

A. H. Perera, L. J. Buse, and T. R. Crow (eds.): *Forest Landscape Ecology: Transferring Knowledge to Practice*

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Don C. Bragg

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The transfer of knowledge to the public has been an integral part of science delivery since the initial stages of American forestry. Gifford Pinchot, the first Chief of the U.S. Forest Service, incorporated a knowledge transfer program from the beginning of his administration. This effort, exemplified by “Circular 21,” offered the services of trained foresters to landowners interested in improving the management of their timberlands (Pinchot 1898). In these early days, it was not unusual for the knowledge transfer part of the agency to upstage the research program, also in its infancy—this was possible because even the very basic technology, techniques, and silvicultural practices of this period were dramatic improvements on exploitive lumbering. Once the rudimentary foundations of good forestry practices were sufficiently established, researchers then devised strategies to improve the implementation of scientific forestry.

Landscape ecology, on the other hand, has followed a different path. Compared to forestry, which was a field-based practice borne of decades of European experience and then refined for specific regions, landscape ecology originated in new and evolving technologies. Certainly, core principles

related to scale, pattern, grain, and extent had circulated for years, but they alone were unable to coalesce into a distinguishable discipline until the tools to describe them had adequately developed. Now, a few decades after the establishment of landscape ecology as a science, efforts towards increasing the prominence of this field are blossoming.

Forest landscape ecology: transferring knowledge to practice, edited by A.H. Perera, L.J. Buse, and T.R. Crow, is a rare attempt to extend landscape perspectives to the public. A text based on this concept alone could have filled many volumes, as the challenges presented by large-scale issues are as numerous and varied as the ways to address them. Rather, this book uses a subset of papers from the U.S. and Canada to exemplify how knowledge transfer systems may (or may not) function. As pointed out in several chapters, knowledge transfer is not something scientists are accustomed to—rather, we rely on extension specialists digest our work, and use their skills to translate the material to the appropriate decision makers and stakeholders.

The questions raised by Perera et al. are fundamental. If the promise of adaptive management is to be realized, how can we create appropriate and efficient feedback mechanism(s) in forest landscape ecology? Forestry researchers long ago recognized the value of demonstration areas in replicated studies as hands-on expressions of how treatments work in a

D. C. Bragg (✉)
USDA Forest Service Southern Research Station,
P.O. Box 3516 UAM, Monticello, AR 71656, USA
e-mail: dbragg@fs.fed.us

manner that practitioners appreciate. At the same time, these demonstrations provide opportunities for scientists to “kick the dirt” with their clients, and thereby learn from their experiences. While effective for foresters, this model seems unworkable for landscapes—what are other options? Furthermore, how can practitioners best inform the scientific process about what they are experiencing in the field?

First, Perera et al. engage in some obligatory hand-wringing. Their opening chapter laments how much knowledge transfer has lagged in landscape ecology—the absence of any citations from key ecology, forestry, and landscape ecology journals with “knowledge transfer,” “technology transfer,” or “extension” associated with publications on “landscape ecology” or “forest landscape ecology” is a particularly telling example. This, of course, does not mean that knowledge transfer never happens—the book presents multiple examples of this type of discourse in several large-scale projects, including ponderosa pine in the southwestern U.S. (Hampton et al., chapter 4), an integrated, multi-national landscape management in the Border Lakes region of Minnesota and Ontario (Lytle et al., chapter 5), and within more limited areas of public lands (Buse and Perera, chapter 6; Crow, chapter 7).

Note that most of these knowledge transfer examples of landscape ecology involve public land management agencies—this, too, is symptomatic of some of the key challenges facing ecologists. Large-scale resource issues are greatly complicated by the interests of even a few landowners, let alone the myriads of individuals, organizations, and agencies that control property and set forest policies in North America. As described by Buse and Perera (chapter 6), areas with large, contiguous blocks of stable holdings by a limited number of owners are considerably easier to manage with landscape-based science. Knowledge transfer is also greatly simplified, as fewer need to be educated on the principles and technology associated with landscape information.

Even if the process of knowledge transfer to decision makers and practitioners was a smooth one, the challenging nature of landscapes remains. As King and Perera point out in chapter 2, traditional scientific experiments, with their strictures of control and statistical rigor, are virtually impossible to implement on landscapes. This favors the use of

computer models, which can be problematic for stakeholders who often are uncertain of their design and dubious of the simulated results, especially the regulators and practitioners most affected by their outcomes. Furthermore, topics such as scale (both spatial and temporal), model structure and assumptions, and uncertainty rarely translate easily into lay terms. Gustafson et al. (chapter 3) suggest a more collaborative and iterative approach to improve upon the acceptance of models with land managers, presenting examples of how models such as SELES or LANDIS can be refined with user inputs to help build confidence. The Hampton et al. chapter (chapter 4), reports on their experiences with stakeholder involvement and education, especially of local non-scientists and “litigation oriented NGOs” early in the landscape policy development process. This type of participation conveyed a feeling of “ownership” to these groups in the process and helped facilitate their acceptance of model outcomes.

Given that knowledge transfer and extension is such a new element to landscape ecology, I was disappointed that the excellent section (chapter 8 by Reed and Simon-Brown) on this subject was buried towards the end of the book, just before the synthesis. To me, this should have been one of the first chapters to help the reader keep knowledge transfer concepts fresh and in context. Even though I recognize the challenge of compiling a set of papers for a book like this, I would have required the other contributors to consult this chapter to ensure terminology consistency. I also had a few minor quibbles with how parts of this book were presented. For instance, there were a number of maps from chapters 4, 5, and 7 that were almost impossible to decipher. Almost as an afterthought, a couple of these were included as color plates sandwiched in the middle of the book, thoroughly disconnected from their chapters. There were also a number of instances where the jargon got rather thick—rarely a problem for academic landscape ecologists, but not very conducive for those without this background.

Overall, I found Perera et al. a worthwhile collection of examples of how knowledge transfer to practitioners and policy makers can improve the use of landscape ecology. In their concluding synthesis, Crow et al. (chapter 9) recognized that to improve knowledge transfer in forested landscapes, there needs to be a fundamental change in how universities

train both researchers and the eventual users of this information. Just as importantly, engaging in effective knowledge transfer must also be appropriately rewarded by all institutions to encourage their scientific staffs to embrace this critical role. Otherwise, landscape ecology will largely remain an abstraction of the ivory towers of academic or government research institutes, and contribute little to sustainable resource management.

Reference

- Pinchot GP (1898) Practical assistance to farmers, lumbermen, and other owners of forest lands. Forestry Circular 21. USDA Division of Forestry, Washington, DC

