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*Book Reviews*

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**The Old Conservation, the New Conservation, and the Future of Conservation**

**Keeping the Wild. Against the Domestication of Earth.** Wuerthner, G., E. Crist, and T. Butler, editors. 2015. Island Press, Washington, D.C., U.S.A. 248 pp. US\$24.95 (paperback). ISBN 978-1-61091-558-8.

**Protecting the Wild. Parks and Wilderness, the Foundation for Conservation.** Wuerthner, G., E. Crist, and T. Butler, editors. 2015. Island Press, Washington, D.C., U.S.A. 362 pp. US\$24.95 (paperback). ISBN 978-1-61091-548-9.

**Large Scale Conservation in the Common Interest.** Clark, S., A. Hohl, K. Picard, and E. Thomas, editors. 2015. Springer Cham Heidelberg, New York, Dordrecht, London. 191 pp. US\$129 (hardcover). ISBN 978-3-319-07419-1.

A new movement led by the chair of the science cabinet of The Nature Conservancy, one of North America's largest conservation organizations, seeks to refocus the field of conservation biology and the practical work of conservation organizations by deemphasizing the goal of protecting nature for its intrinsic values in favor of protecting the environment for its benefits to humans (Doak et al. 2014). According to this position, conservation will keep failing unless it acknowledges that humankind has already profoundly transformed the planet, that pristine wild lands are gone, and that most of the growing human population are city dwellers. "Whether or not the developing world sets aside a large percentage of its landscapes as parks or wilderness over the next hundred years, what is clear is that those protected areas will remain islands of 'pristine nature' in a sea of profound human transformations to the landscape through logging, agriculture, mining, damming, and urbanization" (Kareiva et al. 2012).

This viewpoint received attention in the media, academia, and among policy makers, resulted in tactical shifts in the mission statements of several conservation organizations (Doak et al. 2014), and may influence the actions of donor agencies. *Protecting the Wild*, and its companion *Keeping the Wild*, both edited by George Wuerthner, Eileen Crist, and Tom Butler, assemble essays by leading conservation scientists, activists, writers, and practitioners that critique these new-conservation statements and defend conservation for the intrinsic value of nature, the beauty and ecological importance of the wild. Contributors are—with few exceptions—from North

America, and they all disagree with the arguments put forward by the new conservation promoters. Essays are heterogeneous in their content, appeal, and length, reflecting a variety in tone, from strong advocacy to thoughtful critique, from academic to popular, and from biological to social sciences. There is a certain degree of overlap among the contents of some essays, particularly in *Keeping the Wild*, and in some cases, unnecessary wordiness.

The commodification of nature and the belief that the earth is a "storehouse of natural resources," subject to appropriation, is challenged. The books portray the old divide between anthropocentric versus biocentric arguments to conserve nature and discuss the idea of nature and wilderness as a social construct. They address philosophical questions about the role and responsibilities of humans with regard to our planet and discuss the rights of people, nature, and animals. "In the end what matters is that humans are behaving like an asteroid hitting the Earth in slow motion. Is being an asteroid the great purpose of our species?" wonders David Johns in his essay (*Keeping The Wild*, p. 43). Behind the debate on the future of conservation, both books debate values, priorities, and visions with regard to the future of our planet. Although new conservationists believe the needs and wants of humans must be prioritized over any intrinsic rights and values of nature, the authors of these books consider that the needs of nature are commensurate with those of humanity. Both groups agree on the seriousness of the present environmental crisis and the increasing pressures on natural systems; they, however, differ in their priorities, goals, and strategies to protect nature. Reading *Keeping* and *Protecting the Wild* will be intellectually stimulating and interesting to conservation practitioners, activists, students, and academics and good material for debate in university courses.

*Keeping the Wild* starts with an introduction by Tom Butler in which he describes that the book was conceived to respond to the Anthropocene boosters and to explore the notions put forward by new conservation proponents: The Anthropocene has arrived, and humans are now de facto planetary managers; if pristine wilderness ever existed, it is all gone now, and focusing on wilderness preservation has poorly served the environmental movements; nature is highly resilient, not fragile; to succeed, conservation must serve human aspirations, primarily regarding economic growth and development; maintaining ecosystem services, not preventing human-caused extinctions, should be conservation's

primary goal; conservationists should not critique capitalism but rather should partner with corporations to achieve better results; conservation should focus on better management of the domesticated working landscape rather than strive to establish more, strictly protected areas. All of these statements are thoroughly critiqued throughout the book and its companion *Protecting the Wild*.

