

Requiem¹ for the Biosphere

John Cairns, Jr.

Department of Biological Sciences, Virginia Polytechnic Institute and State University,
Blacksburg, Virginia 24061, USA

Is it appropriate to mourn the destruction of a system that humans are a part of while time may still be left to protect its integrity? Leakey and Lewin (1995) state that a sixth extinction crisis

. . . means the annihilation of vast numbers of species. It is happening now, and we, the human race, are its cause . . . Every year, between 17,000 and 100,000 species vanish from our planet. For the sake of argument, let's assume the number is 50,000 a year. Whatever way you look at it, we're destroying the Earth at a rate comparable with the impact of a giant asteroid slamming into the planet.

Of course, biodiversity has been restored after each of the five major extinctions, but in evolutionary timeframes that are too long to benefit humans now alive. Previous extinctions did not eliminate all life, and some time was needed for species to fill the niches of those species driven to extinction.

Romm (2007, p. 60) discusses systems thinking:

Although the basic definition of a system is simple – “any set of interconnected elements” – many systems, such as our climate, are exceedingly complicated. . . . Systems are dominated by unexpected and nonintuitive behavior because they have feedbacks, thresholds, delays, and nonlinearities.

For *Homo sapiens*, the dominant system is the biosphere, of which *H. sapiens* is a part, although reluctant to admit it. The biosphere is humankind's life support system and is the source of the natural resources that are the basis for the human economic system. However, the biosphere is threatened (Cairns 2010).

Some threats to the biosphere are very complex, such as biodiversity loss. Others, such as atmospheric carbon dioxide, are fairly straightforward — for example, for all of the time the genus *Homo* has inhabited Earth (humans are the only surviving species), the assimilative capacity of the biosphere for atmospheric carbon dioxide was sufficient to prevent any significant increase. However, Romm (2007, p. 66) notes: “For the last few decades, nearly 60 percent of the carbon dioxide that we have been adding to the atmosphere has stayed there. Where did the rest go? The other 40 percent has been absorbed by several ‘sinks’ – the ocean, soils (including permafrost) and vegetation.” The sinks absorb the carbon dioxide and remove it from the atmosphere. However, sinks can become sources that release carbon dioxide into the atmosphere due to climate change, such as increased temperature. If humankind is not careful (i.e., continuing business as usual), the sources could cancel any anthropogenic carbon dioxide emissions reductions.

The natural laws of physics, chemistry, and biology are not “open for negotiation,” nor do they accept human target dates such as 2025 and 2050. The biosphere was maintaining a balance until anthropogenic carbon dioxide emissions resulted in an excess of carbon dioxide in Earth's atmosphere. The solution is quite simple – stay within the biosphere's assimilative capacity for carbon dioxide. Any decision maker who fails to understand and nurture this simple relationship might be well advised to seek another profession.

Humankind appears blind to both the threats to the biosphere and the life support services it provides for the human species. The over two-decade, well financed, disinformation campaigns, plus low environmental literacy and public dedication to business as usual, have led humankind into a deadly trap. Immediate action is needed before the trap closes.

The admiral overseeing the US federal response to the Gulf of Mexico oil disaster [2010] has stated: “This is a siege across the entire gulf. This spill is holding everybody hostage, not only economically but physically. It has to be attacked on all fronts” (Admiral Thad Allen, US Coast Guard). The situation in the Gulf is indeed heartbreaking, but the entire world is being held hostage to delay or disruption by inaction on the global crisis of climate change.

¹A song or hymn of mourning (wordnetwork/Princeton.edu)

“Consensus as strong as the one that has developed around this topic (global warming) is rare in science” (Kennedy 2001 as quoted in Romm 2010, p. 215). In addition, an examination of 1,000 peer-reviewed, scientific studies showed that the impression of confusion and disagreement among climate scientists is wrong (Boykoff and Boykoff 2004). Unfortunately, this impression still exists in 2010. Attempts are still being made to use law to intimidate scientists and stifle debate (Dickson 2010). The illusion of confusion and disagreement among climate scientists and attempts to curtail science are serious problems. The worst situation is the treatment of all disputes in science as a form of entertainment, which is kept alive by the delusion that equal numbers of scientists exist on each side of the debate and that no preponderance of evidence exists on one side. Until this delusion is eliminated, efforts to nurture the biosphere and avoid the mass deaths that will result from runaway climate change are hopeless.

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LITERATURE CITED

- Boykoff, M and J. M. Boykoff. 2004. Balance as bias: global warming and the US prestige press. *Global Environmental Change* 14:125-136.
- Cairns, J., Jr. 2010. Threats to the biosphere: eight interactive global crises. *Journal of Cosmology* 8:1906-1915.
- Dickson, D. 2010. Scientists must not be muzzled. Science and Development Network 4Jun
<http://www.scidev.net/en/editorials/scientists-must-not-be-muzzled.html>.
- R. Leakey and R. Lewin. 1995. *The Sixth Extinction*. Doubleday, New York.
- Romm, J. 2007. *Hell and High Water*. Harper Collins Publishers, New York.