

Ecological Overshoot is Suicidal*

John Cairns, Jr.
Department of Biological Sciences, Virginia Polytechnic Institute and State University,
Blacksburg, Virginia 24061, USA

*This posting is a simultaneous submission for "Climate Change and You: Putting a Face on Global Warming," EcoRes Forum Online E-Conference #3, October 19-29, 2009. Further information available at www.eco-res.org.

Tuesday, October 10, 2006, was ecological deficit day – the day humankind began living beyond its means (i.e., ecological overshoot) and creating a deficit for that year. Humanity's first ecological deficit day was December 19, 1987 (www.footprintnetwork.org/gfn_sub.php?). In 2008, the day was September 22. In 2009, ecological deficit day will occur sometime in September (www.footprintnetwork.org). The trend is shocking, but it is almost unknown to the general public and its political representatives. Each year since 1987, humankind has used more resources than the biosphere can regenerate (ecological overshoot).

A good metaphor for the concept of ecological overshoot is a bank account – living off the interest means not using any of the capital. However, living beyond one's means results in using some of the capital to do so. Each year that some of the capital is used will diminish the capital and reduce the interest. The part of the biosphere that generates "interest" (i.e., ecosystem services) is termed *natural capital*, and if it is used, then ecosystem services (i.e., production of resources, maintaining the atmospheric gas balance) are reduced.

At the same time that ecological overshoot is occurring, Earth is adding 215,000 new consumers daily (births minus deaths). If humankind cannot keep its population within Earth's carrying capacity, Mother Nature (natural law) will do so with her usual methods of starvation, disease, and death.

At present, humankind is far from achieving sustainable use of the planet and moving further from that goal daily. Since global climate change has an adverse effect on agricultural production, one immediate remedial step is for both individuals and nations to reduce emissions of anthropogenic greenhouse gas. Individuals can reduce their carbon footprints and eliminate rampant consumerism, which is an important factor in ecological overshoot.

Barnosky (2009, p. 22) notes that the average species of mammal has a life span (as a species) of between 1.7 and 2.5 million years. *Homo sapiens* has inhabited Earth for only 160,000-200,000 years. Humans need to "shape up" if they intend to match or beat the average mammal.

LITERATURE CITED

Barnosky, A. D. 2009. *Heatstroke: Nature in an Age of Global Warming*. Island Press, Washington, DC.