The book is divided into 3 sections and ends with an epilogue by Kathleen Dean Moore. The first section, “Clashing Worldviews,” contains 7 essays by Michael Soulé, Claudio Campagna, and David Johns among others that discuss and critique assumptions of the new conservation and its objections to old conservation. The 8 essays in “Against Domestication” discuss the idea of planetary gardening, of “humans-have-always-been-everywhere,” working landscape and the utilitarian attitude to the environment. “The Value of the Wild,” the last section of the book, contains 5 essays on wilderness and its intrinsic values, including beauty and being a moral resource. One of my favorite chapters is “Resistance” by Lisi Krall; therein, she suggests “[w]e patronize Nature by declaring it resilient in the face of humankind’s manipulation.” Krall questions the very basics of capitalism (associated with material wellbeing for a minority and poverty for the vast majority) and the illusion that it is possible to reconcile continuous economic growth, accumulation, and consumerism with the biophysical limits of the earth and a liveable planet. Avoiding any in-depth questioning on the structure and purpose of our economic system and compromising—says the author—has become a strategy of the environmental movement. Following this argument, there is nothing new about partnering with corporations that do business as usual or embracing development without questioning the system.

*Protecting the Wild* begins with an excellent foreword by John Terborgh in which he challenges Kareiva et al.’s (2012) argument that conservation is failing and that protected areas are not the answer. He wonders how many more species would have gone extinct in the absence of protected areas and pleads not to confuse environmental services with biodiversity conservation. In the introduction, Tom Butler presents the evolution of arguments for protected areas in the United States, which have morphed from aesthetic and recreational to scientific and ecological values. The book is introduced as a reaction to the suggestion by Kareiva et al. (2012) that conservation should focus on humanized managed landscapes intended to produce ecological services for people.

The first of 3 sections, “Bold Thinking about Protecting the Wild,” contains 9 essays. The criteria followed for setting conservation targets for protected areas at international conventions are considered arbitrary, and it is suggested that based on scientific findings at least half of the world should be protected in an interconnected way. The claims and assumptions of those advocating for

the new conservation are examined from a diversity of angles including an inspiring chapter by historian Emily Wakild and one on democracy and conservation by Helen Kopnina. “Rewilding Earth, Rewilding Ourselves” is composed of 8 essays. Rewilding means the mass restoration of damaged ecosystems, and it is occurring in areas where people have moved away from lands considered marginal for agriculture, forestry, and other extractive uses, allowing native vegetation to grow back. Rewilding is also about the reintroduction of top predators—wolves and lynx in Europe and bears, beavers, big cats, and raptors in North America—shown to stabilize ecosystems. Reading this section makes one wonder how the reintroductions of top predators engaged local inhabitants: some of these answers are found in *Large Scale Conservation in the Common Interest* (discussed below).

The 11 essays in the section “Protected Areas: the Foundation of Conservation” present interesting examples from Africa, North America, the Peruvian and Brazilian Amazon, Chile, the Carpathians, the Altai-Sayan Ecoregion in Central Asia, Mongolia, and Australia on how protected areas are crucial for biodiversity conservation. The afterword was written by the late Douglas Tompkins, a conservation activist and philanthropist who bought 2 million acres in Chile and Argentina for the creation and expansion of 5 national parks. Reading *Protecting the Wild*, makes one feel as if one were attending an international conservation conference, where the current issues and challenges are being discussed by some of the world’s leading conservation experts.

However, there are even more layers and scopes of analysis involved in present conservation, and greater integration of multiple variables, disciplines, and knowledge systems enables a deeper understanding of the driving forces behind the ecological crisis.

In the third book I reviewed, *Large Scale Conservation in the Common Interest*, the editors argue that a more holistic and genuinely interdisciplinary approach is required to solve the complex and growing challenges associated with large-scale conservation, which is defined as “conservation efforts that deliberately seek to function and integrate at larger and more complex spatial, temporal, and governance scales than previous efforts” (p. 3).

This inspiring book is intended for a broad audience, including graduate students, professors, practitioners, and policy makers. The book is structured as a collection of papers linked with illustrative boxes, tables, and maps locating the case studies. The book’s first section provides theoretical background and context by defining key terms, providing a look at the interdisciplinary approach, and describing a framework for analyzing complex problems. Elements used in the pursuit of objective study of subjective topics, such as values, are provided, and typologies of problems relative to large-scale conservation and the decision functions (activities) involved in

decision-making processes are defined. This section lays a foundation that is especially useful for those seeking to teach or use a proven holistic approach for the study of sustainability and environmental conflicts.

