The successful management of large natural systems requires planning to be based on ecological boundaries and hence often must involve multiple federal agencies and local managers. The new edition concludes with a discussion of multi-agency ecosystem planning and management that describes the successes and failures of the Sierra Nevada Ecosystem Project, the Interior Columbia Basin Ecosystem Management Project, and planning for the Greater Yellowstone Ecosystem. The second edition also updates the current state of management in the FS and the FWS through the inclusion of more recent laws (i.e., the Wildlife Refuge System Improvement Act of 1997 and the new regulations for the revision of national forest plans). In this respect the book is quite current, discussing the implications of the Clinton administration's actions and forecasting the actions of the subsequent Bush administration. The new edition claims to provide an expanded coverage of the use of geographic information systems (GIS) for public lands management, but the book makes only brief reference to the use of GIS with the exception of a rather superficial five-page discussion in chapter five.

Although the book provides a comprehensive discussion of public land management from an economic perspective, one is left to look elsewhere for detailed ecological discussions. Loomis provides a limited description of some of the models used in wildlife management (e.g., habitat suitability indices) and touches on the importance of a landscape perspective in dealing with the multi-scale nature of ecological processes in the final chapter about ecosystem planning. These passages, however, are the exception in a book designed to address the economic aspects of public lands management. More specifically, Loomis addresses the coarse-scale question of what should be managed for, not the finer scale question of how individual resources should be managed. To that end, readers looking for an ecological discussion of forest, wildlife, or rangeland management will be largely disappointed.

The book's primary targeted audience consists of upper-level undergraduate and graduate students. Although the book is an excellent text for a resource economics course on public lands management, more general courses will want to sample from the text and find other sources for more in-depth discussions of ecological issues. The book is well written and provides a solid index and a table of acronyms (a veritable godsend in a book revolving around four U.S. government agencies). Although the elementary introductions to many topics make it a bit tedious at times, the book is a good read for ecologists looking for an economic perspective on land management. Loomis provides an excellent introduction to resource economics for those interested in engaging in interdisciplinary research and a thorough look into the sometimes complex, sometimes disturbing, decision-making processes of the agencies managing over 90% of the public land in the United States.

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Early forestry and conservation in America

Gifford Pinchot and the making of modern environmentalism. 2001. Char Miller. Island Press, Washington DC, USA. 458 pp. 24 cm. Illust. Hardcover, US$28.00, ISBN 1-55963-822-2; Softcover, ISBN 1-55963-823-0.

One might wonder why a biography of Gifford Pinchot (1865-1946) is being reviewed in Landscape Ecology. I admit to having more than a casual interest in Pinchot and his era. As an employee of the USDA (Department of Agriculture) Forest Service, I am always interested to learn about the early history of the agency and its first Chief. In fact, this volume constitutes a valuable history lesson for those working in landscape ecology and conservation.

In both Pinchot's time and today, natural resource specialists have recognized that good science is needed but also that the greatest impacts on the land originate in the political arena. According to author Char Miller, Gifford Pinchot above all else knew how to get things done politically, though it didn't hurt that be was born into wealth and privilege. Pinchot's grandfather was a land and timber baron at a time when huge sections of the eastern forests in the United States were being denuded to feed an insatiable appetite for wood. Such ever-increasing demand was sparked by a "transportation revolution" which saw the nation's network of turnpikes, canals, and railroads expand rapidly from 1830 to 1860. Even during this remarkable expansion, the general consensus among men like Pinchot's grandfather was that the supply of wood was inexhaustible. In the late 19th and beginning of the 20th centuries, Gifford Pinchot, perhaps

more than any other individual – including Theodore Roosevelt – sought to dispel this myth.

At the age of 19, Gifford's father, James, left the Pinchot estate in Milford, Pennsylvania, for New York City, where he made his fortune in the interior furnishings business. He later married Mary Eno, the daughter of a wealthy land speculator. During Gifford's youth the Pinchot family spent much of each summer in the Adirondack mountains of New York, where James hiked into the wilderness with his firstborn and taught him to fly fish the area's spectacular lakes.

On Gifford's 21st birthday, his parents presented him with a copy of the *The Earth as Modified by Human Action* by George Perkins Marsh, who concluded that environmental despoliation had been central to the collapse of once powerful Mediterranean empires, and that history was about to repeat itself in America. Marsh was convinced that the only way out of this tangle was that "the conservative management of forests, arable land, and waterways, and a sharper appreciation of nature's limitations should allow the new republic to escape the old threat of catastrophic decline." This book had a huge impact on parents and son alike.

One day in 1888, James Pinchot posed this fateful query to his son: "how would you like to be a forester?" At that time, there was no American university with a curriculum that included forestry. Yet Gifford saw forestry as the vehicle for making his place in history. "I shall have not only no competitors, but even a science to found," he pronounced. He studied at Yale, then spent one year in France receiving training in forestry and in 1892 began working as a forester on Cornelius Vanderbilt's Biltmore estate, in the state of North Carolina. Three years later, Pinchot started a forestry consulting business in New York City. In 1898, he accepted a position with the Division of Forestry in the US Department of Agriculture, and in 1905 was appointed by President Teddy Roosevelt as the first Chief of the newly organized US Forest Service.

During his five-year tenure as Chief, Pinchot brought more than 150 million acres of forest and rangeland under the direction of the Forest Service. He fought vigorously to reduce grazing – particularly by sheep – in national forests and to regulate public and private forests. He went on to head the National Conservation Association and later served two terms as governor of Pennsylvania. Until his death in 1946, Pinchot remained active in politics and the national conservation movement. He influenced, or at least attempted to influence, every U.S. president from Grover Cleveland to Harry Truman on forestry and conservation issues, which affected huge sections of the U.S. landscape.

