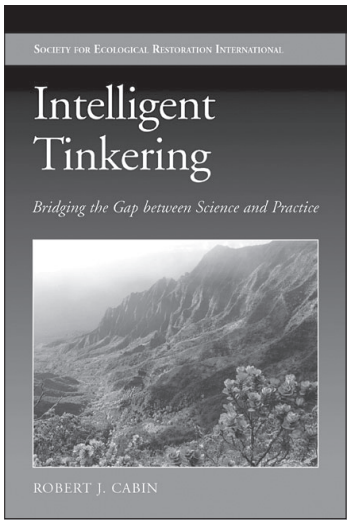
REVIEW

Former Hawai'i Restoration Ecologist Now Favors 'Tinkering' Over Rigor



Cabin, R.J., ***Intelligent Tinkering – Bridging the Gap between Science and Practice.***
Island Press, 2011. 216 pages.
Paperback $35.00

In his new book, Bob Cabin uses his personal involvement in the restoration of Hawai'i dry forests to illustrate the tensions that he feels exists between the science and practice of ecological restoration. It is a journey that starts out among the multidisciplinary, multi-interest perspectives associated with a grass-roots community-based working group (Part 1, Chapter 1-3), moves into the tedium of academic rigor (Part 1, Chapter 4-5), and culminates in an "aha!" moment, when he realizes that science is of limited value for restoration (Part 1, Chapter 6). His final resting point is described in Part 2 of the book, where he offers a "Meta-Intelligent Tinkering" approach towards effective ecological restoration.

Cabin's folksy prose is often compelling and insightful. For example, in Chapter 9, "Intelligent Tinkering," there's this: "Ecological restoration can be comprehensible or intractable, beautiful or ugly, inspiring or depressing; what is appropriate and effective at one point in time and space may or may not be in another. Thus, we need a great diversity of metaphors and perspectives to perceive and practice restoration because one vision or approach does not encompass all. We also need a healthy diversity of basic and applied restoration scientists and practitioners (and economists, educators, philosophers, and so on) with different goals and values employing different methodologies and techniques."

In addition, I appreciate his often witty and self-deprecating statements, such as when he relates his ongoing "cyclic internal battle to fend off a creeping wave of schizophrenia" between his role as a restoration scientist, on the one hand, and as a practitioner, on the other. Here he has captured the uncertainty we scientists often feel in trying to justify the validity and importance of our work.

The book starts out well enough. In the first chapter, "Tropical Dry Forests: Land of the Living Dead," Cabin provides a nice overview and historical perspective of the problems of restoring dry forests with interviews from such well-known kama'aina as Hannah Springer, whose family goes back for five generations in the ahupua'a of Ka'upulehu, and Michael Tomich, her husband. Cabin asks them how they became involved in restoration efforts. They respond by relating how the late Lani Stemmermann piqued their interest when she accompanied them on visits to the National Tropical Botanical Garden's plot at Ka'upulehu. Lani, Hannah told Cabin, "knew more about the exclosure than we did."

"We started doing little service projects, weeding around our favorite specimens, doing slide shows, Michael as a fireman, me as a public speaker, bringing people's attention to the dry land forest."

In the second chapter, "Let's See Action! Planning and Implementing a Research and Restoration Program," Cabin provides a fascinating account of the inner workings of a large and diverse working group. Many readers of *Environment Hawai'i* may recognize themselves here. Having attended these meetings for a number of years, I wholeheartedly enjoyed this chapter.

But in recounting his journey from field ecologist to academic, Cabin's viewpoint grows increasingly insecure and myopic. He attempts to polarize the relationship between academically based restoration ecologists, on the one hand, and land managers and practitioners, on the other. To my thinking, his proposed solution of "intelligent tinkering" resembles gambling more than anything else.

Consider this passage from Part 2: "something shifted in my brain, and suddenly I knew what I would do if I were in charge of restoring this region of the island: I would create a Meta-Intelligent Tinkering 'Adopt an Acre' Program, in which each semi-independent group of self-sorted people would receive its own parcel of degraded land to restore."

He continues: "Beyond some commonsense guidelines that everyone could agree on, there would be no a priori requirement that any group must test some general scientific hypothesis or adhere to a standardized and rigorous data collection and monitoring protocols. On the contrary, each group would have the freedom to employ whatever methodologies its members believed would best help them accomplish their particular goals, whether those were, for example, formal scientific research, preservation of endangered species, or ethnobotanic education."

