Quibbles aside, *Sharing the World* is an outstanding contribution to the sustainable development debate. It will be of particular value in university courses ranging from ecological economics through political science and international development, to environmental/developmental ethics. Perhaps as important, the book should be read by policy-makers and politicians everywhere (if only because it provides informed citizens with a surfeit of potentially embarrassing questions to pose would-be leaders during political meetings at election time).

References


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About 4500 protected areas exist worldwide, of which one-half are located in the tropics — covering some 5% of tropical rain forests. During the major part of this century, the establishment of protected areas was the standard approach in biological conservation. The setting aside of natural habitats free from human uses originated with the establishment of Yellowstone National Park in 1872 and was widely adopted by developing and developed countries. Nature reserves and national parks were believed to preserve natural habitats and their species in a more or less pristine condition. Recent research, however, indicates that humans have modified ecosystems in remote rainforests that previously were believed to be untouched by humans (Bååt, 1992; Posey, 1992), and that human use of landscapes may promote biological diversity by creating a mosaic of patches at the landscape level (Gomes-Pompa and Kaus, 1992; Lindbladh and Bradshaw, 1998). In fact, viewing natural parks as undisturbed ‘nature museums’ may lead to management surprises, as in the active fire suppression in Yellowstone National Park which, a decade ago, eventually led to the build-up of one catastrophic fire that burnt half the park down.

At the same time, the establishment of protected areas has often involved conflicts with local residents living within and adjacent to these areas. For example, traditional societies have suffered land losses with subsequent loss of cultural identity. Thus, the expansion of protected areas has often taken place at considerable social costs to local communities in terms of access to land, wildlife, and other resources (Gadgil and Guha, 1993). Not surprisingly, park managers have cited conflicts with local residents as their most serious problem (Primack, 1993), indicating that the protected area approach is problematic in practice.

The volume *Last Stand* calls for a renewed interest and defense of the protected area approach, despite its failure in many tropical areas, and concludes by offering a ‘new protection paradigm’ for tropical parks. This multi-authored book, edited by Randall Kramer, Carel van Schaik and Julie Johnson, portrays the situation for tropical protected areas as highly critical and analyses the relevant causes of this. Ultimately, the editors argue, the steady increase of human populations is the main cause behind tropical deforestation and biodiversity loss.

At the same time, *Last Stand* offers a rather heavy critique against the alternative conservation approaches that emerged in the early 1970s, which emphasized man’s role as part of natural landscapes. For example, UNESCO’s Man and the Biosphere Program developed primarily from the recognition of the need to integrate protected
areas with social development of people living near these protected sites. The underlying idea was that improving the socio-economic status of these people would reduce pressure on protected areas. This volume argues, however, that such approaches all over-emphasize social development and ‘sustainable use’ on behalf of conservation. Thus, it challenges the widely embraced notion that nature conservation and sustainable development are compatible.

Chapter 1, by Kramer and van Schaik, sets the background for why, in particular, tropical forests need to be protected by excluding human uses. It also deals with the concept of biodiversity and with the changing views of protected areas over history.

In chapter 2, Terborgh and van Schaik argue that protected areas, ‘as large as possible’, should be the foundation of biodiversity protection in the future through a major strengthening of institutions. The authors paint a doomsday scenario for those tropical forests that are not protected in this way, anticipating their degradation within 35–40 years.

Chapter 3 focuses on the structural design of protected areas. MacKinnon argues that biodiversity is best, easiest, and least expensively protected through the establishment of a network of protected rain forest areas, extending from protected lowland rainforests, where plant and animal richness is concentrated, to mountain forest areas, associated with endemic populations.

Chapter 4, by van Schaik, Terborgh and Dugelby, represents an interesting regional overview of all countries having strictly protected preserves in the tropics, showing that most rainforest parks are in a state of crisis and in need of rigorous protection. Interestingly, the conservation areas that have worked best are those where religious injunctions and taboos exist among local residents.

