

My Journey With Climate Change

By Jason Bradford

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Wednesday night about 200 people came to the Noyo theater to see the film *An Inconvenient Truth* about global warming. The previous night's showing had sold out, so the film was moved into the main theater to accommodate the crowd.

If you haven't yet seen the film, please do.

The Noyo permitted a discussion afterwards about how people felt about the information, and what actions they wanted to pursue to cope with the crisis.

Thank you to everyone who stayed on for this important conversation.

I want to share the story of how I became involved in climate change research and let the Willits community know that I am available to discuss this topic with any group.

In 1999 I read a paper in the British scientific journal *Nature* that changed the course of my life.

This paper modeled the future climate of tropical mountains given continued widespread use of fossil fuels. I had spent the last several years becoming an authority on forests found on tropical mountains, often called cloud forests. The prognosis for cloud forests didn't look so good because the planet was going to get very hot and the habitat of species found nowhere else would literally vanish.

About three years ago I awoke to a clear dawn and watched sunrise over the Amazon rainforest. Our camp was at about 13,000 ft in the Peruvian Andes - a treeless landscape that afforded us vast panoramas whenever the clouds permitted.

This morning was particularly spectacular. It had snowed during the night on the peaks above us, while thousands of feet below and 20 miles away, the Amazon basin was already heating up. As the sun rose higher and warmed

the treetops, water vapor began rising and condensing into clouds that moved towards us. By afternoon, while working in a cloud forest below camp, we were enveloped in mist.

While any ecotourist would have paid dearly for such an experience, I was there to do more than contemplate the splendor of it all. By good fortune and years of hard work this was an all expense paid camping trip with a serious purpose.

I had led the formation of a team of scientists called the Andes Biodiversity Consortium (ABC), and we had secured a grant from the United States National Science Foundation to be there.

Along with about a dozen Peruvian university students, we got to work setting up a long-term research site along the western slopes of the Andes adjacent to and within Manu National Park. This included permanently marking and measuring all the trees within one hectare of forest (about the size of two football fields) at various elevations. We also set up equipment to monitor the daily weather. The distillation of these data over time becomes a description of the climate.

The ABC, which included one of the authors of that 1999 Nature paper, had chosen this location for a number of reasons. One had to do with the concentration of species found here. Within one of our hectare forest plots, for example, we could find more species of trees than exist in all of California. The region was well known to bird watchers, who could, within a couple of days, see more kinds of birds than inhabit all of North America.

For a clue to why so much diversity is found in the tropical Andes, think back to my description of that one clear dawn - snow above and steaming tropics below. In between is a great transition zone and the plants and animals in the area tend to specialize within a particular range of temperature and moisture. Our forest plots documented this. The trees near our camp in the highlands were not the same as those just an hour's walk below.

We were setting up climate monitoring devices because the climate was changing very rapidly. Glaciers were melting fast, threatening the livelihoods of villagers in the dry, highland valleys. Since the average

temperature is cooler the higher one travels, species of plants and animals were expected to migrate upslope in response to warming trends, but nobody was systematically examining this yet.

In the U.S. journal *Science*, members of our team had documented past rates of climate change in the area based on the sediments at the bottom of lakes.

When trees shed pollen to reproduce with each other (such as oaks), some of it lands on lake surfaces and then sinks into the mud where it is preserved.

These sediments build up over time and can be aged accurately using radioisotopes of carbon (called carbon dating). This provides a record of the shifting landscape of trees over time as climate has changed in the past.

We were all worried because warming during the 21st century was expected to be about 100 to 1000 times more rapid than what had occurred in the past.

This could potentially overwhelm the ability of species and ecosystems to respond. Think of gradually slowing down from 60 to 0 mph while approaching a stoplight in a car versus hitting a brick wall at 60 mph.

Not only was the rate unprecedented, but so was the potential clash with people. Past rapid climate change had occurred largely before South America was full of human settlements. Now the Andean civilization and its agricultural system were situated where forests and wildlife may need to go to survive.

My story of how I became involved in climate change research may give the narrow impression that global warming only places at risk a bunch of plants, animals and Andean peasants. In reality, we are undermining the prospects for the persistence of civilization on this planet.

Does that last statement seem like hyperbole? If you have been speaking with climatologists or following their research it wouldn't be surprising. That's what they truly, nearly universally, believe.

For example, NASA director James Hansen says we may have ten years in which to turn things around - meaning reverse the 150-year running increase

in greenhouse gases - or face catastrophe. To have any real chance of preventing the ice caps from melting, ocean currents from failing, large-scale deserts forming where cropland now exists, etc., we will have to cut back on our use of fossil fuels by about 80% or so and get started right away.

The historical record shows that the climate system changes very rapidly, flipping from one stable state to another within several years, not centuries. If we pass some murky climate threshold our lives will be slammed against a brick wall.

If you don't already know most of this perhaps the press has failed in its duty to inform you.

In the mid 90's, Boston Globe reporter Ross Gelbspan documented how a set of large corporations, such as Exxon Mobil and Peabody Coal, have done their best to seed doubts in the minds of Americans about climate change. Journalists have been giving "balance" to the arguments about climate change by publishing the unfounded work of a few "skeptics" under the employ of the industry most threatened by the facts.

I would like to hope that when people are well informed, they have the potential to make good decisions. This is why Al Gores' movie *An Inconvenient Truth* is so important. It accurately conveys the science of climate change and the urgency of taking corrective actions.

Willits Economic Localization (WELL) has spent the past year and a half envisioning a prosperous life here without using gasoline, diesel, natural gas or propane fuels. While many have started projects that help us become more self-reliant with respect to food and energy, truly reorganizing our economy is not something that can be done by a group of committed activists alone.

We need a critical mass of local institutions and entrepreneurs to find the opportunities at hand to recreate Willits in a manner that is responsible, creative, community-building, and makes us all more secure.

As one step, Willits could join the Cities for Climate Protection. Hundreds of local governments are now planning and implementing programs and policies to reduce greenhouse gas emissions. Cities for Climate Protection provides toolkits and links policy makers around the world to rapidly disseminate best practices.

Let's make Willits a leader that inspires others to rise to this challenge. Pay attention to the news, and when the city council discusses this issue, be there to participate. Change will only happen if a critical mass of people makes it happen.

(Here are some web sites related to this essay.)

www.climatecrisis.net

www.andesbiodiversity.org/ABC/abc.html

www.willitseconomiclocalization.org

www.iclei.org/index.php?id=800