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People, Protected Areas and Global Change: Participatory Conservation in Latin America, Africa, Asia and Europe

Edited by Marc Galvin and Tobias Haller. Bern, Switzerland: Geographica Bernensia, 2008. 559 pp. Free download at http://www.north-south.unibe.ch. Hardcopy: € 30.00. ISBN 978-3-905835-06-9.

The literature on protected areas has increasingly focused on the impacts of conservation initiatives on local people and the kinds of power relations linked to these areas. The relevance and importance of these questions is manifest in that the number of protected areas worldwide doubled during the decade prior to 2005. Globally, protected areas produce rapid changes in the livelihood opportunities of millions of people, particularly those in and adjacent to such areas—even as pressures for natural resources have become greater than ever. In this context, Galvin and Haller's edited volume on participatory conservation is a welcome and important contribution. Their central concern is to discern the ecological, social, and economic benefits of protected area management. Two dozen contributors from around the world weigh in, providing an important opportunity for a North–South dialogue.

This thick volume includes 13 case studies plus excellent maps and appendices covering a broad range of topics related to the management of protected areas. The uniqueness of this publication consists, in part, in its global sweep—it assembles findings from Latin America, Africa, Asia, and Europe and examines how protected-area management in each of these diverse contexts is linked to ongoing, global transformations in conservation practices and the ideologies that drive them. The case studies examine the diverse approaches to conservation that have evolved in specific settings and ask who benefits and who controls the basic power structures in each protected area. The volume delivers a great variety of examples and covers all kinds of ecosystems including tropical forests, savannahs, high-altitude rangelands, and floodplains.

Each contribution is similarly structured and therefore presents ample material for comparison. Each case details the setting and extent of the protected area as well as its administrative category, the chronology of establishment and political changes since its founding, the resources and livelihoods in and around the conserved land, governing institutions and power relations, current core problems and major actors involved, and the incentives or disincentives that local people face in relation to the protected area. At the conclusion of each case study, the authors offer main lessons learned, which the editors neatly sum up in an effective closing chapter. This shared template provides a common vocabulary that translates across these diverse cases, making the volume very useful indeed for comparing the empirical outcomes of conservation worldwide.

The volume draws its approach from the theoretical framework of New Institutionalism, which focuses on governance and scrutinizes the political and economic contexts in which protected areas are situated and how these institutional settings shape the local and regional interests of powerful actors. Critically, the case studies also offer a long-range view of conservation by observing how protected areas have been managed over a period of 50 to 100 years, showing how they have evolved from specific historical and cultural situations. The volume underscores the fact that institutional approaches to the administration of conservation have changed considerably; in each case, the political and discursive circumstances in which a protected area is situated make a considerable difference in terms of its outcomes. For example, several of the studies show how conservation projects can focus on villages in isolation and not in a wider local and ecological context. Development-oriented projects in protected areas are often decoupled from administrative changes that affect issues like boundaries or changing resource availability. Projects can fail to keep up with land title registration and may not take into account common-property resources. In other words, institutional changes may be behind the curve of political or social changes, hampering the effectiveness of protected-area initiatives.

The authors are to be commended for being attuned to the role of various stakeholders in protected areas. Park authorities, government administrations, tourists, businesses, local communities, and international organizations are all part of the action. In each case, the authors trace changes in perceptions and attitudes among stakeholders, with a particular emphasis on the strategies and arguments that actors have adopted toward protected areas. For instance, local actors often boost their bargaining power by using specific ethnic or cultural identities based on ideologies that legitimize their rights of ownership and access to resources. As several case studies show, local stakeholders have used the notion of being indigenous to accommodate state and nongovernmental organization (NGO) discourses, even as they try to retain control over land and other resources.

How information and knowledge is used in confrontations and negotiations between actors depends on the discourses deployed by various actors, who use narratives to strategically structure governance and its underlying institutions for their own gain. These discourses, in turn, are linked to specific environmental narratives and are embedded in larger ideologies of human–nature relationships, conservation and de-

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velopment, identity, territoriality, and sovereignty. Divergent definitions of nature and rights to land and resources are used by stakeholders to maintain power relations or to control people in new ways. In this, the volume approaches nature as a contested social construction. This constructivist approach sees protected areas not as "natural" landscapes but as cultural phenomena. In their conclusion, the editors make the important point that, if we recognize protected areas as essentially cultural landscapes, then most conservation has, in fact, been guided by a false premise.