In Chapter 5, Brandon claims that conservation organizations pushed by the 1980 World Conservation Strategy are nourished by a ‘myth’ that development and conservation of biodiversity are compatible. This myth rests on a set of assumptions, each dealt with by Brandon. The chapter also analyses alternative management categories, such as ICDPs and locally managed reserves, claiming that the former have largely failed to protect tropical biodiversity.

Chapter 6, by Sanderson and Redford, deals with the politics of biodiversity and the contest for ownership of the world’s biota. This chapter argues that the biodiversity concept has changed from the late 1950s to today, and that it has been ‘wrested’ by conservation activists with a focus on ‘sustainable use’, and by economic actors valuing biodiversity only by economic criteria.

In Chapter 7, Miranda and LaPalme deal with user rights and biodiversity conservation. Specifically, they consider the tricky business of the devolution of user rights to local people for how to best preserve biodiversity. The chapter concludes that no single property-rights arrangement represents the best option for regulating use of tropical forests, and that the fate of protected areas depends on providing local people with sufficient alternatives to income and quality of life.

Chapter 8, by Kramer and Sharma, starts by describing the different values of biodiversity that can be ascribed to tropical rain forests. These come down to both use and nonuse values, including utilitarian, aesthetic, moral, ecological and socio-economic values. It argues that government incentive policies frequently fail to provide the right incentives for sustainable management of forests and for reforestation.

Chapter 9, by Ferraro and Kramer, ponders upon the strictly economic considerations for reducing pressure on protected areas. It is a thoughtful chapter that spells out the intricate obstacles associated with compensation of residents in areas within and adjacent to protected areas. The authors provide four useful criteria that can be of use for judging the necessity of compensation to local residents when designating a protected area, and offer several practical aspects of compensation which it may be worthwhile to consider.

The concluding chapter, by van Schaik and Kramer, entitled ‘Towards a New Protection Paradigm’, represents in large a summary of some basic lines of argument brought forward in this book. To my mind, the protection paradigm out-
lined is a rather provocative one. For example, I get a sense that physical force becomes a necessary ingredient in order to implement part of the four principles brought forward in this chapter. I also find the argument of removing local people from protected areas unethical. That such a strategy can be justified on grounds that future generations have the right to enjoy protected areas is a rather strange argument. I doubt whether the intensification of agriculture, improvement of urban infrastructure, and industrial development, as suggested by the authors, will provide previous park residents with alternative ways of income. We have witnessed the outcome of such strategies before.

Considering that tropical forests harbor more than one-half of all known species on a surface area less than 7% of the Earth’s land surface, it is indeed important to protect tropical forests. Ecologists and nature conservationists all agree on this. However, reading Last Stand has not convinced me that the sustainable use approach has failed. It is simply too early to rule it out. The book also lacks sufficient empirical arguments and data to be convincing of this failure. This is not to say that I do not appreciate this book. On the contrary, I find it provocative enough to stimulate an intellectual discourse on this important subject.

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This book is difficult reading. And reviewing. It is about one of the more difficult problems in ecology — that of scale — and in addition, it attempts to incorporate scaling issues in management, which is even more daunting given the difficulties that ecology has with scales in the first place.

So what is scale, and why should we care? The term ‘scale’ has, as the editors emphasise, been used with multiple meanings. It usually refers to measurements and dimensions in space and time (i.e. extent, grain, size and resolution), but has also referred to the level of organisation of a system. In addition, scaling problems with respect to resolution may arise in other contexts than space and time. Given the multitude of meanings, a book with as many authors as chapters is bound to provide quite a diverse overview of different ways to examine scale problems within ecology.

The importance of scaling considerations is immense. One of the major problems in ecology is how we can use information from easily studied experimental systems, which usually have small spatial extent (usually less than some square metres) and short duration (most experiments have a duration of one to a few years), to examine and manage larger spatial units (from agricultural farms, forest landscapes and seascapes to the whole earth). Also, the central issues on the linkages between individual behaviour and population dynamics, and between population and community dynamics and ecosystem dynamics, involves