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Seattle Times' Coffee and Climate Story Substitutes Anecdote for Science

by Todd Myers

Claim

"Yields in Costa Rica have dropped dramatically in the last decade, with farmers and scientists blaming climate change for a significant portion of the troubles. ... Weather is only one problem. Costa Rica also has too many old coffee trees, and farmers' costs have risen because of a labor shortage and devalued currency. Still, climate change represents about a quarter of the problem and is expected to worsen, says Ronald Peters, executive director of iCafe."
"Climate change takes toll on coffee growers, drinkers too," Seattle Times, March 5, 2011

Facts

"So profound is our ignorance, and so high our presumption, that we marvel when we hear of the extinction of an organic being; and as we do not see the cause, we invoke cataclysms to desolate the world, or invent laws on the duration of the forms of life!" – Charles Darwin, The Origin of Species

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Writing more than 150 years ago, Charles Darwin identified the central problem with humanity's ability to understand nature's complex interactions. We believe we are intelligent enough to sort out obscure natural processes, so we invent stories that seem to explain what we are seeing. Darwin recognized, however, that we often presume too much, and fail to see the real causes of those events.

The strength of the modern scientific method is its ability to carefully test those stories we invent, sorting out fact from fiction in a systematic way. That process, however, is often at odds with the storytelling that is at the center of environmental journalism. A recent story in The Seattle Times about the impact of climate change on Costa Rican coffee growers is an excellent example of how a compelling story can lead reporters to mistake local anecdotes for global scientific data.

Published on March 5, the Times story featured more than a dozen photos, an online video and was followed up three days later by a live online chat session with the reporter, photographer and a climate scientist from the University of Washington. The article's headline captures the tone: "Climate change takes toll on coffee growers, drinkers too". The impact of climate change on coffee, they argue, has been significant. "Yields in Costa Rica have dropped dramatically in the last decade," the Times wrote, "with farmers and scientists blaming climate change for a significant portion of the troubles."

But there are factual problems with the story.

- According to NASA, Costa Rican temperatures during 2008-09, the years with the largest drop in coffee production, were only 0.6 degrees warmer on average than the 20th century baseline. The most significant increase occurred in the fall (September-November, 2008), but was only a change of just over 1 degree F. This was left out of the story.

- Average temperatures in 2008-09 were only 0.1 degrees F warmer than 1998-2000, when Costa Rican coffee harvests were 68 percent larger. The largest difference occurred in the fall, with a difference of only 0.7 degrees F.
- The temperatures in 2008-09 are actually 0.1 degrees F lower than the average annual temperature during the 1991-93 period, which marked the country's highest coffee production of the last three decades.

While future temperatures could rise, climate scientists say we are not seeing those increases and impacts yet. One of those experts is the very climate scientist The Seattle Times chose to participate in their online chat, Dr. Mike Wallace of the University of Washington. I asked him whether he felt the temperature increases in Costa Rica were causing the strange weather highlighted in the story. He was straightforward, saying "the warming of the past 10 years is pretty small, both globally and over Costa Rica. I'm not at all sure that it's been a factor in the decline of coffee production on this short time scale." He adds, "If global temperatures rise by a couple of degrees over the next century, that's a different story." The Times story, however, claims those global temperature rises are occurring now.

Given that data, how did The Times reporters come to believe that climate change was the cause of the decline in the coffee crop? Initially, Melissa Allison, the lead reporter on the story, says she expected to hear about the future, "but instead they [coffee growers] were showing us things we never expected to see now."

One of the coffee growers identifying climate change as the cause of crop decline was Ricardo Calderon. He told The Times, "We noticed about six years ago, the weather changed." Another who cited climate change was Ronald Peters, director of the Costa Rican national coffee agency, iCafe, who is quoted saying "climate change represents about a quarter of the problem."
One quarter of the problem? How did Peters arrive at this conclusion? Allison explains in an e-mail to us:

> "With their finite resources, the researchers I read and talked to are working on projections for the future and/or how to solve the problems farmers are having rather than quantifying exactly how much a problem it is. But I wanted to know for this story whether people seeing the problem thought the climate aspect was small, medium or big. I asked everyone and used Peters' response partly because he has a broad understanding of what's happening throughout the country."

In other words, after being prompted by the reporter, Peters offered a guess. Ultimately, she conceded, "it's impossible to know how much of the situation is due to big changes in the weather." That sentiment, however, is not reflected in the article's headline or its categorical claims that climate change is already "taking a toll on the lucrative coffee crop."

