

## Grand Canyon National Park's Ranger Audio Tour Stop # 14 Air Quality

Hi there, this is Ranger Haley, and I invite you to take a deep breath. You just inhaled nitrogen, oxygen, argon, and a few trace elements like carbon dioxide, a mixture commonly referred to as the Air. If you're wondering why you should care about the air, I recommend you take another deep breath.

Right now air is traveling deep down into your lungs where it diffuses across the thinnest of cellular membranes, delivering oxygen to your blood stream and then to your organs, muscles, and tissues. Each and every day you breathe in about 20 pounds of air to get the oxygen you need to stay alive.

And you're not the only one consuming that air. Plants need carbon dioxide for photosynthesis. American forests absorb about 750 million metric tons of CO<sub>2</sub> each year to make the foliage national parks are so well known for. Oceans absorb even larger amounts of carbon dioxide to keep phytoplankton and coral reefs alive.

However, the air has undergone some worrying changes in the past 200 years. Since the Industrial Revolution, the presence of trace gasses and particles has increased, and these pollutants affect the health of all living things, including you and me!

Now, if you fertilize your lawn at home, you're already familiar with nitrates. These chemicals enhance the productivity of soil, but what's good for your garden, isn't great for Grand Canyon. Nitrates alter the chemical composition of soil, making the ecosystem more inviting to invasive species. Grand Canyon National Park is here to preserve this ecosystem, not fertilize it out of existence! And what about your lungs? What happens when chemical fertilizers settle deep in your chest? The end result could be bronchitis, asthma, pneumonia, or even heart problems.

And nitrates aren't the only particles to worry about. Fossil fuel burning industries release sulfates into the air, which come back to haunt us as acid rain. In the Eastern part of the United States, acidic deposition has become such a big problem that precipitation sometimes has a PH as low as 2.4, making the rain as acidic as vinegar. Not something you'd want your kids splashing around in.

So take another deep breath, I dare you. In addition to nitrates and sulfates, you inhaled organic particles from forest fires and all kinds of other manmade pollutants from around the globe. These particles mix to form a regional haze that diminishes visibility. Today your view of the canyon might be obstructed by particles from a forest fire in Belize, sulfates from a power plant in New Mexico, and who knows what else from Las Vegas.

But you can feel safe breathing deeply here at Grand Canyon. Despite the regional haze, the air you're breathing right now is some of the cleanest in the nation. Still, we all need to care about the air, for the health of ourselves, our parks, and our planet. If you'd like to learn more, check out the air quality monitoring stand, just outside of Yavapai

Observation Station. Then, when you head back home, do a little research. Find out what your home town's air is doing to your land and to your lungs. And thanks for taking a few minutes to learn why you should care about the air.