple it from the thermostat) for continuous cleaning. You may not be able to run your A/C with a better filter, so you may need to use PACs to clean individual rooms. Use the highest efficiency filter your system can handle. A MERV 13 or better is best, but MERV 11 or 12 will still help clean the air. Keep extra filters on hand and change them when dirty.

Visit our site for more details, guides and information:  
[montanawildfiresmoke.org](http://montanawildfiresmoke.org)

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MISSOULA COUNTY







Deep Breath Taste Test

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Community event with experts and elected officials



Smoke Ready Trivia



# Summers get smoky, but your air can stay clean.

Learn more at  
[MontanaWildfireSmoke.org](https://MontanaWildfireSmoke.org)



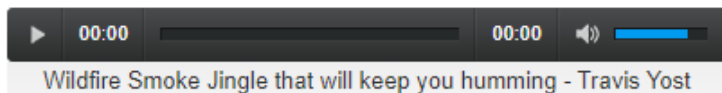




<http://www.montanawildfiresmoke.org>

# Montana Wildfire Smoke

Photo by Paul Willet



Wildfire Smoke Jingle that will keep you humming - Travis Yost

Peruse this site via the **tabs above** or scroll down for 5 easy steps to be Wildfire Smoke Ready! Interested in **supporting our efforts?** Click [HERE](#).

## CLIMATE CHANGE IS BRINGING MORE WILDFIRE SMOKE. HOW DO WE PREPARE?

Montana's summers are becoming hotter and drier, growing the risk of wildfires. As fires increase in size and severity, and as the wildfire season lengthens, the amount of wildfire smoke increases. Smoke can affect us from nearby fires, from surrounding states, and even as far as California or Canada.

As we emerge from the long pandemic, we're ready to be outside, be active, and put health concerns behind us. Yet this summer is

ONLY HAVE A MINUTE? WATCH THE SHORT ANIMATED VIDEO



CLIMATE SMART  
MISSOULA

# Missoula Smoke-Ready Partners

## GOVERNMENT

Missoula City-County Health Department  
Missoula County Office of Sustainability  
Missoula County Office of Emergency  
Management

## MEDIA

Missoulian  
Seeley-Swan Pathfinder  
Missoula Current

## BUSINESS COMMUNITY

Missoula Chamber of Commerce  
Imagine Nation Brewing

## NON-PROFITS

Climate Smart Missoula  
United Way of Missoula County  
Missoula County Fire Protection Association  
Missoula Food Bank

## SERVICE PROVIDERS

All Nations Health Center  
Missoula Aging Services  
Missoula Childcare Resources

A diverse array of partners provides funding and outreach opportunities and the ability to reach more members of your community.

# Communication considerations

How will you reach as many members of your community as possible?

When will you start your outreach campaign?

How will you pay for it?

