

## Response to Book Review

### **Observation and Ecology: Broadening the Scope of Science to Understand a Complex World**

by Rafe Sagarin and Anibal Pauchard. Island Press, Washington, DC, 2012. xiv + 213 pages. Price US\$30.00. ISBN 978 1 59726 826 4 (paperback).

From the start of his review of our book *Observation and Ecology* (Sagarin & Pauchard 2012), Graeme Hastwell incorrectly asserts that we contend, 'that ecologists should put experimental methods aside' (*Austral Ecology* (2014) 39, e12–e13). On the contrary, our book, which was deliberately written for a wide audience in accessible language, recognizes the continued importance of controlled experimentation to ecological science, particularly when combined iteratively with unbound observation. Indeed, our main argument is that today's powerful observations should be part of a multi-scale, multi-method model for ecology, which is now being developed by a large number of scientists and amateur observers of change. Although Hastwell accuses us of 'New Age technological utopianism', our book is inherently pragmatic: our changing world both requires and invites us to utilize holistic approaches that move beyond the strict and sometimes obsolete rules of 20<sup>th</sup> century ecology.

When writing the book we expected some strong negative reactions, especially from the ever-shrinking slice of ecologists who continue to believe that experiments pre-designed to fit with the artificial constraints of ANOVA-type statistical tests are the *sine qua non* of ecological and scientific inference. The many references in our book to recent studies both within and far outside of ecology that successfully use uncontrolled

observational methods to make strong inferences and startling new discoveries provide testament of the renewed power of observation in science. By contrast, with the exception of a tangential reference about the cigarette and cancer debate, Hastwell's references all come from the turn of the century or earlier. Our world has changed dramatically since 2000, and it is appropriate to question whether our methodologies should change as well. In this light, Hastwell's final (and unsupported) assertion that experiments can deliver the same or better results more rapidly than observational studies represents a strikingly simplistic view of both nature and ecological science. We show through example in *Observation and Ecology* that this view is rapidly being superseded by comprehensive approaches, which recognize that nature cannot be subdivided to the minimum unit to understand the functioning of the whole.

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### REFERENCE

Sagarin R. & Pauchard A. (2012) *Observation and Ecology: Broadening the Scope of Science to Understand a Complex World*. Island Press, Washington, DC.