The brownlash rides again

The Skeptical Environmentalist: Measuring the Real State of the World
by Bjørn Lomborg.
Cambridge University Press, 2001.
£47.50 hbk, £17.50 pbk (xxiv + 505 pages)
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The Skeptical Environmentalist (*TSE*) is basically

a rehash of the old 'brownlash' literature, which was authored by Julian Simon, Charles Mann, Gregg Easterbrook and others [1]. Indeed, Lomborg, a statistician, is inspired by Simon. Who isn't? Simon asserted that the human population could grow for another seven billion years! If Lomborg had done some arithmetic, he could have evaluated Simon's science and spared us a book as thick as a brick and almost as intelligent.

TSE is packed with nonsense, old and new.

- *Extinctions don't follow deforestation, because the eastern USA once had only 1–2% forest cover and yet lost only one forest bird.* This is typical of Lomborg's 'facts' on extinction; forest cover only fell to ~50% in the 1870s and 15% of the species endemic to the region became extinct as a consequence. None of the key papers on the subject by Stuart Pimm and his colleagues [2] are cited.
- *Global warming climate models are undependable but economic models are sound.* This is why economists forecast market trends so accurately.
- *We have unprecedented prosperity because the proportion of 'starving' people has dropped.* That will be great consolation to the world's poverty-stricken. There are more of them now than there were people living in 1930.

The book is full of distortions, and demolitions of straw men, often 'documented' by repeated references to dubious secondary sources. Ed Wilson and I are 'enthusiastic supporters of an ambitious plan, the Wildlands Project, to move the entire population of the US so as to re-create a natural wilderness in most of the North American continent'. We do not support such a 'plan;' it does not exist. By failing to go to the original source, Lomborg misrepresents an estimate that Anne Ehrlich and I discussed (along with a complete statement of assumptions) of possible losses of rainforest biodiversity as a loss of total diversity [3]; a partial quote allows him to utterly distort our point that habitat destruction is a good indicator of extinctions [1]. On climate change, he supplies selective quotes from a tiny fraction of the literature that he likes and there is no balanced discussion of the wide range of available studies.

TSE can also be judged by what it omits (e.g. ecosystem services). Lomborg apparently has not seen Gretchen Daily's *Nature's Services* [4], one of the most cited environmental volumes of the 1990s. *TSE* contains nothing on the negative impacts of climate change on biodiversity (but lots on CO_2 fertilization of crops), or on the deterioration of freshwater ecosystems. There is no discussion of the degradation of coral reef habitats in the last 20 years, degradation that is a graphic example of a major anthropogenic transformation of a marine ecosystem that is sweeping large parts of the world.

Cambridge University Press (CUP) obviously undertook no serious scientific review of the *TSE* manuscript and printed a decomposers' dream that it claims explodes 'the widely propogated (*sic*) myth that the state of the environment continues to spiral downwards beyond our control'. CUP should be ashamed of abandoning academic standards and should be worried about whether competent scientists will now publish with them. It is supporting powerful economic interests that are anxious to convince us that business as usual is not wrecking human life-support systems. *TSE* might help to boost their short-term profits – and make the 'myth' reality.

In response, environmental scientists must redouble efforts to inform the public about crucial issues, such as the decay of ecosystem services, and of the epidemiological environment and expansion of key drivers, such as population size and overconsumption. Debate should not be suppressed – I have learned much from it and have tried to correct errors. Yes, environmental scientists make mistakes, and Lomborg reports some of them. But useful debate occurs only among those who have demonstrated that they understand the situations about which they are writing.

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References

1 Ehrlich, P.R. and Ehrlich, A.H. (1996) *Betrayal of Science and Reason: How Anti-environmental Rhetoric Threatens Our Future*, Island Press
2 Pimm, S.L. and Askins, R.A. (1995) Forest losses predict bird extinctions in eastern North America. *Proc. Natl. Acad. Sci. U. S. A.* 92, 9343–9347
3 Ehrlich, P.R. and Ehrlich, A.H. (1981) *Extinction: The Causes and Consequences of the Disappearance of Species*, Random House
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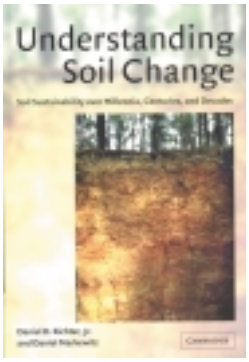
The true dirt on soils

Understanding Soil Change: Soil Sustainability over Millennia, Centuries, and Decades
by D.D. Richter and D. Markewitz.
Cambridge University Press, 2001. £47.50 hbk (xiv + 255 pages) ISBN 0 521 77171 4

To understand terrestrial ecosystem processes requires a thorough understanding



of soils. Many terrestrial processes, such as plant productivity, are generated by biota–climate–soil interactions and are not an expression of the biota, *per se*. The significance of this fact is large when one attempts to espouse generalities about the role of plant species diversity in productivity and ecosystem stability at both the landscape and regional levels. Now, with the daunting task of predicting ecosystem responses to the multifaceted components of global change, information about the potential constraints and feedbacks imposed by soils impacted by past human management activities is absolutely essential. Most ecologists simply cannot be informed participants in environmental change dialogs without this information.