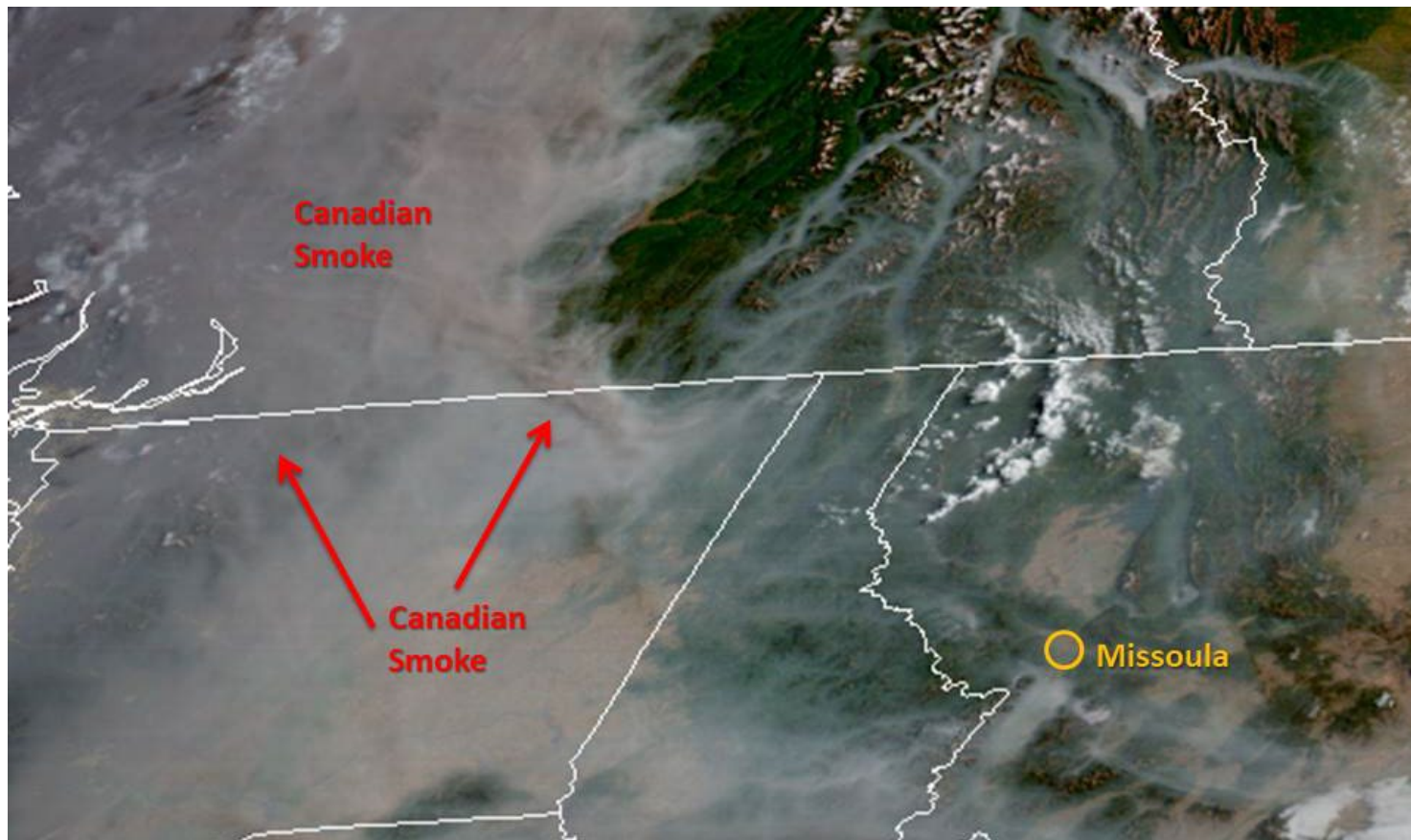
Who can you partner with to increase your reach/tailor your messaging?





Smoke is headed your way. Now, what?



