

Economics: the overlooked discipline in Earth Stewardship

Effective stewardship of the planet requires input from multiple disciplines, as demonstrated at the recent Ecological Society of America (ESA) meeting in Austin, Texas. However, one field pivotal to Earth Stewardship seems to have been mostly left out of ESA's disciplinary buffet. We speak of economics, the so-called "dismal science", which lies at, or very near, the root of every man-made environmental problem. Deforestation and forest fragmentation, for example, often result from poverty-stricken people harvesting charcoal fuel to help feed their families. Climate change is exacerbated because people generally choose fossil fuels over more costly alternatives.

At the core of economics is the principle that financial incentives play a major role in motivating human consumption. Do you want less oil to be consumed? Then raise the price of oil. Recent price spikes motivated people from all walks of life to reduce their carbon footprint voluntarily by driving less, flying less, shipping less, and so on. Simultaneously, people began to use public transportation more often and to buy hybrid cars, while investors poured money into alternative energy projects.

These environmentally beneficial changes in behavior were driven not by improved consumer education, strict government policy, or heightened environmental sensitivity, but rather by pure economic self-interest. Non-economic solutions to environmental problems too often have limited power, or else they result in a system in which the environment has to compete against business. Economists have been justly criticized for failing to appreciate the full environmental costs of economic growth, and for treating such costs as externalities. These criticisms, however, are no reason for ecologists to discount economics; after all, the average person on the street pays much more attention to economics than to the environment, especially in the developing world and especially during tough economic times.

From our experience, many economists are willing to consider the environment far more than ecologists give them credit for. An authentic collaboration between these two disciplines may represent society's best hope for achieving a continuously high standard of living without sacrificing the planet. Indeed, the seeds of collaboration have already sprouted (eg The Natural Capital Project – www.naturalcapitalproject.org). We now highlight three specific research objectives that deserve greater collaborative attention.

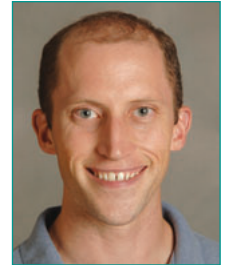
First, ecologists should involve economists whenever policy recommendations are proposed. For example, economists should have had a more prominent seat at the table in the 1980s, when the decision was made to ban the international ivory trade. Although based on solid elephant population ecology, the ban predictably increased financial incentives for poaching, which reduced some elephant populations even further. Failure to consider economics too often brings unintended secondary effects.

Second, the complicated relationship between gross domestic product (GDP) and environmental impact needs greater clarification. Every dollar spent is counted equally by economists, but the environmental impacts of those dollars can differ drastically. Greater integration of economic and environmental indicators would allow us to account simultaneously for economic development and environmental change.

Third, and most important, collaborators should investigate how to internalize environmental costs and benefits. Several internalization mechanisms already exist, such as cap-and-trade markets and the granting of property rights. Economists should feel motivated to collaborate, because the existence of economic externalities is a recipe for market failure – especially when externalities are large. Although environmental externalities are difficult to quantify, we know the aggregate effects of production on the environment are enormous. A collaborative study led by the economist Robert Costanza (*Nature* 1997; 387: 253–60) concluded that the global value of ecosystem services is at least comparable in magnitude to the entire global GDP.

Imagine an economic system structured so that decisions made by purely self-interested individuals result in environmentally beneficial outcomes. Imagine a system that rewards businesses seeking to achieve more than simple compliance with environmental regulation. Such a system is possible if prices accurately reflect the magnitude of environmental costs and benefits. In such a system, innovation that improves environmental performance would mean more than just good public relations; it would improve a company's bottom line. Everyone would win.

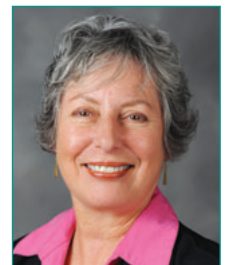
Is this overly idealistic? Perhaps. Assessing and internalizing environmental costs is logistically complicated, and many businesses, political leaders, and individuals would certainly resist such changes to market prices. By not internalizing environmental costs and benefits, however, an economic system – one that continues to reward exploiters and punish effective stewards of the environment – is preserved. The time is therefore ripe for ecologists to recruit economists and business leaders in the Earth Stewardship movement. Only then can our society adequately address the thorny roots of man-made environmental problems now and in the future.



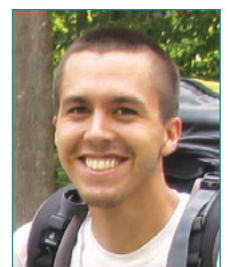
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