Taken as a whole, the volume is convincing in demonstrating the chronic failures of a fortress approach to protected-area management. Moreover, the case studies demonstrate that the financial means for this mode of conservation have become scarce. With less money available for effective state action in monitoring boundaries, enforcing laws, and establishing functioning legal frameworks to govern resources, nation-states have increasingly turned toward a participatory approach to conservation. Yet, despite official discourses of participatory conservation, for local people, conservation has too often meant underdevelopment. For example, in their study of Peru's Amarakaeri Communal Reserve, Álvarez et al argue that the commercial alternatives associated with participatory conservation have brought nothing but disappointment, even though government and NGO stakeholders held out the promise of commercial boons from increased ecotourism and the harvesting of medicinal plants in the park. This and other case studies show that the economic costs and benefits of conservation have been unequally distributed between the government and the tourism sector on the one hand and local people on the other. Several of the case studies show that the potential revenue from ecotourism typically does not sufficiently cover losses incurred by local people through conservation restrictions, crop damage, and livestock depredation. Thus, the editors conclude that local people do not view conservation as something positive per se, but only in relation to the development benefits it brings. A major challenge faced in implementing conservation, then, is to generate enough incentives for local people to participate in the functioning of protected areas compared to the losses and opportunity costs they incur in abdicating access to, and control over, the resources in these areas. As this volume amply reminds us, the challenges of equitably distributing the benefits and costs of protected areas are abiding and must be addressed for these conservation initiatives to enjoy any kind of local support, let alone long-term success.

Though they are not the first to suggest that participation is better in theory than in practice, the contributors certainly present convincing evidence that this is, indeed, generally the case. The goal of participation in conservation is to establish procedures that guarantee the legitimacy of public policy by involving stakeholders who were previously excluded from the decision-making process. Successful participation implies the introduction of new representatives and a rebalance of decision-making powers. With the exception of the study of the Jungfrau-Aletsch-Bietschhorn World Heritage Site in Switzerland by Wallner et al, participatory approaches have fallen short because local stakeholders have not been empowered to make decisions or to really profit from anything; instead, as Meroka and Haller assert in their study of the Selous Game Reserve (Tanzania), these approaches are "merely used to make protection cheaper" (p 214); they highlight the performative aspect of the business of conservation, evocatively claiming that "The drama of participation enables the state and all its involved actors as well as the donor actors to conclude that the participatory mission has been accomplished" (pp 213–214).

Arguably, advocates of protected areas have adopted the paradigm of participatory conservation primarily to obtain more or continued support from international donors. Blaikie (2006) contends that government actors and conservation NGOs are able to extend their ambit into local people's territory via participatory approaches while simultaneously collecting additional donor income. In this light, participation is a means to get stakeholders to commit to following an agreed-on procedure and to accept its outcomes. In many cases, the shift to "participation" seems to have been merely rhetorical and motivated mainly for the gain of those already in power. In reality, participation has often simply meant the expansion of protected areas and the lowering of management costs of territories that once were common-pool resource areas for local people. Indeed, several of the studies in this volume show how protected-area legislation can be changed in a way that looks like participation to donor organizations in order to attract more funding. Community conservation and co-management approaches thus provide an ideology that promotes local involvement and thereby reduces transaction costs, justifies further donor investment, and demands continued sacrifices on the part of local people. The ideology of nature protection coupled with a discourse of participatory conservation has, in effect, provided governments with effective access to international funds and profits from tourism. As a result, local stakeholders frequently see the gains promised by the state, NGOs, and donors through participation as unfulfilled promises. As such, the editors conclude that the shift from the paradigm of exclusionary, authoritarian, state- and NGO-driven fortress conservation to

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a genuinely new paradigm of inclusive community conservation or comanaged protected areas is far from complete.

This volume—or at least sections of it—would be suitable for courses on conservation and natural resources management; it would also be relevant to students in environmental studies and geography, particularly those engaged in the literature on political ecology and the evolution of development thinking. For the respective regions described, the authors' efforts will also serve as excellent references and benchmarks for protected-area managers and development workers.

REFERENCE

Blaikie P. 2006. Is small really beautiful? Community-based natural resource management in Malawi and Botswana. *World Development* 34: 1942–1957.

