

Lomborg writes that it will be cheaper for “the world” to adapt to climate change rather than reduce emissions (P. 318). Adaptation will include shifting populations from low-lying islands. Perhaps as part of his next world tour Lomborg could visit Tuvalu and the Maldives and inform the citizens of those sinking lands that, instead of cutting their greenhouse gas emissions, it is cheaper for the rich countries to shift them away from their ancestral homes to somewhere else on the planet. Perhaps Lomborg could visit Pakistan or the Sahel and tell the citizens that, although their crop yields are expected to decline by 30%, the rich countries would find it cheaper to “compensate” them rather than reduce their consumption of fossil fuels.

In Lomborg’s moral universe, on the basis of a cost-benefit analysis humanity can decide how much to adjust the global thermostat and transform the climate system of the Earth. To imagine that the Earth exists to satisfy human desire and that humanity can calculate how best to regulate natural systems of unimaginable complexity is not just an expression of breath-taking hubris, but reflects a contempt for the natural world and the place of humans in it. These are precisely the attitudes that environmentalism exists to oppose.

REFERENCES

- 1 *Nature*, Vol. 414, 8 November 2001, Pp. 149–50.
- 2 See the website of the Union of Concerned Scientists, <http://www.ucsusa.org/environment/lomborg.html>.
- 3 Available on the World Resources Institute’s website, http://www.wri.org/wri/press/mk_lomborg.html.
- 4 Lomborg himself is guilty of gross overstatement of the end-of-the-world variety. For example: “this would require a complete cessation of all carbon emissions by 2035, essentially shutting down the world as we know it” (P. 309), and “it is likely that much of the carbon-intensive production will merely move to the developing countries” (P. 304), an absurd exaggeration that not even the economic models support.
- 5 A claim he made in a debate on Australia’s ABC Radio National on 13th October 2001.
- 6 For a clear and balanced discussion of the issues, see OECD, *Environmentally Related Taxes in OECD Countries: Issues and Strategies* (OECD 2001).
- 7 John Weyant, “An Introduction to the Economics of Climate Change Policy”, Prepared for the Pew Center on Global Climate Change, July 2000, P. iv.
- 8 Lomborg claims that “several analyses suggest that the acclaimed tremendous reduction potentials are mirages” (P. 311), but does not cite any references.
- 9 For Australia, see G. Wilkenfeld, Energy Efficiency Programs in the Residential Sector. In W. J. Bouma, G. I. Pearman and M. Manning (eds) *Greenhouse: Coping With Climate Change*, CSIRO Publishing, Melbourne, 1996.
- 10 See Note 5 above.
- 11 There are many such studies. See, for example, Clive Hamilton and Hal Turtton, “Determinants of Emissions Growth in OECD Countries”, *Energy Policy*, January 2002.
- 12 Lomborg actually refers to two sources that contradict his thesis in a footnote (number 1280) but dismisses them, preferring to rely on two studies that are 8–10 years out of date. For recent, balanced views see, for example, T. Cavlovic *et al.*, “A meta-analysis of environmental Kuznets curve studies”, *Agricultural and Resource Economics Review*, Vol. 29 (2000), Pp. 32–42, T. Panayotou, “Demystifying the environmental Kuznets curve: turning a black box into a policy tool”, *Environmental and Development Economics*, Vol. 2 (1997), Pp. 465–84, and C. Tisdell, “Globalisation and sustainability: environmental Kuznets curve and the WTO”, *Ecological Economics*, Vol. 39 (2001) Pp. 185–96.

Introduction to Conservation Genetics

Frankham, R., Briscoe, D. A. and Ballou, J. 2002
 — ISBN Pending Cambridge University Press.
 600+pp with lots of Figures and Tables.
 RRP will be ~Aud\$100.00 paperback Aud\$250.00
 hardback.

LEONG LIM¹

WITH regards to threatened species, section 5A (a) reads:

“Whether . . . a viable local population of the species is likely to be placed at risk of extinction.”

This is part of a new section, popularly known as the “8-part test” that was inserted into the *Environmental Planning and Assessment Act 1979* (NSW) by the assent of the *Threatened Species Conservation Act 1995* (NSW).

What is a “viable local population”? In an age when the law has almost inevitably lagged behind the science this might be the lone case that is the exception — the science of Conservation Genetics.

At last, a stand-alone text on Conservation Genetics! Up till now we have had to contend with snippets of genetics in Conservation Biology textbooks or examples of conservation genetics in General Genetics textbooks — not any more.

