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'Not all fires threaten the climate'

Johann Georg Goldammer researches ways to prevent and control wildfires. In an interview with Global Ideas, he explains why fire isn't just destructive – in fact, there are ecosystems that thrive on regular blazes.

Every year, forests and other ecosystems across the globe suffer from wildfires. They are considered a major threat to the climate since they emit vast amounts of carbon dioxide and other greenhouse gases into the atmosphere. Much of these fires are caused by humans who are either careless or set fires intentionally - to clear land or simply to commit arson. In fact, less than ten percent of all wildfires, which are causing environmental or humanitarian problems, have natural causes. Yet, fire is an important part of nature too. Some ecosystems, such as savannas, rely on regular blazes to clear dead brush and make room for new life.

The Global Fire Monitoring Center in the German city of Freiburg collects data on wildfires around the globe. As part of a United Nations initiative, Professor Johann Georg Goldammer is developing strategies to manage forest fires - but his goal isn't always to extinguish them.

Goldammer believes that fire has an inherent place in the world even at a time when global temperatures are rising. We met the professor in the Cerrado, an endangered tropical savanna ecosystem in central Brazil where vast swaths of land are being burned and razed to make way for soya plantations and farming. But, Goldammer insists that fires aren't necessarily always bad. Indeed, some ecosystems rely on blazes to thrive, he says.

Global Ideas: Is fire a threat to the climate?



Goldammer works on strategies to best deal with forest fires

Johann Georg Goldammer: Vegetation fires in the Cerrado region are actually not the key threat to the climate. The real threats are the fires we burn in our furnaces, where we burn fossil fuels. If we dig up our geological past - the sunken forests, coal and oil deposits and gas - if we unearth those resources and burn them in our cars, in industries, in our homes, then we have a problem. Then the geological past will determine the geological future, a world which will be different from today.

But wildfires have been burning on the earth's surface for millions of years. The earliest evidence we have of that dates back 400 million years. We can still identify those wildfires today by looking at coal beds where anthracite deposits grew up out of sunken forests. There, we can even find embedded charcoal today. Around the globe, vast landscapes like this one in Brazil have been shaped by fire.

Does fire allow for greater biodiversity?

If you look at fire, vegetation and landscapes from the perspective of a fire researcher rather than of a firefighter, you can distinguish different types of ecosystems. There are some that are sensitive to fires, like tropical rainforests. Fires don't belong there because a blaze would destroy the fire-sensitive flora and fauna. But there are also ecosystems that are more tolerant to fires - they can handle them. And then we have the more extreme cases - the ecosystems or species that are dependent on fires, that can't exist without them.



Humans are often responsible for starting fires – sometimes they set fires to clear land for farming

If you take a look back at the cultural landscapes in which humans have interfered for hundreds or even thousands of years - whether it was through agriculture or grazing or even through the use of fire - you see that fires open up the landscapes or it keeps them open. You find completely different species of plants and animals in this habitat compared to the ones you find in a closed forest. And interestingly enough, you see these types of ecosystems not only in Brazil and North America but in Central Europe, too.

How does fire management work in today's highly developed world?

We have to try to strike a balance between the environment's natural needs and our need for fire. Fire has always been there, in various dimensions and intervals in the history of the earth's individual landscapes. If people occupy land and use it, that leads to conflicts that we have to figure out.

On the one hand, you have to allow the natural system of fire ecology to run its course. But on the other hand, you have to respect people's wishes to live in an environment free of smoke exposure, or danger to their homes or even their lives. And that's where fire management comes in - we look for compromises between the two. It's a problem we all have to face, from North America to Brazil and Europe.

What kind of conflicts are we talking about?

The problem starts when people, for example, interfere in natural vegetation by turning it into grazing land or plantations. That's the first conflict zone. But there are plenty more. In several countries, people are tired of life in big cities, and they've started building houses in an environment that is green and healthy but where recurrent fires are natural. If you look at North America, for example, we see huge blazes run right through entire communities and destroy hundreds of houses - that's a conflict zone and that is where fire management has to play a role.

Does fire management simply mean extinguishing the fire, or does it mean starting fires as well?



Putting out a fire isn't always a good idea. Sometimes, nature needs fire to clear away old, useless vegetation remains

It's true that in the recent past, especially in the industrialized countries, people saw fire as the enemy and tried to simply extinguish it. But that caused a chain reaction of problems. Fires that burned in a natural cycle through vegetation over centuries reduced the fire load - or the amount of combustible material - and that's how fires remained relatively mild and easy to control.

But when you have a policy where you completely exclude and avoid fires in forest or brushland, you build up a lot of combustible material and thus a vast amount of energy. Wildfires - inevitable over long time periods - will then burn much hotter, are more destructive and can no longer be controlled. What would be the right way to deal with fires in the future?

Right now, the debate over letting natural fires take their course or using controlled fires is overshadowed by the problem of climate change. Fires generate emissions and greenhouse gases - they always did. You could even say they have an inherent right to do so. Today, when we burn fossil fuels and allow carbon from the earth's crust to be released into the atmosphere, vegetation fires are still considered a problem.

Now, the real task is to return to all these fires - the fires in Cerrado in Brazil, the wildfires in Siberia and North America, the controlled fires in Central Europe - the natural role they have had in their respective environments, and not simply try to extinguish them. Fifty years ago it was fear of fires, today it's fear of climate change.