Did The Times reporters consult any climate scientists to validate the speculation on the part of coffee growers? Apparently not. Although the story says "farmers and scientists" are blaming climate change, The Times reporters only say they interviewed "professors and researchers, including people at the International Center for Tropical Agriculture." None of those people appear to be climate scientists. They may be experts in determining how weather impacts coffee. They are not, however, expert in determining what caused that weather or if global climate change was a factor.

Instead of talking to climate scientists, Allison relied on anecdotes. She determined that climate change was a part of the problem because "everyone said that's part of it, and we tried to docu-

ment their examples." Examples are not science. Substituting the personal memories of coffee growers for recorded data is not the foundation for scientific conclusions.

Even if the local examples are emblematic of a real weather trend, there could be a range of factors causing those changes. Coffee growers may believe climate change is to blame, but that is a belief, not measurable science.

None of this rules out climate change as a cause, and Allison notes that "using an average annual temperature over a short period for the whole country can be misleading." This is certainly true. However, The Times reporters did not use that same high standard of proof when coming to the conclusion that climate change is part of the cause for the declines in the Costa Rican coffee crop. They simply took the word of farmers, failing to seek objective data or documented proof.

As noted above, a look at the temperature changes season by season indicates the average is probably not hiding dramatic temperature swings that truly could cause havoc with coffee yields. Ironically, one of the claims in the article is that global warming is causing significantly lower temperatures. The article says "Temperatures at Flores' coffee farms on Poás used to stay above 60 degrees at night, but now are dropping to 52 degrees." How global warming would cause this is unclear. When asked about this, Dr. Wallace says it is unlikely this is due to climate change, saying "Global warming would not make nights colder at a given elevation."

Is it possible that such small changes in temperature have caused the impacts being seen in Costa Rica and led to rising coffee prices? Perhaps. There are indications that this is unlikely, however.

- First, coffee plants tolerate a range of temperatures. According to the University of Hawaii, Hawaiian Arabica coffee is grown in a zone from sea level to 2,000 feet, a range where temperatures vary by about seven degrees F. A difference of one half degree would be much smaller than the natural range coffee can tolerate in Hawaii. Shifting the crop by 150 feet of elevation would equal the entire Costa Rican temperature change over the last twenty years. It is unlikely that this small amount of warming has caused the crop decline.
- Second, the total worldwide coffee crop in 2009 was nearly twice the level of 1999. Although The Times' article claims climate change is "helping push up the price of a latte or espresso," the more likely culprit is rising consumer demand. Other countries are not experiencing the production declines seen in Costa Rica.
- Finally, the reduction in the Costa Rican coffee crop has been most significant during only the past few years. Although harvest levels of the last decade have been below those of the 1990s, the most significant drop occurred in 2008, with production falling by more than a quarter. This is significant, but not unprecedented. For example from 1985 to 1986, Costa Rican coffee production fell by half.

So, what is causing Costa Rica's coffee decline? As the reporter admits, "it's impossible to know." Area weather patterns vary and it is not unusual for regions to face several years of unusual weather. It could be influenced by global climate change, although there is no evidence for that. It could be part of long-term natural global patterns. It could be a short-term weather pattern unrelated to wider climate change.

Readers of The Seattle Times article, however, would not know that. The consistent message of the article is that climate change is lowering coffee yields in Costa Rica, and driving up the cost of coffee in Seattle.

The data simply do not support that conclusion. Climate scientists themselves discount the theory. The reporters making the claim admit they have no evidence.

Costs

As Darwin warned a century and a half ago, we are susceptible to presuming we understand the cause of natural events even when our ignorance is profound. Science journalism can be especially susceptible to this common pitfall by substituting a simple compelling story for the complex interplay of data-based science. Reporting the uncertainties of scientific information may not result in gripping journalism, but it is critical to enabling the public and policymakers to rely on the stories they read about climate change or the other environmental challenges we face.

If we exaggerate the risks of climate change, we may enact policies that do more harm than good. If we mistake agricultural problems for climate problems, we'll fail to address the real problem, wasting resources even as we continue to experience problems.

Science journalism can be compelling, but it must also remain true to the scientific process and scientific uncertainties. If journalists sacrifice accuracy for drama, we'll lose the power of the scientific process that makes it such a powerful force for progress.