Outdoor air quality in Montana

Abundance of wide open spaces, natural landscapes, and low population density are among Montana's many charms, and these characteristics are often accompanied by notions of clean air and healthy living. However, while Montana is ranked the third-least populated state in the U.S., it surprisingly ranks only fourteenth for healthiest air quality (U.S. EPA). Although we are fortunate enough to have all four seasons, two of our seasons (summer and winter) are often accompanied by poor air quality and are likely the reason why Montana's air quality is not ranked higher.

Seasonal impacts on air quality

In the spring and fall, Montana's air lives up to its big sky reputation. Air quality from April through June is very good across the state. Unfortunately, during the dry summer months, wildfires are at their peak in Montana and across the West. Smoke from these fires can travel hundreds or thousands of miles and cause air quality concerns across the state. Tiny particles (particulate matter) and other pollutants are dispersed into the air from wildfire smoke and can penetrate deep into a person's respiratory system if inhaled. When smoke concentrations are high, effects on the respiratory and circulatory system may become detrimental to our health if exposed for too long. More information about the health impacts from wildfire smoke can be found on the Missoula Climate Website referenced on page 7.

Poor air quality is not just an issue in summer months, wintertime air quality is also an issue in parts of western Montana. In the winter, short days, cold temperatures, and snow can promote the formation of "inversions" in western valleys. Under an inversion, cold air is trapped near the surface, with warm air acting like a cap on top. This air does not mix easily, causing any pollution released near the ground to remain trapped. Certain weather patterns can cause these inversions to last for days, with air pollutants from wood burning stoves, vehicles, and other sources building up over time.

