

Fig. 1. Cosmos and Iris as lambs.

End of an Era

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<u>Cosmos and Iris</u> were cute lambs a decade ago (Fig. 1). But, a few weeks ago, Cosmos, the black sheep, was seriously dragging, apparently from arthritis, as we struggled to load him and his inseparable companion, Iris, into a truck. Cosmos and Iris were part of our life in Bucks County, Pennsylvania, when our grandchildren visited, with a sign reading "Oma's Place" on the front door of our stone house.

Bucks County is a great place to observe nature. The bat house we put high on our three-story, stone, bank-barn has a healthy population, likely the reason that we never have a mosquito problem. However, changes are noticeable. A decade ago, we celebrated when our milkweeds hosted Monarch butterfly¹ eggs; ravenous larvae devoured the leaves and became hard-to-find cocoons, eventually producing the next generation of butterflies to continue their migration to Mexico. But for the last several years, even though we have seen a monarch or two during the course of the summer, the milkweeds have been barren, eventually drying up. That's not the only change. The evening firefly display has diminished in intensity over the past 20 years. The number of colorful birds has also declined. In our early years here, two of our three bluebird houses were occupied by bluebirds, but, for the last two years, sparrows have occupied all three, even though I dutifully cleaned the houses twice a year and replaced one with a new bluebird house last year. Even Jeremiah, the frog's² survival required a little help. Of course, all of these observations are too local and limited for statistical significance.

<u>Global climate</u> is a different story. Remarkable new data has advanced and refined understanding of global climate sensitivity and the path that humanity is on with current climate policies.

We must do a better job of communicating the climate story, given current attempts to <u>kill the message</u>.³ Reality of climate change is becoming obvious to most people and there are a huge number of capable scientists supporting the Intergovernmental Panel on Climate Change (IPCC), which advises the United Nations. IPCC reports contain a great amount of useful information. The problem, as I see it and will describe in detail, is that the process of communicating the climate situation with the public is hindered by the combination of (1) an undue role of something described as "scientific reticence," and (2) a small clique of self-appointed spokesmen for the climate research community,⁴ whom the media has chosen to give voice to as if they had unquestioned, superior, expertise.



Fig. 2. A bit later: how do you like my derriere?

Here is one example: these scientists treat results of global climate model (GCM) simulations of the past two centuries (the good, the bad, and the ugly) as if the entire model fog is a probability distribution for the real world! Giants of climate research – Jule Charney and Francis Bretherton, for example – would be shocked by such an approach.⁵ The principal "merit" would seem to be lifelong employment in modeling and small likelihood that the real world will be outside of the fog.

Our research approach places comparable emphasis on (1) paleoclimate (Earth's history) analyses, (2) GCM study of recent climate change, and (3) analysis of observations of ongoing climate processes. This approach was the basis for my testimony to Congress in the 1980s, for our 2015 paper,⁶ and our recent papers on global warming in the pipeline,⁷ and global warming acceleration.⁸

We need to do a better job of describing this research piece-by-piece. Also, there are many unanswered questions, especially about the speed at which climate change and climate impacts will occur, which is likely to be affected by ongoing global warming acceleration. It's hard to do this from Bucks County, and it is frustrating to spend so much time trying to get across the George Washington Bridge. So we put our house on the market last week at a price we knew would sell and accepted the offer with earliest closing date (16 June), after which we will be living in a Columbia University apartment.



Fig. 3. Cosmos and Iris recently, with full winter coats and woodchips – they like to burrow into their sleeping place (Fig. 1).

<u>The only big problem</u> was: what to do with Cosmos and Iris, who have become, well, big – though still lovable (Fig. 3). Anniek put messages in the mailboxes of all our neighbors. No takers for the sheep, but great information, about The Last Chance Ranch, whose purpose is to provide a haven for just such animals in need. We visited the facility, which has the animals living with like and appropriate kinds, and we heard young employees providing expert, thoughtful, information to callers about animal care.

It was still difficult to load Cosmos and Iris on a truck for transport to the Ranch, but we knew that it was for their good. The ranch has a vet nearby. The need for the Ranch greatly exceeds its present size; they have purchased property for an expansion. We provided a donation, but they have a long way to go. Information is available <u>here</u>.

¹ J Hansen, <u>Quest of a Broken-Wing Butterfly</u>, 31 January 2014

² J Hansen, Jeremiah's Progeny: Our Dilemma, 13 August 2014

³ O Milman, Over Tom's Restaurant, The Guardian, 21 May 2025

⁴ J Hansen, P Kharecha, <u>Large Cloud Feedback Confirms High Climate Sensitivity</u>, 13 May 2025

⁵ J Hansen, Battlestar Galactica, <u>Chapter 31 in Sophie's Planet</u>. New York: Bloomsbury, 2026

 ⁶ J Hansen, M Sato, P Hearty et al., "<u>Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modeling, and modern observations that 2 C global warming is highly dangerous," *Atmos Chem Phys* 16, 3761-812, 2015.
 ⁷ JE Hansen, M Sato, L Simons et al., "<u>Global warming in the pipeline</u>," *Oxford Open Clim. Chan.* 3 (1), doi.org/10.1093/oxfclm/kgad008, 2023
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⁸ JE Hansen, P Kharecha, M Sato et al., <u>Global warming has accelerated: are the United Nations and the public well-informed?</u> *Environment: Science and Policy for Sustainable Development*, 67(1), 6–44, 2025, https://doi.org/10.1080/00139157.2025.2434494