But before I proceed with the review of this very important book, I must declare my conflict of interest in reviewing it. The senior author is Dr Richard Frankham, the Professor of Biology with Dr David Briscoe, an Associate Professor at Macquarie University. This is where I undertook my post-graduate training in ecology and it is where I am

¹Countrywide Ecological Service, P.O. Box 188, Cremorne, New South Wales, Australia 2090.

currently still an honorary research associate. Dr Jon Ballou is from the National Zoo which is part of the Smithsonian Institute in Washington, DC. He is also an Adjunct Professor at the University of Maryland. I initially came across Jon as the studbook keeper for the endangered Golden Lion Tamarin *Leontopithecus rosalia* (Primates: Family Cebidae), when I was focusing my attention on managing small captive populations at Sydney's Taronga Park and the Western Plains Zoo for the Zoological Parks Board of New South Wales. My aforementioned bias aside, I can confidently say that these authors come well versed in all aspects of their subject. This is the indisputable strength of the book.

From the onset the authors make it clear that this text is aimed at a wide readership, including ecological consultants and also government scientists who have to routinely opine on the viability of populations. Conservation genetics, they argue, is indeed a relatively young discipline. In my opinion, they have succeeded admirably in presenting the complex, rich and diverse material to the reader. They have achieved this by the use of effective and excellent graphics and with creative formatting. It is refreshing that this book is not about charismatic megafauna. It is evenhanded in the examples it uses, whether they are plants, vertebrates or invertebrates. They have deliberately sought them out for their relevance and appropriateness and they make no distinction on which continent and in which hemisphere they occur. I found the regular precis of the content in the margin of the text to assist the reader to stay in focus with the substantive matters of each subject enormously helpful.

The book has 20 Chapters and some 600 pages organized in three Sections. The first two preamble chapters put into context what is conservation genetics, its increasing role in species status evaluation, for example, in the IUCN and its importance in biodiversity conservation, in particular its role in providing us with an understanding of the processes of inbreeding and extinction. They guide the reader away early from the distraction of some misconceptions and apparent inconsistencies in the general theory, for example, species that have evolved on islands and endangered species which are naturally rare. These are put into their proper context so that the reader can focus on the real genetic issues confronting threatened species and populations.

In Section I, the following eight Chapters are a revision (to some, a crash course) in quantitative genetics — that is, what you need to know before you can discuss conservation genetics, extinction, inbreeding and management of small population size sensibly.

Section II, goes into details of the various genetic consequences of small populations, inbreeding and the effects of population size reduction and detecting the manifestation of these consequences. Chapter 14 specifically deals with the fallacy of small surviving populations and what are genetically viable populations.

In Section III, putting theory into practice, the authors bring to the book their awesome collective experience: from Dr Frankham, his years of quantitative genetics research; from Dr Briscoe, his taxonomic research on a wide range of taxa; and in Dr Ballou his long-term experience with managing endangered populations. The last section of the final chapter also includes the application of PVA and an ominous message on the adequacy of our reserve system as part of a closing chapter.

The precursor of this book has been used for the teaching of the senior Conservation Genetics Course at Macquarie University for some years. It has thus been "field tested" for relevance, accuracy and clarity. There are a series of self-test questions and problems at the end of each chapter and the answers are provided at the back of the book.

In addition, it contains an up-to-date reference list, a comprehensive index and a useful glossary of terms.

Other than students of conservation genetics, this book is very highly recommended reading for all wildlife managers and researchers and in particular, ecological consultants and government scientists who have to take into consideration aspects of conservation genetics in their daily advice or assessment work.

At a recent meeting with a wildlife authority, I asked whether there was an introgression problem in the park population of a particular species. There was a blank look from the senior graduate administrator as well as from all the scientists in his delegation. It horrified me to realize that they had not considered this critical issue and had no idea at all what I was referring to.

It would be reasonable to conclude from the above that this important book should be compulsory reading for some. It might be appropriate to rename the book: "What you really need to know about Conservation Genetics but were too afraid to ask"!

I found reading the book quite demanding because of its scope and depth but it is well edited and written so it is delightfully easy to read. I will be buying this book to sit beside my copy of Falconer, D. S. and Mackay, T. (1996) *Introduction to Quantitative Genetics* classic text published by Longmans, London — now in its 4th Edition with a new co-author.
