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Book review

Understanding soil change: soil sustainability over millenia, centuries and decades
DD Richter, Jr. and D Markewitz. Cambridge University Press, Cambridge, 2001.
Hardbound, 255 pp. ISBN 0 521 77171 4. GBP47.5

Richter and Markewitz use their long-term experiment, the Calhoun Forest Experiment, as the basis for this tremendous book. Yet, the book is not simply an excuse to describe a long-term experiment. They use the knowledge gained from this experiment, and place it in a global context using a wealth of knowledge spanning many hundreds, even thousands, of years. For example, pedogenesis at the site is described, placing the current experiment in the context of its Devonian origins, yet, elsewhere in the book, processes important at much shorter temporal scales, e.g. nutrient cycling, are also investigated and explained. The spatial scale of the book is equally impressive; taking examples from Calhoun, the authors make observations on soil sustainability that are derived under the particular circumstances of their experiment, and demonstrate how these principles hold true in many regions of the world.

We can learn much from the authors by their treatment of human impacts on the present ecosystem. In an era where the natural sciences can no longer be studied in a vacuum, and the social sciences play an increasingly important role, the authors use historical data to show how the Calhoun Forest has become the ecosystem that it is today. Fascinating data on the extent and type of settlement and historical land-use in the area, build up a picture of a forest seen at one point in time, the present, but with a long history of change behind it. What occurs to the reader is that any piece of land on which we stand, or any soil that we study, has this rich history, though for most places in the world, this historical legacy remains largely unknown.

The final chapter of the book calls for more long-term soil ecosystem experiments, like those contributing to the GCTE-Soil Organic Matter Network. We know that many long-term experiments, such as those from Rothamsted in the UK, have contributed greatly to our knowledge. This book describes another experiment of equal importance. If other long-term experiments can live up to the standards described in this book, the call from the authors for an expanded network of ecosystem experiments is alluring.

The book effortlessly spans spatial and temporal scales and draws on subject matter that even the most widely read soil scientist will be unlikely to have considered previously. This text makes a change from the average textbook; it is readable, informative and more generally educational than most. The book demonstrates the rich wealth of knowledge that long-term experiments can provide, and is a shining example of how this data can be used to educate students, researchers and the public, on a range of environmental issues. I have

no hesitation in recommending this book, either for students, researchers or just for a good read!

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