I confess to being one of the majority of ecologists without formal training in soil science. But, like so many other ecologists, I realized that many biotic processes that I wish to comprehend both affect and are affected by soil physical and chemical properties. *Understanding Soil Change* joins a very small club [1] that attempts to educate us about the extent to which soils can constrain or amplify biotic responses in global change scenarios.

The book is a valued reference to environmental biologists for three reasons. First, the work provides an excellent overview of the challenge of soil sustainability given current and future food and fiber expectations. Second, the authors provide a focused perspective on the importance of time scales and land-use legacies in understanding the specific attributes of soil types found in many warm-temperate and subtropical regions of the world. Finally, and of particular interest, the authors detail the extent to which land use management (i.e. plant community composition) can modify soil characteristics. Comparisons among deciduous and coniferous forests and managed grasslands illustrate large and not always intuitively obvious changes among the soil characteristics of these ecosystems. An excellent 30+ year analysis of soil change under a replanted pine ecosystem is provided that demonstrates the ability of an aggrading forest to sequester and modify nutrient resources from a soil that was previously impacted by intensive agriculture.

Questions involving the causes and consequences of nutrient (especially nitrogen and phosphorus) limitations on ecosystem structure and function remain a major thrust of ecological inquiries in spite of decades of research on these topics. Of particular interest is the notion that enhanced nitrogen availability owing to human activities will result in phosphorus becoming a more common limiting element in temperate-zone ecosystems. Thus, knowledge of how soils contribute to phosphorus bioavailability is crucial. Advancing the science requires that we understand the extent to which soils can function as sources and sinks for these elements, and the extent to which changing plant species composition can similarly impact nitrogen and phosphorus availability. This text does not provide ecologists with everything that we need to know about these elements or these interactions, but it does provide a reference that allows us to ask the right questions. Many ecologists will find this book useful for both their teaching and their research efforts.

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Reference

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Conserving fungi

Fungal Conservation: Issues and Solutions
edited by D. Moore, M.M. Nauta, S.E. Evans and M. Rotheroe.
Cambridge University Press, 2001.
£65.00 hbk (x + 262 pages). ISBN 0 521 80363 2

The past decade has seen fungi become part of the conservation agenda. There has been a concomitant series of books on the biodiversity [1–3] and inventorying of fungi [4], but this edited volume is the first to tackle fungal conservation *per se*. How to conserve organisms, many of which are undescribed, are visible only for a few weeks in some years, and have few specialists able to record them, clearly presents problems.

This book has its origins in a 1999 British Mycological Society symposium, supplemented by papers from the 13th Congress of European Mycologists, also held in 1999, and six commissioned chapters. The scene is set by the editors, who quote Staley [5] as to the importance of microbial groups. The key to 'selling' fungi in the conservation arena is, however, their importance to the conservation of macroorganisms and the maintenance of ecological processes – and so the protection of ecosystems. However, these issues are poorly developed in this book, perhaps because the target audience is not conservationists in general, but mycologists wrestling with a Herculean task.

The backdrop to organized fungal conservation comprises bodies such as the fungal group within the IUCN Species Survival Commission and the European Council for the Conservation of Fungi; both have potential yet to be realized, but are undersourced. The mismatch between species numbers and the deployment of funds for conservation arguably reaches its zenith in fungal groups. Some progress has, nevertheless, been made and case studies of action at a variety of levels and scales are presented: for example, in the Pacific Northwest, Europe in general, The Netherlands, the Madonie Park in Sicily, Ukraine, Cuba, Kenya, Royal Society for the Protection of Birds reserves, and the UK's Biodiversity Action Plan.

The value of fungi as indicators of old growth forests and undisturbed grasslands is only now starting to be appreciated. In both cases, more work is needed to enable them to parallel the value of lichens as bioindicators of ecological continuity. Threats to hypogeous and aphyllophoraceous fungi are assessed, as are the effects of dune grassland management in The Netherlands, but no global indication of trends is attempted – perhaps wisely given our present state of ignorance.

The collection of fungi from the wild for food, especially on a commercial scale, is of considerable concern. Such harvesting can be crucial to the finances of local people, and the importance of wild harvests for rural economies in the Pacific Northwest is documented. The role of the Scottish Mushroom Forum in bringing commercial collectors together is explained, and the development of the British Mycological Society's approach to conservation is traced through to the launch of the *Code of Conduct* [6], which occasioned controversy and featured in the national press. A report on shii-take mushrooms in China reminds us that diversity can also be threatened by mushroom cultivation practices.

A final chapter records the responses of a range of mycologists to the question: 'Are you optimistic or pessimistic about fungal conservation in the 21st century?' The replies were mixed, but a sense of optimism prevails. But should it? Although gratified by the heightened awareness that fungi have achieved in the conservation and biodiversity arenas in the past decade, and not decrying what has been achieved in some countries, I remain pessimistic about the global situation. Plants become endangered and lost without a thought for getting the often yet undescribed fungi