Ecology and Applied Environmental Science
Kimon Hadjibiros, CRC Press (Taylor & Francis), Boca Raton, (2013), 270 pp., hardbound, 79.95 USD, ISBN 978-1-4665-7009-2

I specifically asked to review this book because the title, including the words "ecology" and "environmental science" was intriguing. I assumed noise was part of the latter and, if so, I wondered how big a part did it play.

Reading this book shows that noise is probably a minor component of the science. The noise section consists of slightly more than two pages. And probably noise deserves that place, given the severity and distribution of the other environmental stressors. Perhaps my concept of importance of noise in the environment is distorted by my practice of noise control engineering. Given that, still the author could have done more regarding noise.

First I'll discuss the whole book and present its value to readers and end with a discussion of the chapter on noise and then present my conclusions.

The book is in three parts: Ecological Systems (50pp), Fundamentals of Environmental Problems (103pp), and Management of Environmental Problems (45pp).

The first part is quite esoteric: ecology is more than "nature and the environment," rather, it also consists of aspects of mathematics and physics. It points out that the accelerating perturbation and disturbance of the natural environment by population and by technology has negative effects on the planet. That technological solutions have limits (I believe) suggests the study of ecology is even more compelling. In this part of the book a "system" means a collection of components with limits and most parts of the system must interact. And the interaction yields to modeling and concepts of stability. The math presented is conceptual, not rigorous, but gives a flavor for detailed study. Included in this part are discussions of organisms, how they store and release energy, and their interaction with physical and chemical effects (weather, temperature, etc). Figures are used to help explain concepts. From the organism comes groups of organisms which are human and animal populations, and their dynamics includes growth and interactions among different populations, evolution, and conflict. Again, math is included but only to illustrate concepts. An important subchapter is the discussion of the human population and its modification (and destruction) of so much of the earth's environment. Discussions of the energy flow among solar radiation (the main source of energy). weather, photosynthesis, food chains, etc., complete the last chapter of the first part.

The second part deals with environments and pollutions. It is a set of very readable sections, in the first chapter, the author discusses what the natural landscape means. And here this includes land (forests, grasslands, tundra, etc.) along with its vegetation, and water, including oceans, estuaries, lakes, and costal zones. Included are the creatures living in these environments. Treatment of the urban environment discusses cities and human and natural environments in the cities. This discussion includes city related pollution including solid waste, indoor pollution, and yes, noise (to be discussed later). A figure illustrates the relationships among the waste stream, farm production, and industrial production to city inhabitants (humans and nonhumans). The remaining sections of this part deal with toxic pollution including pesticides (listen up, Monsanto), water and air pollution.

The third part deals with the management and mitigation of the problems. This includes pollution control for air and solid waste only and tools for analysis and management. In the discussion of environmental impact statement, noise isn't mentioned. The remaining chapters deal with biodiversity sustainable development, and, what I found most interesting, a good discussion on the conflict between environment and development.

A bibliography, appendix, and index is at the end of the book. The appendix is very interesting: it deals with a very condensed treatment of stability analysis. Equations, few and not sufficiently detailed to use, are meant to explain stability. I didn't find them useful. But included are numerous figures help explain different forms of stability. This appendix is interesting but not especially useful.

And now to the treatment of noise and my conclusions. As mentioned earlier the treatment of noise is in the second part, in the section of "Environment in the City." While, when discussing city related noise, discussion includes mention of vehicles, rail, among others, the author forgets about noise from wind farms, refineries, snowmobiles, etc., found in rural or suburban areas. In the 2-1/8 page treatment, there is a claim for a 65 dBA "acceptable" limit. Not much significant can be said in such a short treatment, but it is useful, perhaps, for readers not at all familiar with noise and its detrimental effects. But the treatment's brevity will not help readers do anything to improve that part of environmental pollution.

So what? Is this a book for readers of Noise Control Engineering Journal? I say "yes" because it really expands knowledge about what, for most of us (at least for me) is just a discipline that we thought we understood. It is a handy book for us to learn the composition of the real environmental impact. That there is so much more than noise (my "specialty") is sobering. That, compared to the other, very serious, pollution in our environment, at least, noise goes away if the source is turned off. With noise, when abated, there is no residue

to hurt future generations of sentient creatures and vegetation. Overall, Hadjibiros, produced an interesting and for the most part, very readable book. Recommended.

Richard J. Peppin
Engineers for Change, Inc.
PeppinR@asme.org