Here, many of the arguments derive from an editorial Cabin wrote that was published in 2007 in the journal *Restoration Ecology*, titled "Science-driven restoration: A square grid on a round earth?" In this,

PHOTOS: SUSAN CORDELL

An aerial view of some of the experimental plots at Ka'upulehu.

Cabin raises the question of whether formal science is an effective framework and methodology for designing and carrying out ecological restoration programs. He maintains that beyond certain side benefits, restoration science has little of practical value to offer to the practice of restoration.

Several of his former colleagues (including me) challenged his arguments in a rebuttal published in a subsequent edition of the same journal (Giardina et al., "A candle in a demon-haunted world: Response to Cabin"). We dispute Cabin's demeaning and outdated characterization of restoration science as using small "square grids" to analyze various treatment methods. We also argue that he greatly undervalues the contribution of science to restoration practice (although, to be sure, many practitioners may not appreciate it). We take strong exception to his suggestion that restoration practices can advance beyond small-scale and haphazard successes without the kind of well-designed studies that provide peer-reviewed, widely accessible information on the mechanisms that underlie successes as well as failures.

Finally, we conclude that through integration with other disciplines, restoration science will provide the tools needed to restore ecosystems at all scales, from small stands to landscapes.

Cabin fails to realize that all of the "Intelligent Tinkering" decisions that he applauds stand on the shoulders of giants, those who, over the last several hundred years of agricultural and forestry research, have shaped the way land managers make decisions and who have given land managers credible, cost-effective tools. In fact, I

Forest TEAM members from Hawai'i Community College work in an experimental plot in Ka'upulehu.

continue to be overwhelmed by the number of collaborative and highly progressive research/land manager efforts that have emerged in the past few years, most of which highlight the ways in which land managers have benefitted from relevant research on fire regimes, watershed dynamics, life-history studies and climate-change modeling. It is these successful partnerships that will move the field of restoration ecology forward.

While Cabin can be commended for his brutally honest analysis of the shortfalls of research when it comes to providing "quick fixes" for land managers, he is plain wrong when he disparages the role of academic research. Almost everyone involved – researchers and managers alike – are aware that needs precede fixes. I know of no land manager, in Hawai'i or elsewhere, who would argue that science-based research is not a critically important component of his or her management decisions.

Given this, Cabin's statement that he "was unable to find a single clear example in which formal scientific research had been or was now directly practically relevant and valuable to an actual resource management program" is utter nonsense. Restoration ecology has come a long way since Cabin's "square meter plot" days, and it offers land managers exciting and valuable tools from a wide range of disciplines, including landscape ecology, fire modeling, decision support tools and remote sensing. Furthermore, as scientists continue to feel the weight of pressing ecological needs, coupled with the increase in communication and collaboration of informed stakeholders, research will only continue to become more and more relevant to the manager's needs.

Cabin's story-telling approach makes for easy reading, but at times he is rambling, repetitive, and careless. I cringed on reading that famed Hawai'i botanist Joseph Rock was from England (he was Austrian, as anyone involved with Hawai'i forests should know). Who knows what he was thinking when he describes parts of Hawai'i as "poor, insular, and reminiscent of a developing country," or when he refers to a Big Island politician "openly packing illegal firearms while trolling for votes"?

I found insulting his depiction and criticism of government workers as "being detached and out of touch." Most of the federal and state natural resource personnel in Hawai'i are dedicated, passionate about their work, and highly knowledgeable of both the resources they manage and the regulatory frameworks in which they must maneuver. Many of them have tenure far longer than Cabin's short-lived Hawai'i experience.

Though Cabin can be self-deprecating at times, there really is no denying his elevated view of himself and his role in Hawai'i. For example, he writes that when he "started educating myself about Hawaiian conservation biology, I found a plethora of personal opinions and popular writings but depressingly little real scientific literature." Really? He then goes on to say that he "wanted to do my small part to help remedy this situation."

If this book is part of Cabin's idea of a remedy, thanks, but no. While I consider Cabin a personal friend, his position is indefensible. Restoration scientists have much to offer to landowners and managers. Despite the subtitle of his book, Cabin's position does nothing to bridge the gaps. On the contrary, where bridges now exist, he would only blow them up. ***— Susan Cordell***

Sam Brooks and Rachel Moseley at the site of a post-fire restoration experiment in Ka'upulehu.

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