

The Anthropocene: Where on Earth are we going?

The advent of the Anthropocene, the proposed new geological epoch in Earth history, serves as a stark reminder that humanity's destructive assault on the rest of the living world has now reached the global level. Geological time intervals are often marked by changes to the biosphere – the appearance of new organisms through evolutionary processes or the sudden disappearance of whole families of organisms through shocks to the Earth system (such as a meteorite strike or a massive volcanic eruption). But for the first time in Earth history, a biological species itself – *Homo sapiens* – is knowingly driving a multitude of other species towards extinction and drastically reducing the numbers and range of many other species.

There is now little doubt that the Earth is headed for its sixth great extinction event. Current rates of extinction are now at least tens or hundreds of times greater than background rates (Ceballos *et al.*, 2015). Human domination of the terrestrial biosphere is particularly striking. The mass of humans – the sum of the body weights of all 7.5 billion people on Earth – now comprises 32% of the total mass of all vertebrates (mammals, reptiles, birds and amphibians) on land. Our domesticated animals, such as cattle, pigs and sheep, comprise another 65%. That is, humans and our domesticates comprise 97% of the mass of all terrestrial vertebrates – leaving only 3% for all of the Earth's wild terrestrial vertebrates (Smil, 2011).

Humanity's rapid erosion of the biosphere's integrity also has implications for the functioning of the planet as a whole. The biosphere plays an important role in the climate system by regulating the amount of carbon dioxide in the atmosphere; about

half of human emissions of carbon dioxide are absorbed by the land and the ocean, much of it by biosphere processes. But that is being eroded: proportionally less carbon dioxide is being absorbed by a biosphere that is increasingly stressed by direct human pressures. The integrity of critical biomes, such as the Amazon rainforest and vast boreal (northern) forests, is being eroded by direct human actions such as land clearing and industrial forestry, making them more vulnerable to massive disturbances such as wildfires and insect attacks.

The problem runs far deeper than just putting a dollar value on so-called 'ecosystem services'. The core problem is that contemporary human societies have lost their connection to the rest of the living planet and are becoming increasingly alienated from it. Nature is no longer valued and respected as our planetary life support system, and in its own right as a realm of beauty and solace, but rather viewed simply as a 'resource' to be costed, exploited, wasted and then abandoned as investment dollars move elsewhere. Put simply, contemporary human civilization has lost its moral guidance system with respect to the biosphere, something that indigenous cultures are often reminding us – as well as providing us with valuable wisdom about the proper relationship between humans and the rest of the living world.

Contemporary science, which some argue is part of the problem, is, finally, starting to move beyond the simple cause–effect logic of the Newtonian world and beginning to embrace a 'systems view of life'. In fact, a recent book by that name (Capra and Luisi, 2014) clearly shows how our physiology, and indeed our consciousness, have evolved as part of life itself, and continually

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interact with it. We are embedded in the biosphere, a critical relationship that is increasingly being broken by the high-paced, technology-driven, competitive, exploitative culture that we have created and is rapidly expanding around the world via globalization. Recent research shows that our health and our cognitive functioning both suffer from breaking this evolutionary bond with the rest of life.

How to deal with this? Clearly it is in our self-interest – our health and well-being both individually and as a society – to reconnect with the biosphere. But more fundamentally, as creatures that are now driving the future trajectory

of the only living planet that we know of, our relationship with the biosphere is a deeply ethical and moral issue. As indigenous cultures already know, we need to show respect for the rest of life and act responsibly to the Earth. ■

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