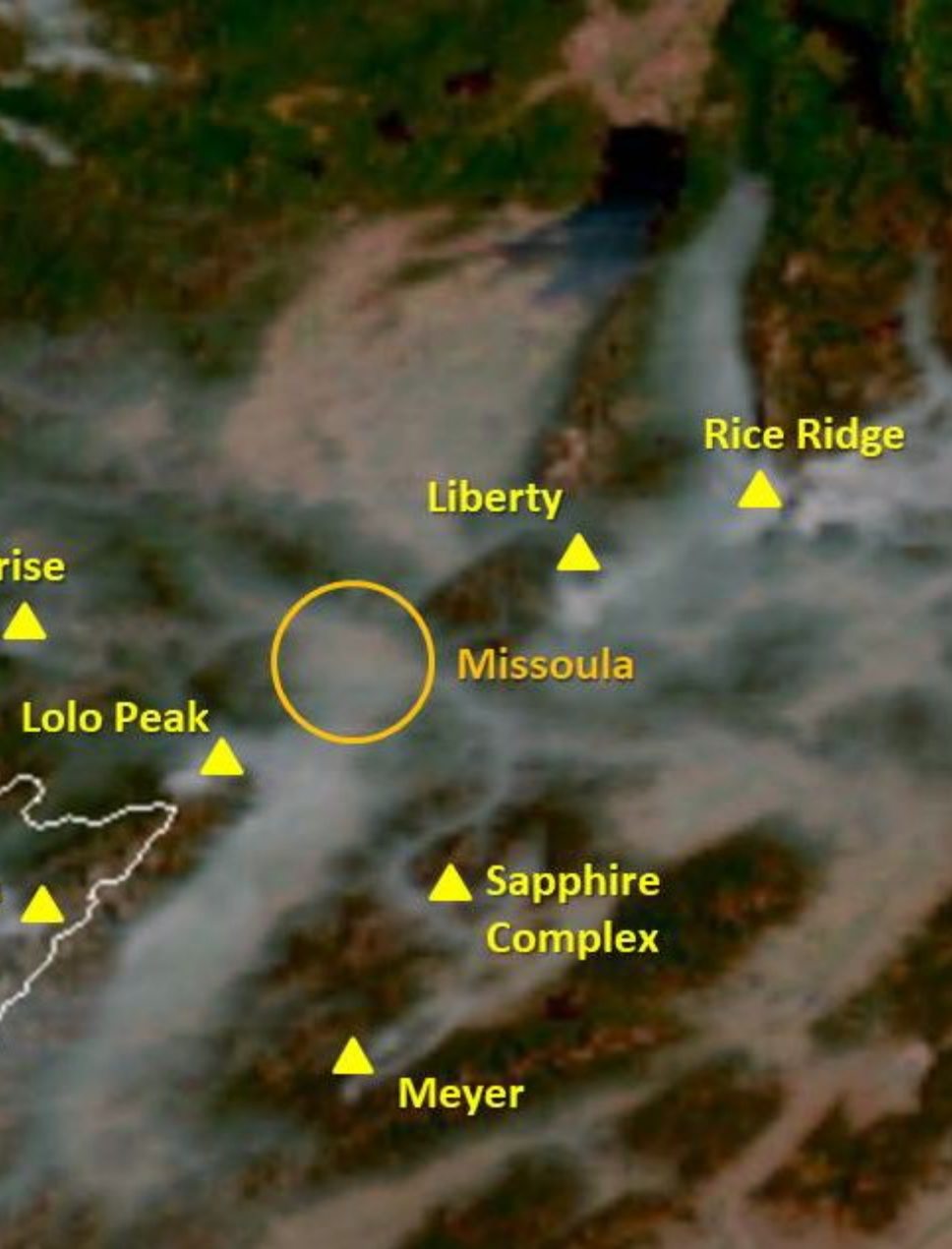


Daily updates

- Current air quality conditions
- Health concerns
- Where the smoke is coming from
- Fire activity
- Smoke behavior
- How conditions will (or won't) change during the day
- Where to find cleaner air
- How to stay protected from the smoke
- Maps and photos

# One message, multiple audiences

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- Direct email list includes media outlets, schools, daycares, government officials and the interested public
  - Media frequently pulls quotes from the updates or directly posts the updates online
  - Schools and daycares use the updates to plan outside activity around the smoke
- All updates are also posted online and shared on social media (Facebook).

Smoke is trapped under strong inversions across the county. There's also smoke lingering above the inversion layer waiting to come down to greet us later this morning.

What makes an  
update  
popular/impactful?

Good information

Respect for the audience

Humor

Empathy







# Communication evolution following 2017



Increased emphasis on cleaner indoor air



Added mental health resources



Increased audience/readership by increasing readability of updates (chatty voice, dumb smoke jokes)



Smoky fog monster

What if it  
isn't  
wildfire  
smoke?