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Mountain Resorts: Ecology and the Law

Edited by Janet E. Milne, Julia LeMense, and Ross A. Virginia. Burlington, Vermont: Ashgate, 2009. 468 pp. US$ 125.00, £ 65.00. ISBN 978-0-7546-2315-1.

As I live roughly one hour from two of the four case study areas that form the core of this book, and a mere three hours from the other two, I was naturally motivated to read this book. One does not need to be a "local," however, to learn much of value from the case studies and the attendant discussion of law and ecosystem impacts of the ski resort industry. Current trends in the ski resort industry (eg conversion to year-round operations and the increasing need to make artificial snow as climate changes) will surely only make considerations of law and mountain ecosystems of greater importance. Enlarged mountain ski resorts are proliferating globally. During the 1990s, 4500 resorts with 26,000 ski lifts hosted 300 million skier visits. Japan led the list, followed by Austria, the United States, Switzerland, France, Sweden, the Czech Republic, Italy, and Canada.

The three editors are, respectively, a professor at the Vermont Law School, the executive director of the Eastern Environmental Law Center, and a professor of environmental science at Dartmouth College. This volume is the third in the Ecology and Law in Modern Society series. I did not expect such good ecological treatment of alpine and subalpine soil/plant/animal communities (Chapter 3), nor of wildlife and water resources, but the editors brought in a team of fine scientists to handle such topics. The section on invasives, for instance, provided me with new knowledge in an arena where I have some experience. I was startled to read that Japanese knotweed (*Polygonuna cuspidatum*), with which I am wrestling in Vermont's lowlands below 300 m, is occurring at 1100 m in the subalpine zone along a road on Vermont's Mount Mansfield.

Chapter 4, "Water Quantity and Quality in the Mountain Environment," written by two respected hydrologists, is excellent. It continually relates hydrology to the ski industry and its changing face. It covers such aspects as use by the resort itself for swimming pools, golf courses, condominium and second-home development, winter snowmaking, and summer irrigation. Impacts of pistes, trails, and access roads are covered. The authors emphasize that there is a notable lack of research on the effects of ski resorts and mountain development on hydrology and water quality. This has meant that policy-makers and agencies that issue permits have little proven information on which to base their decisions.

Chapter 5, "Effects of Mountain Resorts on Wildlife," focuses on species response to the kind of disturbances that occur with such resorts.

The main part of the book comprises four case studies from the northeastern United States and eastern Canada, a region with a cool temperate climate and a precipitation pattern fairly well distributed throughout the year. Impacts will be different in seasonal climates, but many of the legal issues will be applicable there as well. The four ski developments represent a wide array of ownership/governance situations. They are, briefly:

1. Whiteface Mountain, New York. Owned and operated by the State of New York through a development authority. This mountain is in the midst of Adirondack Park, very akin to a biosphere reserve operating under a set of land use controls from the Adirondack Park Agency. The state-owned land of the slopes is a forest preserve, constitutionally mandated to be kept "forever as wild forest land."
2. Killington Resort, Vermont. Private development on leased land owned by the State of Vermont as a state forest. The principal policy instrument is a statewide permitting process. This review process, with much public controversy, occurred three separate times, on specific proposals (hardly an ecosystem approach).
3. Loon Mountain, New Hampshire. The Loon Mountain Recreation Corporation leases land on the White Mountain National Forest under the federal policy for these lands of "multiple use." It has grown from a small ski area in 1965 to a four-season resort, and it has expanded greatly, with changes common to the "big" ski industry everywhere. The case study focuses on a proposal for large expansion into new areas under new corporate ownership, and on the adequacy of the U.S. Forest Service's permitting process and forest management planning. The National Environmental Policy Act comes into play, and the case study examines whether it promotes an "ecosystem approach." Lawsuits over Forest Service permitting have marked several stages of this development.
4. Mont Tremblant, Québec, Canada. This private resort, now owned by one of the industry's largest corporations, has its ski area in the southern tip of Mont Tremblant Park, a provincial area dedicated to nature conservation. The case study examines the question of Canadian/Québec law and the ecological footprint of eastern Canada's largest and most popular ski resort.

In some respects, a mountain resort—in the abstract—appears to provide a relatively easy framework for evaluating whether the law applies an ecosystem perspective as it

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regulates uses in the mountains. The mountains lie largely "upstream" from many societal sources of ecological interferences. They often do not experience the ecological consequences of activities well beyond their bases, with the significant exceptions of airborne pollution and impaired habitat of species that range beyond the mountains. The human activities at the resorts are also relatively discrete and confined, the number of players is quite small, and the land is often held in large tracts. Thus, not having to disentangle as many ecological and human factors, in theory, one can focus more easily on the ecosystem impacts of mountain resorts than on some other types of human development or uses elsewhere on the landscape.

