

## Biodiversity and Climate Change

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In this session, Dr. Tom Sherry and Dr. Lee Dyer discussed more than just the effect of climate change on biodiversity. The presentation did touch upon the specific environmental harm to species caused by global warming. They enlarged the focus though to include a more general understanding of how anthropogenic or man made forces have negatively impacted the globe. The two presenters underlined the importance of human population growth and the rising demand for limited resources to explain the threat to the sustainability of many ecosystems in our larger environment. They argue that even if Global Warming is resolved, the threat to other species does not end. Human society needs to re-evaluate its relationship with the environment and other species in order to insure global sustainability beyond the problem of climate change.

Extreme weather patterns are a central threat to many ecosystems. Extreme weather is commonly associated with aberrations in temperature and/or precipitation. Natural fluctuations sometimes occur, fostering natural selection processes in an ecosystem. Changes in Earth's overall climate have affected its inhabitants since the beginning of biological life some 3.5 – 4 billion years ago. Competition for limited resources is a common theme among many species of plants and animals.

Before the Industrial Revolution and the advent of mass production and consumption, human society was much less disruptive to other species on Earth. Since the Industrial Revolution though, population increase in the most developed countries coupled with increased demand for high-energy intensive luxury goods and urban lifestyles have resulted in higher CO<sub>2</sub> emission levels in our atmosphere throughout the last century. Surely this has resulted in climate change, but it has also resulted in particulate pollution, acid rain, expanded industrial agriculture, deforestation and over-urbanization that marginalized other species well before climate change could have affected them.

Recently, Global Warming has received more media coverage than other environmental problems resulting from modern society, but these speakers note that carbon dioxide emissions are certainly not the only way we are damaging the environment. Global Warming is the adverse effect of one form of resource over-consumption that creates high levels of CO<sub>2</sub>. As developing countries grow in the mirror image of the North, the sum of all resources consumed increases. As a result we stretch and widen our carbon footprint. And the impact is more than just higher levels of carbon dioxide. Just taking carbon dioxide out of the atmosphere is not going to save the environment. More sustainable is that countries consume resources proportional to their relative population size. America is the third largest country in the world, but consumes much more than China or India, the two largest nations in the world. The speakers suggest that this needs to change.

Again, climate change and competition for limited resources are both natural processes. At one time however, the climate changes were more moderate, and the competition was relatively fair. As the "top of the food chain", our species bears the responsibility of keeping the biosphere thriving, but we also have the tools to most quickly ruin it if we aren't careful. All species struggle for the most consistent and abundant settings. Human society has overwhelmingly won this struggle and perhaps ignorance of this fragile process has made us careless. Other species can evolve to fit their new surroundings, but can the natural rate of evolution compete with the unnatural rates of environmental change and increased resource consumption? It is not simply whether or not we stop global warming, but whether or not we can find a way to again live in cooperation with the millions of species with whom we share the biosphere. This will determine the fate of Earth's habitability and not necessarily if we solve the Global Warming threat.

### Discussion

The discussion portion consisted of a few questions and several comments. Some audience members asked how we could best combat global warming, and likewise, reduce our overuse of resources. Other audience members mentioned various recycling programs, grassroots environmental groups, and alternative methods of transportation. Dr. Sherry suggested that people re-evaluate their own behavior and try to imagine an ideal lifestyle that combines both their needs and the needs of the environment to reduce the problem. If riding a bike instead of driving a car is plausible, then do that. If research suggests a certain practice can help alleviate our carbon footprint, implement it in your daily life.

Another portion of the question and answer session focused on how to report the findings of research and spread the word of the problem and possible solutions around a community. Education is the top answer. Both speakers agreed that the key to making people more conscious of their lifestyles and the consequences their actions have on the environment is to teach it in the classroom. Integrate lessons about conservation techniques and the importance of recycling into school curricula as early as possible. Make it easy. Make it fun. By doing so we can train a new generation on how they can personally mitigate the problem by the life style choices they make.

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