November 30, 2012

# Piles woke up, 11 acres burned overnight.

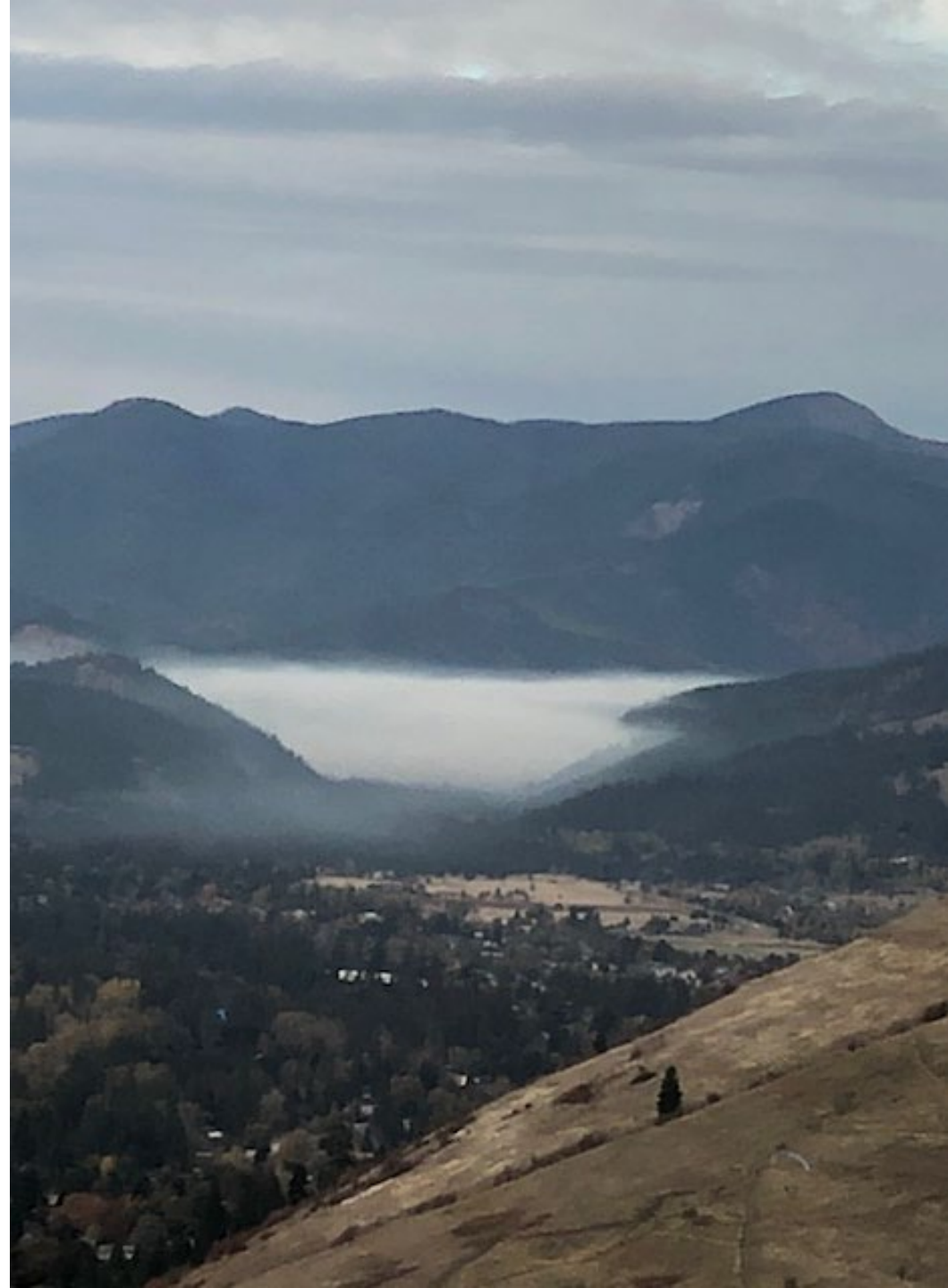
Lateral creeping from previous hand pile burning. Eleven acres burned overnight Oct. 16-17, 2019. Smoke trapped under the inversion reached Very Unhealthy levels for residents in the Rattlesnake Valley.

## **The bad**

Unexpected unhealthy to very unhealthy smoke levels in a populated area.

