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## LIFE IN SCIENCE

### The Cow Ate My Fieldwork

Life is easier today than when I studied stream temperature more than half a century ago. Unlike today, when scientists can collect data with automatic loggers, we had to be in the stream for every data point, night and day.

Back then, during winter nights, a fire and an improvised shelter made life more comfortable. An alarm clock rang when it was time to read the thermometer. During summertime, we set up shelters in haystacks. I have good memories of those nights: shooting stars, nocturnal birds, and moonlight. However, I eventually realized that I had to choose between good data and pleasant memories. So I went high-tech: a mercury thermograph. The device was clumsy and heavy, but it could paint a week's temperatures on paper on a rotating drum. I had decided to investigate a weak trend in my haystack data with the new equipment. Four weeks of extraordinary high summer had confirmed an increasing trend. Now, at the last and most critical station, the thermograph had painted the temperatures of another high-summer week. How exciting it was to remove the paper from the drum and discover the trend that I had suspected—data destined for future textbooks! Eager to duplicate the findings, I changed the paper on the drum, leaving the saved graph safe under the weight of a stone. Busy and excited, I was not aware that I had company. No, it was not a farmer's young daughter, but a farmer's young and very inquisitive calf. In a split second, he snatched my paper graph from under the stone with his long tongue and ran.

I pursued the fleeing beast, got a firm hold on its tail, lost my balance, and was drawn through water and dirt, only to watch the mischievous creature slowly and deliberately consume my data.

Needless to say, this was the end of the high summer. And of my venture into fluvial temperature regimes.

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#### EDITOR'S NOTE

This is an occasional feature highlighting some of the day-to-day humorous realities that face our readers. Can you top this? Submit your best stories at [www.submit2science.org](http://www.submit2science.org).



## The Permanence Debate

E. KINTISCH ("DEFORESTATION MOVES TO THE fore in Copenhagen," *News of the Week*, 11 December 2009, p. 1465) identifies a number of issues hindering an agreement on Reducing Emissions from Deforestation and Forest Degradation (REDD). However, he does not mention permanence, which has dogged the REDD discussions for some time (1). Many negotiators fear that reductions in loss of forest carbon stocks may be credited and rewarded now, but that the forest may later disappear (whether cut or affected by die-off due to climate changes). They contrast this scenario with that of fossil fuels, for which they argue that savings are permanent.

This argument is flawed. There is a finite quantity of fossil fuel underground. Clean technology slows the rate at which it is extracted and burned, but eventually it will all be converted to CO<sub>2</sub>. REDD will slow the rate at which carbon is emitted from forests in an analogous way. The conceptual muddle about permanence occurs when people confuse "stocks" with the "rate of change of stocks." Reduced emissions from deforestation and forest degradation are, like fossil fuel reductions, calculated on the basis of lowered annual losses compared to business as usual, not on the basis of stock remaining.

There is only one difference between stocks of fossil carbon and stocks of living carbon, in terms of permanence. Carbon lost due to deforestation or forest degradation in one place can be replaced by reforestation or enhancing carbon stocks in degraded forests elsewhere, whereas fossil fuels cannot be replaced at all.

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1. M. Dutschke, A. Angelsen, in *Moving Ahead with REDD: Issues, Options and Implications*, A. Angelsen, Ed. (CIFOR, Bogor, Indonesia, 2008), pp. 77–86.

## Letters to the Editor

Letters (~300 words) discuss material published in *Science* in the previous 3 months or issues of general interest. They can be submitted through the Web ([www.submit2science.org](http://www.submit2science.org)) or by regular mail (1200 New York Ave., NW, Washington, DC 20005, USA). Letters are not acknowledged upon receipt, nor are authors generally consulted before publication. Whether published in full or in part, letters are subject to editing for clarity and space.