Anyone interested in the preservation vs. development of U.S. natural resources, and the early controversies surrounding this debate, would benefit by reading this well-researched book. According to Miller, many of the key conservation decisions establishing our legacy today have their start in those days, and with Pinchot's finger in them.

Often cited is the early 1900s battle Pinchot had with the conservationist John Muir over the need for a dam in the Hetch Hetchy Valley in Yosemite National Park, California, as a water source for the city of San Francisco. Pinchot believed the highest use was to build the dam, where "the intermittent aesthetic enjoyment of less than one percent is being balanced against the daily comfort and welfare of 99 per cent". On the other hand, Muir and the Sierra Club (the conservation organization he founded) fought for preservation above human use. Much has been made of the fallout between Muir and Pinchot over the dam, after previously being good friends. While they did have a falling out, Miller's research clarified the facts of the situation in contrast to some earlier Muir and Pinchot biographers. The dam was eventually built, but after Pinchot and Roosevelt were out of office in 1913. This tradeoff and argument between conservation and preservation still rages on, often between the same institutions, the Forest Service and the Sierra Club. In recent times, the argument also rages on within the Forest Service, and with a lot of dependence on who is in the White House. Issues such as clear cutting, the spotted owl, roadless areas, fuels reduction, and oil exploration in Alaska come to mind.

Whatever one's opinions of Pinchot's position on the Hetch Hetchy dam, Pinchot fought aggressively in many other instances in favor of conservation, even preservation. He fought to reduce especially sheep grazing in the national forests. He fought for decades for the regulation of public and private forests. He was burned in effigy in Alaska at one time because "he thinks more of trees than people". Through his policies and those of his boss, Teddy Roosevelt, the national forest system greatly expanded and the health of U.S. forests improved.

Pinchot's books, *Training of a Forester* and *Breaking New Ground*, influenced much of the current thinking in forestry and conservation. Many cite his "three great purposes" of conservation: 1) we must

wisely use, protect, preserve, and renew the natural resources of the earth; 2) natural resources should be used only in the common interest and distributed at a fair and reasonable charge; and 3) conservationists must see to it that the rights of the people to govern themselves shall not be controlled by great monopolies through their power over natural resources.

As landscape ecologists and conservationists, we should adopt and integrate Pinchot's "three great purposes" with today's knowledge base, data, software, models, and fresh ideas. This generation has a unique opportunity to make a difference in how our natural resources are managed. But now and with each successive day, we have many more people on the planet than 100 years ago. We need a conservation ethic that considers human beings and finds optimal solutions that minimize impacts on natural resources. And we need to transfer this information to the political decision makers. We have a long way to go. Let's do it.

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Landscape Erosion and Evolution Modeling, Harmon, R.S. and W.W. Doe III, editors. 2001, Kluwer Academic/Plenum Publishers New York, New York, USA. 540 pp. + CD, Color and B&W Illustrations. Hardcover Edition: ISBN: 0-306-46718-6, US$120.00.

Landscape Erosion and Evolution Modeling is a product of two workshops sponsored by several United States Department of Defense (US DoD) research offices. The purposes of the workshops (and this book) are, according to the editors: "(i) to assess the current state of the art in soil erosion, sediment deposition, and landscape evolution modeling on complex landscapes, (ii) to promote the exchange of information and interaction between a diverse group of model developers and model users, and (iii) to identify new research directions that would couple empirical process databases, process studies over various spatial and temporal scales, and new mathematical models of soil erosion, deposition, and landscape evolution processes." The workshops brought together land managers from US Army installations, and various teams of researchers who had involvement in US DoD/Army sponsored research projects in the area of erosion research. As a result, the papers included in the book are oriented in large part to issues prevalent on military installations, but are more broadly applicable to a range of disturbance regimes in other landscapes.

Two aspects of this book are noteworthy. First, it provides a comprehensive collection of current research representing a broad base of approaches, that is, it is very inclusive in terms of theory and methodology in the study and modeling of landscape processes. Second, its focus is on landscape-scale processes in complex environments rather than more traditional field plot and laboratory studies. These two factors make the book a useful reference for disciplines outside of soil science.

The first chapter of *Landscape Erosion and Evolution Modeling* serves to establish a reference point of terminology, history of research, and concepts and issues in modeling. The next several chapters discuss research in soil detachment processes and measurement focusing on freeze-thaw processes, slope displacement, and processes of ambient or background levels of erosion. Chapter 6 begins the principle focus of the book on empirical and process-based models, and issues in their development and use, including testing, validation, and application. The next group of chapters discuss various approaches to soil erosion modeling, by both long-standing and emerging research efforts. Chapter 7 provides a very thorough history and description of the WEPP soil erosion modeling effort, a field and small watershed scale modeling environment. The next chapter discusses hillslope processes models and introduces its own model. Chapter 9 introduces "Waterbots," a cellular automata approach to erosion modeling, and Chapter 10 describes a two-dimensional, distributed parameter, landscape-scale simulation model with excess overland flow as the fundamental erosion process. Chapter 11 provides a discussion of two approaches to surface-flow generated erosion and deposition, one a finite difference solution and the other a Monte-Carlo-like path sampling method.

Chapters 12, 13 and 15 examine erosion within stream channels and its effects on channel morphology. Chapter 14 reports on an application of the LISEM model to study the effectiveness of various erosion conservation methods. The final chapters present the expected caveats of modeling including representation of spatial and temporal scales, com-