

What Are Black Swans Made Of?

As a metaphor, *black swans are rare events that are difficult to predict and influence populations and systems*. They are, however, often related to changes in ecological systems or weather events that impact human populations negatively. ***If black swans are difficult to predict, then what are some of the base conditions or circumstances that can lead to their occurrence?*** Perhaps identifying these conditions will help human populations work to reducing the likelihood of black swans occurring.

During his *Hot Science – Cool Talks* outreach lecture on the University of Texas Campus, Dr. David Orr presented the audience several descriptions of human attitudes (see slide below) that he proposed created conditions that made black swans more likely to occur. Each is briefly discussed:

- 1. Laws of economics 234 years old can be made to work with those of evolution ~3.8 billion years in the making.** Dr. Orr's primary statement, and the supporting statement following it (see 2) suggest that existing human systems to obtain resources and wealth are incompatible with how the Earth produces and recycles resources that its inhabitants rely upon
- 2. Infinite growth can occur in a finite system.** This supporting statement for number 1) above reflects the fact that human populations often exceed the capacity of their natural surroundings to support them by not recognizing their limits.
- 3. Nature's capital [soils, biological diversity, climate stability, clean air and water] has no value.** Although some may argue that this attitude is beginning to change in certain human populations, the sheer scale of destruction and depletion of our natural systems indicates that we have, in the best case scenario, grossly underestimated the value of natural resources.
- 4. Technology can substitute for ecological scarcity.** President George W. Bush and President Barack Obama have often touted technology as a way to solve our natural resources crises. Dr. Orr's point here is that technology cannot adequately replace the complex functions of some naturally occurring resources, on the basis that *we still have a limited understanding of how our natural resources act and interact as part of a larger system*.
- 5. More stuff = more happiness.** Dr. Orr suggests that humans in most geographical areas mis-identify happiness by evaluating it by what they own as personal and collective property. Several new approaches to natural resources management encourage people to identify what the "qualities of life" they seek first, and then determine the resources necessary to obtain them. This distinction is important as compared to identifying objects or resources as end-goals for happiness.

1. that laws of economics 234 years old can be made to work with those of evolution ~3.8 billion years in the making;
2. i.e. that infinite growth can continue in a finite system;
3. that nature's capital [soils, biological diversity, climate stability, clean air and water etc] has no value;
4. technology can substitute for ecological scarcity
5. that more stuff = more happiness

Source

- “Black Swans & the U.S. Future: Building Sustainable & Resilient Societies” by Dr. David W. Orr, Professor of Environmental Studies and Politics, Oberlin College. *Hot Science – Cool Talks*, Friday, September 14, 2012. The University of Texas at Austin.
 - Webpage Containing Presentation, and Lecture Webcast: <http://www.esi.utexas.edu/k-12-a-the-community/hot-science-cool-talks/black-swans-a-the-us-future-creating-sustainable-a-resilient-societies>