But, as the book clearly points out, even this seemingly simple situation is plagued by the complexity of fully evaluating the impacts of human activities on an ecosystem and integrating an ecosystem perspective with the law. The blunt reality is that lawmakers and regulators must choose a limited number of words, written into law in black and white. This definitive concreteness stands in sharp contrast to the gloriously complex, partially understood, and evolving ecosystems we want to consider.

Reading this book has made me want to read others in the Ecology and the Law in Modern Society series, particularly one entitled *The Rise of the Ecosystem Regime* (Brooks et al 2002).

REFERENCE

Brooks RO, ***Jones R***, ***Virginia RA.*** 2002. *The Rise of the Ecosystem Regime*. Burlington, Vermont: Ashgate.

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Changing Forests: Collective Action, Common Property, and Coffee in Honduras

By Catherine M. Tucker. Heidelberg, Germany: Springer, 2008. xiv + 258 pp. € 69.95, US$ 99.00. ISBN 978-1-4020-6976-5.

The story of La Campa, a small community in a generally impoverished and agriculturally marginal area of one of the poorest countries in Latin America, provides a refreshing contrast to the often depressing accounts of large-scale deforestation, land concentration, population displacement, and impoverishment that accompany regional and world market integration. Bucking the trends evident across much of Honduras and Central America more generally, where pine and tropical forest destruction through the expansion of cattle ranching and soil degradation are the most extensive in the world, La Campa has managed to retain much of its forest; substantially continue with its traditions of apparently sustainable swidden ("slash-and-burn") agriculture; participate in and ride out the booms and busts of commodity markets (in this case, for pine resin and coffee); and retain many vestiges of traditional, collective institutions. But neither does La Campa represent a case of forest conservation: its forests have been changing since humans first settled the area. The study focuses on community-level dynamics, and particularly on institutions, to explain processes of forest cover change, characterized not by deforestation, afforestation, or cyclical patterns of both but by all as simultaneous processes in different niches. Past processes of adaptation may, however, be giving way to maladaptations as land is increasingly concentrated and communal land is privatized and cleared for agriculture.

A principal argument in the book is that the community's relative success in maintaining forests is due to institutional factors that have been found elsewhere to lead to successful common property management, including secure communal land rights, participatory governance, dispute resolution mechanisms, and capacity for collective action. A second argument is that forests continue to make an important contribution to livelihoods and that transformations in livelihoods and forests reflect adaptations to local and external change.

The book begins with an introduction to the conceptual framework, including collective action theory and political ecology (which Tucker draws upon to discuss logging and resin tapping in the community in Chapter 4, and the expansion of coffee production in Chapters 5 and 6), which is integrated with a discussion of other recent books on human–environment relations in Honduras. Chapter 2 discusses the history of the area and its indigenous Lenca population, focusing on the implications of Spanish land rights, which granted indigenous communities access to communal land, and on the traditional agricultural system and its relation to forests (multiple cropping with long fallows), also documenting certain beliefs and rituals that reflected people's respect for their natural surroundings. Chapter 3 looks in depth at contemporary institutions, particularly municipal government, that have served as communal mechanisms for land allocation and collective action, as well as at the agricultural cycle, other livelihood activities such as pottery-making for which the Lenca are locally renowned, and forest product use, arguing convincingly that communal rules were oriented not toward forest conservation but toward ensuring agricultural sustainability and productivity.

La Campa's capacity for collective action and sustainable resource management was seriously challenged when the local government sanctioned logging and, soon thereafter, the Honduran state nationalized the forestry sector and granted more concessions for logging and resin collection. These policies began to overrun local rights and threaten local resources, triggering community action that successfully opposed the state forestry corporation and largely stopped both logging and resin extraction, even when a substantial number of local residents were earning much of their livelihood from the latter. Chapter 5 presents another potential threat to community forests—the conversion of land for coffee production—that continues to affect La Campa today. In the mid-1990s, soaring world prices for coffee led to an increase in demand for land in La Campa's highlands, provoking the de facto conversion of communal mountain forests. At the same time, a national land titling program eliminated the municipal land allocation system, and land sales to outsiders were permitted, leading to increases in inequality in a community that had been fairly egalitarian. A coffee market bust severely tested the community's adaptive capacity, leading to further diversification. In spite of this, La Campa's forests appear to be expanding, and people are protecting forest resources again to ensure long-term viability of livelihoods, especially to ensure vital water supplies.

