

***The frog does not drink up the pond in which it lives*¹**

Lakota
American Indian Tribe

In contemporary ecological terms, *the frog does not drink up the pond in which it lives* means that one does not reduce the carrying capacity of one's habitat. Carrying capacity is the number of individuals a region or nation can support in terms of its resources. One important issue is how humankind determines the actual number of people a region or nation will support.

Earth's carrying capacity for humans is difficult to discuss, even though discussing carrying capacity for other species has no hindrances. Ranchers pay a price for cattle on the US Bureau of Land Management grazing land based on numbers of cattle. Carrying capacity for fish is a major management tool for lakes and reservoirs with multiple species. In short, humankind will discuss and act upon carrying capacity for other species but not discuss or act upon its own. However, inaction can be cruel. Paul and Anne Ehrlich (personal communication) are still continuously criticized for having stated in 1968: "The battle to feed all of humanity is lost." But they were right; in 1968, approximately 500 million people went hungry; at present, the number is 1,000 million — billions more are likely to be added to the population in the next 40 years if present trends continue (<http://math.berkeley.edu/~galen/popclk.html>; <http://www.peterrussell.com/Odds/WorldClock.php>).

What about the global food supply to feed these new people? "Global grain production will tumble by 63 million metric tons this year [2010], or 2 percent over all, mainly because of weather-related calamities like the Russian heat wave [2010] and the floods in Pakistan [2010] . . . Roughly 7 percent of global yields of corn and other coarse grains are being used to make ethanol" (Rudolf 2010). In the present circumstances, should humankind be using food to produce automotive fuel?

Humankind must improve its relationship with natural systems, which result from the dictates of the universal laws of biology, chemistry, and physics. Humans are a part of natural systems, not apart from them. Technology enables humans to "bend" the universal laws a bit, but does not permit breaking them. Scientists are not being arrogant when they describe the potentially catastrophic effects of increasing anthropogenic (human caused) greenhouse gas emissions. They are merely drawing conclusions from the preponderance of scientific evidence upon which the scientific process is based. If others feel the evidence is incorrect, they should have the responsibility of providing evidence to support their conclusions.

Creatures, such as the frog, do not use the scientific process — they just become extinct if they violate the universal laws. Most species that once lived on Earth are now extinct. Many extinctions occur when a climate change is abrupt or due to a large object from outer space striking Earth. Others become extinct when slow change does not favor them. Finally, some species become extinct when another species completes more effectively for resources — for example, seven species of the genus *Homo* were simply out competed; i.e., of the seven species, only *Homo sapiens* (humans) remains. Perhaps humankind is being too arrogant in thinking that it is not affected by universal natural laws.

Scientists reach conclusions based on verified evidence in peer-reviewed literature. However, the most important aspect is that the universal laws of biology, chemistry, and physics are operational 100% of the time. Humankind cannot alter these universal laws nor can it negotiate "better" terms. Neither frogs nor humans can violate these laws without suffering severe consequences that could include extinction. Humans have a huge advantage that the frog does not — they have scientists conducting research and making information available. The Philosophical Transactions of the UK's Royal Society (which at 345 years is the oldest continuously published scientific journal) recently published an article on emission scenarios for a new world:

The analysis suggests that despite high-level statements to the contrary, there is now little to no chance of maintaining the global mean surface temperature at or below 2°C. Moreover, the impacts associated with 2°C have been revised upwards, sufficiently so that 2°C now more appropriately represents the threshold between 'dangerous' and 'extremely dangerous' climate change (Anderson and Bows 2011).

Scientists find no joy in generating evidence regarded as "bad news," but they have a responsibility to report it when it appears.

¹I am indebted to Stefan Cairns for calling this quote to my attention.

The issue can be simply stated — both the pond in the Lakota American Indian proverb and Earth are finite. The universal laws of biology, chemistry, and physics must be obeyed in both the pond and on Earth. Neither frogs nor humans can violate these laws without suffering severe penalties.

Acknowledgement. I am indebted to Darla Donald for transcribing the handwritten draft and for editorial assistance in preparation for publication.

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