

New Titles

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studies dominating), and atmospheric researchers relied on methods for quantifying the fluxes out of the atmosphere. Recent developments lead me to conclude that the dry deposition amounts used in some of the budget calculations included in this environmental history are substantially underestimated.

Current understanding tends to support the initial, pre-NAPAP suspicions that rates of dry and wet deposition of sulfur to a forested canopy would be about the same in the Northeast. One wonders, therefore, why the through-fall studies in the book under review yield a ratio of wet to dry deposition of about 4:1 (see the discussion on sulfur pools). I suspect that might be because throughfall methods measure primarily particle deposition to leaf surfaces, whereas the total flux from the atmosphere reported by atmospheric scientists includes trace-gas components that are deposited mostly through stomatal exchange with plant tissue. If this is correct, then we need to reconsider the budgets presented for both sulfur and nitrogen. If my suspicions are wrong, then we need to rethink a lot of the source-to-receptor modeling that has been done. But there is another wrinkle here: if deposition directly to a lake surface is important, the appropriate ratio might be much more than four. Dry deposition is determined largely by the characteristics of the surface; wet deposition isn't.

The aquatic ecosystems of the Adirondacks are addressed very well, and the ecological consequences of deposition from the atmosphere are described and explained comprehensively. The role of aluminum is explained in detail. But there is little discussion of mountaintop ecosystems, even though these were among the principal targets of NAPAP research. It is not only the aquatic ecosystems of the Adirondacks that were (and are) at risk; mountaintops are severely affected by acidic deposition because their wet deposition is augmented by the filtration of trace materials from the air as it passes across them and through the exposed canopy.

The treatment of the nitrogen cycle is especially welcome, since nitrogen and

its effects on coastal ecosystems are likely to become dominant concerns as more people move toward the coasts. Likewise, the attention given to mercury is exceedingly useful. It might seem strange to have the mercury problem addressed in a treatise on acid rain, but much of the science is applicable to both problems. Moreover, the postdepositional behavior of mercury compounds is influenced considerably by the deposition of sulfur species, and hence a link between acid rain and the mercury issue is more than just scientific convenience. The explanation of how mercury is transformed biochemically is characteristically well written and is easily understood. It explains some chemical and biological behaviors that had previously seemed mysterious to this poor meteorologist.

I would have liked for *Acid Rain in the Adirondacks* to have given more attention to reduced nitrogen and to the contemporary debate about the importance of nitrogen dioxide deposition, but on the whole, to the authors I say, "Well done!"

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NEW TITLES

Aquatic Ecosystems: Trends and Global Prospects. Nicholas V. C. Polunin, ed. Cambridge University Press, New York, 2008. 512 pp., illus. \$160.00 (ISBN 9780521833271 cloth).

Between Biology and Culture. Holger Schutkowski, ed. Cambridge University Press, New York, 2008. 328 pp., illus. \$130.00 (ISBN 9780521859363 cloth).

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A Critique of Silviculture: Managing for Complexity. Klaus J. Puettmann, K. David Coates, and Christian Messier. Island Press, Washington, DC, 2008. 206 pp., illus. \$30.00 (ISBN 9781597261463 paper).

Eco Barons: The Dreamers, Schemers, and Millionaires Who Are Saving Our Planet. Edward Humes. Ecco, New York, 2009. 368 pp. \$24.99 (ISBN 9780061350290 cloth).

The Emerald Planet: How Plants Changed Earth's History. David Beerling. Oxford University Press, New York, 2008. 304 pp., illus. \$18.95 (ISBN 9780199548149 paper).

A Handbook of Tropical Soil Biology: Sampling and Characterization of Below-ground Biodiversity. Fatima M. S. Moreira, E. Jeroen Huisling, and David E. Bignell, eds. Earthscan, Sterling, VA, 2008. 248 pp., illus. \$58.50 (ISBN 9781844075935 paper).

Life Explained. Michel Morange. Translated by Matthew Cobb and Malcolm DeBevoise. Yale University Press, New Haven, CT, 2008. 224 pp. \$25.00 (ISBN 9780300137323 cloth).

Major Evolutionary Transitions in Flowering Plant Reproduction. Spencer C. H. Barrett, ed. University of Chicago Press, Chicago, 2008. 216 pp., illus. \$30.00 (ISBN 9780226038162 paper).

Old Growth in a New World: A Pacific Northwest Icon Reexamined. Thomas A. Spies and Sally L. Duncan, eds. Island Press, Washington, DC, 2008. 360 pp., illus. \$32.00 (ISBN 9781597264105 paper).

Reticulate Evolution and Humans: Origins and Ecology. Michael L. Arnold. Oxford University Press, New York, 2008. 248 pp., illus. \$120.00 (ISBN 9780199539581 cloth).