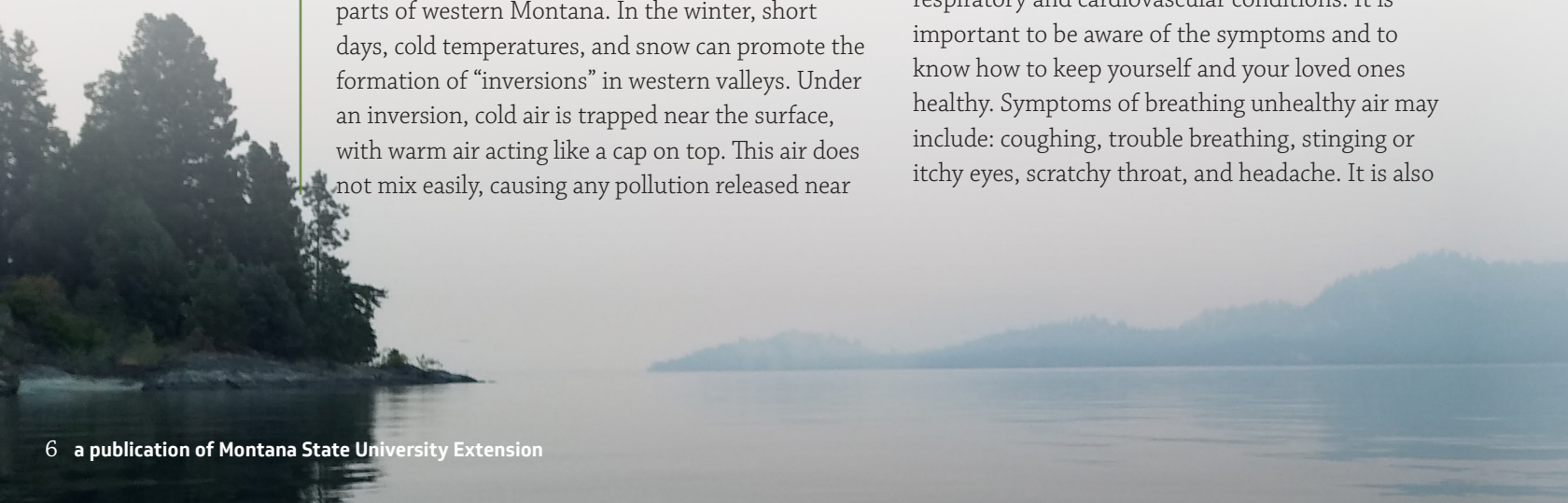
Air quality data and staying informed

In Montana, wildfire smoke in the summer and wood burning stoves in the winter are the main contributors to poor air quality. When wood burns, the primary pollutant of concern is tiny particles, known as Particulate Matter 2.5 (PM2.5), which is particulate matter in the air with a diameter less than 2.5 microns. The Montana Department of Environmental Quality (DEQ) administers a network of air quality monitoring stations across the state and reports the data every hour on the "Today's Air" website referenced on page 7. The website provides easy-to-understand graphs to let Montanans know when they should take precautions to protect their health.

During wildfire season, daily wildfire smoke forecasts are posted on the Today's Air website to report on the location of fires impacting the state, the current state of air quality, and a forward-looking forecast outlining when things might improve. These reports are dispersed on DEQ's social media sites, to local health departments, and to the traditional media.

Symptoms to be aware of

Breathing unhealthy air can lead to many health issues and worsen allergies, asthma, other respiratory and cardiovascular conditions. It is important to be aware of the symptoms and to know how to keep yourself and your loved ones healthy. Symptoms of breathing unhealthy air may include: coughing, trouble breathing, stinging or itchy eyes, scratchy throat, and headache. It is also



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staying informed and protecting your health

important to be aware of signs and symptoms of heart attack and stroke. Unhealthy air exposure can even result in lack of energy, changes in appetite, changes in sleep patterns, feelings of hopelessness, irritability, and depression. For more information about the health effects of wildfire smoke, visit the Missoula Climate website.

Keep yourself and loved ones healthy

When outdoor air quality is poor due to smoke, it is recommended to stay indoors as much as possible and to limit outdoor activities. If limiting time outdoors is not possible, try to limit vigorous activities such as running and playing sports. The Outdoor Activity Guide at todaysair.mt.gov outlines what activities should be avoided when air quality reaches certain levels. Wearing a simple dust mask or a bandana over your face will not remove small particles. If outdoor activities are unavoidable, wearing a mask labeled as approved by the National Institute of Occupational Safety and Health (NIOSH), with either "N95" or "P100" printed on it can help reduce exposure, provided it fits correctly. Prior to using a mask, consult with your doctor, as wearing a mask or respirator may make it harder to breathe. Everyone is affected by smoke differently, so always talk to you doctor about your specific symptoms, medication use, or any unique concerns. When staying inside, it is important ensure your indoor air is healthy as well. Here are few ways to keep your indoor air healthy:

- Keep the house tightly closed, keep windows and doors shut.
- Install a filter on your furnace or air conditioner with a small mesh size and run the system on recirculating mode if possible, to avoid bringing in outside air.
- You can also buy free-standing filter systems with HEPA filters for use in bedrooms or other parts of the house where people spend a lot of time. More information on how to select the right filter is available on the Missoula Climate Website.
- Be aware of radon exposure; see the Extension article referenced below for more information on testing and mitigating for radon.

Do your part for air quality

In the winter, there are actions you can take to improve community air quality, such as limiting the use of wood stoves during inversions. Some Montana counties enforce wood stove burn restrictions to protect air quality during these episodes. Follow all outdoor burning restrictions to avoid adding smoke to the air when conditions are poor. In the summer, stay informed about fire restrictions and avoid activities that could ignite a wildfire. Lastly, share your knowledge with friends and neighbors to keep Montana's air clean.

Additional resources

Today's Air (current air quality conditions provided by MDEQ) http://todaysair.mt.gov

Missoula Climate Website (Health Impacts from Smoke) https://www.missoulaclimate.org/wildfire-smoke.html

Missoula Climate Website (Air Purifiers) https://www.missoulaclimate.org/hepa-air-filtration.html

Outdoor Activity Recommendations http://bit.ly/MTOutdoorGuide

Radon in Montana Homes (Lives and Landscapes article) http://msuextension.org/magazine/articles/265

NORI PEARCE