Given the book's pretentions to political ecology, there is surprisingly little attempt to locate La Campa within its larger context, for example, comparing it with other areas even within the same department (Lempira) that were experiencing increases in cattle numbers, major land use change and degradation, impoverishment, and population expulsion over much of the period in reference, so the significance of La Campa's experience is partly lost. This has much to do with the focus on one municipio, which is a strength of the study that did not have to become a weakness (much of the considerable space taken

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up by overly detailed discussions of municipal governance structure and history could have been sacrificed for this purpose). Also surprising given the book's scale, and in spite of drawing upon numerous surveys, there is little ethnographic or quantitative data that would have enriched the understanding of the dynamics and particular nature of the community. Other than very useful satellite data on forest change, no data are presented on land use, number of farms and farm strata, livestock numbers, income and livelihoods (and poverty), soil conditions, and so forth. Only one table on population and one on precipitation are presented prior to Chapter 5, and only four short case studies of local households are used to discuss adaptation to the coffee crisis.

Lempira is one of the poorest departments in Honduras, and it is possible that heavy permanent and temporary out-migration was a major reason for the fact that La Campa had managed to retain its forests and agricultural system. Another reason that La Campa has survived the vicissitudes of the rapacious form of capitalist development in the region is probably the income from women's pottery-making, which is unique to the community. It would also have behooved the author to draw upon another excellent book (Jansen 2003), also a municipal-level study dealing with forests, degradation, slash-and-burn agriculture, and coffee that is cited but not drawn upon substantially.

Changing Forests is intended for environmental scientists and policymakers, conservationists, social foresters, ecological and environmental anthropologists and economists, sociologists, geographers, development analysts, and Latin America specialists. It is available in hardback for a hefty US$ 99. It is particularly important for those concerned with collective action and common property and is a worthy addition to libraries, if not quite justifiable for the bookshelves of most other scholars.

REFERENCE

Jansen K. 2003. *Political Ecology, Mountain Agriculture, and Knowledge in Honduras.* West Lafayette, Indiana: Purdue University Press.

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The Biology of Alpine Habitats

By Laszlo Nagy and Georg Grabherr. New York, NY: Oxford University Press, 2009. xi + 376 pp. Paperback: US$ 55.00, £ 27.50. ISBN 978-0-19-856704-2.

The Biology of Alpine Habitats is the latest publication in the Biology of Habitats series by Oxford University Press. The authors are well-recognized experts in alpine ecology who have published extensively on the topic. The scope of the book is both impressive and challenging, considering the variation in climate, evolutionary history, and terminology among different mountain regions of the world. At times, the text can seem a bit Europe-centric to someone from the Southern Hemisphere, but that is understandable, given the extent of alpine environments in Europe, the substantial body of research from Europe, and the background of the authors.

In the first chapter, the authors define what they mean by alpine environments while also including information on the wide range of terms used to describe these environments in different regions of the world. The second chapter goes on to categorize alpine regions into five main latitudinal groups: arctic, boreal mountain regions, temperate, subtropical, and tropical. The following chapters cover information on elevation gradients; the importance of energy and climate; landforms; hydrology and soils; patterns in habitats and community types/assemblages; biogeography; adaptation and evolution of alpine organisms; temporal and spatial dynamics; changes in climate and nitrogen deposition; and land use and conservation of alpine landscapes, ecosystems, and species. In doing so, the authors highlight general trends while also giving space to the specificities of different regions.

The extensive use of summary tables, maps, graphs, and photographs complements the text and allows readers to fully appreciate the complexities of bringing together information on such diverse regions. This level of background information required to do justice to this topic is also reflected in the extensive reference list, including papers from nearly all mountain regions. One of the few faults with the book is that, in some places, the information on the fauna is less detailed than on the flora, again possibly reflecting the background of the authors. The style of writing is detailed and clear, although it does not always read as smoothly as some other alpine books. This book is a major contribution to the literature on alpine environments and serves as a detailed resource for researchers and others with an interest in these important regions of the world.

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