## **The good**

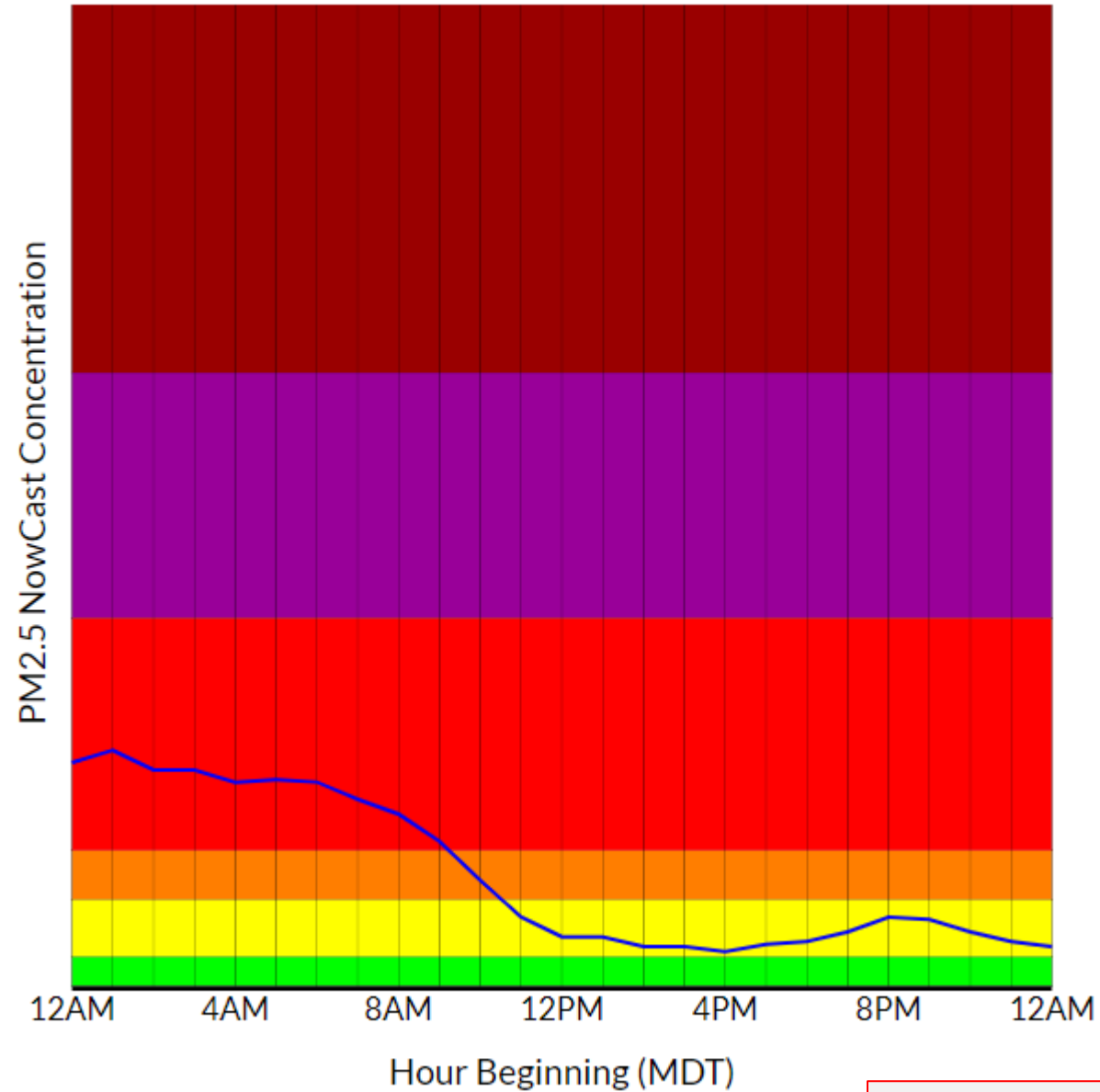
USFS response: Immediate communication with MPH, news releases, and resources on scene to evaluate the situation and contain the fire. PM monitor already installed in the area to monitor smoke levels. The stalled cold front eventually arrived and cleared the smoke out by the afternoon.





# Prescribed burns in Idaho send smoke into Missoula

PM2.5 NowCast Concentration Characterized by 24-Hour Health Effect Category



1-hour max: 124 ug/m3



## Lindy Ridge Rx – cold front came a week late

- Rx fire smoke visible via satellite for 12 days (Oct. 7-19, 2022)
- Purple air at Lindbergh Lake (at the base of the burn) recorded multiple days with smoke ranging from Unhealthy to Hazardous
- Low mixing heights, high pressure, and a cold front that didn't arrive kept smoke in the area for an extended period.

10/13/2022

# Messaging for Rx fire

Where the smoke is coming from,  
why it is worse than expected

Current conditions and health  
concerns

How long it will last (MUCH more  
likely to know for Rx than for  
wildfires!)

How to reduce exposures



# Take-homes:

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- Don't just tell them how bad it is – tell them what it means and what they can do about it.
- Provide messaging at different levels of complexity
- Use multiple routes to get information to as many people as possible
- Foster a trusted information source





# Questions?

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