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Biggs, Reinette, Maja Schüller, and Michael L. Schoon. 2015. *Principles for Building Resilience: Sustaining Ecosystem Services in Social-Ecological Systems.* Cambridge: Cambridge University Press. 311 pp. ISBN 978-1107082656.

Principles for Building Resilience stems from several years of collaborative research by the editors. The impetus for the book is based on their understanding that the need for continued socioeconomic development and the need for socio-ecological resilience are not contradictory but can be resolved through a focus on the resilience of ecosystem services. The authors likewise see the resilience of ecological services as a key factor in negotiating life on a planet where population growth over the past century while resources and space remain finite. Ecosystem services—the ability of the environment to provide infrastructural, ecological, and other biophysical services that are exploitable for human well-being—provide an important part of maintaining human well-being on a rapidly changing planet. The first part of the book is organized into two theoretical chapters on the concept and politics of resilience and ecosystem services that outline the problems facing socio-ecological systems and the maintenance of ecosystem services. These are followed by seven "principles" chapters that outline how exactly the resilience of ecosystem services can be built and fostered. Finally, there is a short conclusion that summarizes the principles and reflects on their implementation in various contexts.

The book begins with an introductory chapter by the editors that lays out the basics of resilience and the importance of sustaining ecosystem services in the Anthropocene. Since resilience can take on a multitude of disparate meanings, it is important to understand what the editors, and presumably by extension the authors of each chapter, mean by the term. For the editors, resilience holds a somewhat unique ontology in ecological sciences in the way that it sees humans as integral and interdependent parts of ecosystems across multiple scales. Viewed this way, all human action affects both global and local ecosystems (albeit not with the same intensity), and these changes feed back into the variations of human life, ultimately affecting human wellbeing. As a result of this continuous feedback, socioecological systems are always in flux and are prone at all levels to

change. Resilience emerges from the ability of such systems to continue to adjust to this change without fundamentally changing the ability of the system to provide for and enhance human well-being, in their case primarily through ecosystems services. However, political, economic, and social pressures can drive decision-making in ways that, through their rigidity and short-term focus, can reduce resilience by degrading the ability of socioecological systems to improve human well-being. One example they give is that of development initiatives that focus on short-term economic improvements in the freshwater fishing industry. A short-term focus on profits in this sector can cause overfishing, leading to ecosystem collapse and a reduction in human well-being. However, deciding which services to manage and how can only be done through complicated and contested political processes, which are the topic of the second chapter.

What counts as an important or valuable ecosystem service depends on who is making demands on the service. However, complex socio-ecological systems, with their diffuse global and local impacts, make it so that changes to the resilience of any one ecosystem service cannot be made without potentially negatively impacting many others. Likewise, certain ecosystem services will provide improvements to certain areas of human well-being potentially at the expense of others. The result is a complex political situation where decisions about which ecosystem services to focus on and how results in an asymmetrical system of power that must be negotiated politically. These political and power dimensions of resilience are the focus of chapter 2. The authors of this chapter argue that resilience scholars have not adequately integrated the political challenges of the allocation of ecosystem services among distinct populations. However, the dilemma the authors address is only what type of ecosystem service might be best. While they do not make specific recommendations about types, they do note that there is a possibility that one choice might foreclose on the possibility of others that are better over a longer period of time. However, they take for granted what it means to promote an ecosystem service without consideration for the potentially violent displacement of peoples in the process of such promotion. Two examples they use—the establishment of national parks to lessen extraction and promote biodiversity and the creation of palm oil plantations to produce biofuels—are common examples used by geographers to show the potential violence in conservation efforts (see, e.g., Fairhead et al. 2012). Discourses that presume that ecosystem services serve a universal good likewise run the risk of creating moral narratives that generate violent sociopolitical situations (see Neumann 2004 for an example pertaining to biodiversity conservation). In short, the politics of resilience run much deeper than the authors suggest, though their general argument that politics should be better integrated into resilience research stands.[1]

The book continues by providing, in incredible detail, the seven "principles" specified in the book's title. These principles are specifically intended to promote an institutional structure capable of sustaining "desired ecosystem services in the face of disturbance and change" (254). These principles can be divided into two sets, the first generic and the second related to the governance of socio-ecological systems. The arguments laid out through these principles are complicated and a short review cannot do them justice. The authors do, however, generalize these into three mechanisms important for building resilience: increasing understanding of the functioning and governance of socio-ecological systems, preparing these systems for shocks and providing potential alternatives and outlet for when shocks occur, and enhancing response capacity for post-shock recovery.

This volume offers a unique and certainly fascinating insight into resilience planning in socio-ecological systems. However, many social scientists may find its sociological insights, particularly as they relate to the differential political-economic experiences of land-

scapes, lacking. If the authors and editors intend to fully understand the complexity of socio-ecological systems, then it is clear that additional collaboration between the environmental social sciences and the natural sciences is necessary. As such, while this book would be useful in advanced undergraduate and graduate seminars that focus on socio-ecological systems, resilience, or perhaps even climate change, it is best supplemented by any number of recent scholarly works on resilience from the social sciences that are better suited to critically explore the depths of the entangled social aspects that are glossed over or completely missed in this volume.

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1. For a more detailed analysis of resilience politics than this book offers, see Tierney 2014.

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Helm, Dieter. 2015. *Natural Capital: Valuing the Planet*. New Haven, CT: Yale University Press. 296 pp. ISBN 978-0300210989.

Dieter Helm's *Natural Capital: Valuing the Planet* locates itself by 'engaging' with the metaphorical concept of "natural capital," that offers to pave a revolutionary path for the sustainable economic growth. The concept of natural capital is premised on thinking economically about nature in such a way that economic growth can be both maintained as well as improved. By invoking nature as an asset—or, in other words, by viewing nature as an external, controllable entity mechanistically calibrated and measured—the natural capital concept claims to guarantee the reversal of current failures to preserve and protect nature. Once nature is constituted as a set of tangible assets, the author argues, it can be valued and calculated through diverse accounting mechanisms that reveal the precise environmental costs of land, water, air, and marine environments, enabling compensations for damages or destructions. In this way, the idea of "nature" as "natural capital" promises to provide a relatively stable framework for sustainable economic growth aspiring to be globally relevant as well as making it possible to shift the current environmental debate on to the fertile grounds.

While setting the scene in the first part of the book, Helm promotes the argument that existing price mechanisms and technologies always had the capacity to alleviate environmental constraints, much in contrast to the careful observations made by the Brundtland Report. Helm also pronounces in the book that since the world faces no imminent resource crunch, one exclusively needs to focus on the depletion of "renewable" natural capital assets only and the services they provide for free as well as their economic impacts on growth and sustainability. Therefore, he outlines a non-declining aggregate natural capital rule that not only helps to identify which resources should matter the most and how limits can be posed on the intergenerational use of the resources, but also aims to act as a basic organizing principle for substitutability between natural and man-made capital.

In order to put the aggregate rule into practice, the second section of the book delineates the steps to maintain natural capital by accounting and measuring natural assets. Besides establishing a set of national, corporate, and trust accounts, Helm delineates ways to identify the assets-at-risk through technical measurements and identifying thresholds, preparing risk registers, and so on. The monetary valuing of these natural assets is based on a