The methodological framework is applied to 6 case studies that illustrate the interdisciplinary approach. Part II consists of 3 rapid assessments written by Susan Clark's students enrolled in a graduate seminar at Yale University. Although I would have shortened this section, I found chapter 5, on the Greater Yellowstone Ecosystem, of special interest. While minimizing the forced removal of indigenous populations to create an "uninhabited wilderness," Yellowstone is repeatedly invoked in *Protecting the Wild* as an effort at the forefront of conservation that harmonizes the needs of people with those of nature and as a rewilding success. In Clark et al.'s chapter 5, the readers zoom in on the map of stakeholders involved in park management and learn about the present conflicting perspectives between conservationists, park managers, and ranchers with regard to the reestablishment of carnivores in the park, the social process of decision making, and the requirements for doing it both effectively and equitably.

Part III offers 3 in-depth case studies of real-world social and environmental problems analyzed by the book editors as participant observers: the Pacific Crest Trail (U.S.A.), wildlife conservation in Tanzania, and the Humboldt Bay Initiative in California. These 3 cases are thoroughly analyzed, and the problems are comprehensively and accurately defined. Taking into account the underlying governance and constitutive (cultural) problems provides a broad picture and enables a better framing of conservation problems. The lessons learned and recommendations can be applied elsewhere. Although all the case studies except one are from the United States, the framework could be—and has been—extrapolated to other parts of the world. The concluding chapter makes it easy for the readers to sum up the information provided.

In agreement with the authors of *Keeping* and *Protecting the Wild*, I believe that conservation has not failed. It is we who have failed in promoting the unity between social and ecological systems. It is we who have failed in addressing complex issues with (limited) disciplinary views as described in *Large Scale Conservation in the Common Interest*. And, it is we who will keep failing unless we dare to address the ultimate causes of biodiversity decline, which include unsustainable and unbalanced patterns of resource appropriation, production, and consumption; unplanned economic growth; and social inequity.

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## Preaching for the Planet or Just Spinning Our Wheels

**Hope on Earth: A Conversation.** Ehrlich, P. R., and M. C. Tobias. 2014. University of Chicago Press, Chicago, IL, U.S.A. 188 pp. \$22.00 (hardcover). ISBN 978-0-226-11368-5.

**Dodging Extinction: Power, Food, Money, and the Future of Life on Earth.** Barnosky, A. D. 2014. University of California Press, Berkeley, CA, U.S.A. 240 pp. \$22.19 (hardcover). ISBN 978-0-520-27437-2.

**The Bet: Paul Ehrlich, Julian Simon, and Our Gamble over Earth's Future.** Sabin, P. 2013. Yale University Press, New Haven, CT, U.S.A. 304 pp. \$28.50 (hardcover). ISBN 978-0-300-17648-3.

If we are to persuade people that our environmental problems constitute an existential threat, we will have to have dialog with our opponents over substantive issues. Reading these 3 books reminded me that it is not just about getting the science right. We are going to have to account for the culture wars in which the environment increasingly gets bundled with liberal and left-wing politics. Then, there is what I call carbon fatigue, the tendency of people, even sympathetic ones, to tune out when encountering science, especially climate-change science, not just because it is bad news but because all those numerical details are hard work. That said, there are times we have paid a high price for not having our science complete and our forecasts right.

*Hope on Earth: A Conversation* is a ramble between various topics at Rocky Mountain Biological Laboratory (RMBL) featuring Paul Ehrlich and Michael Charles Tobias with a short visit by John Harte. There are excursions into animal sentience, the extinction crisis, Ehrlich's butterfly work, and Harte's 30-year climate-change experiments at RMBL. As someone who has himself written on the relationship between environmentalism and animal advocacy (Halley 2015), I was interested in the dialog about

animal sentience. Although I felt that the choice to eat free-range chicken as a step toward better animal welfare was unfairly given short shrift, there were good stories. For example, the cannibalistic chimpanzees that seemed to repent, walking 2 miles and dropping the body of their victim at the doorstep of Jane Goodall. Calling on a higher power for redemption or the beginnings of hooliganism? There are lots of interesting anecdotes like this.

After more (and more) about climate change, we get plenty of opinions on other wedge issues: race, gender, abortion, atheism, and gun control. Some of these are subject to considerable repetition. It occurred to me that this is not a book you could give to conservative Republicans to try to win them over on climate change or biodiversity loss. The tone becomes strident and abrasive at times on all sorts of issues that have nothing to do with the environment. Gun owners and social conservatives are frequent targets.

Anthony Barnosky's *Dodging Extinction: Power, Food, Money, and the Future of Life on Earth* could certainly not be accused of setting out to cause offence. Six years ago, I put two of Anthony Barnosky's papers (Barnosky et al. 2004; Barnosky 2008), both about extinctions in the Pleistocene, on my students' reading list prior to the class excursion for our applied ecology course, during which we visited the natural history museum near the lignite mines of the power stations at Ptolemaida, in Northern Greece. The museum is there because numerous megafauna remains have been found above the lignite. This field trip, with such a commentary by Barnosky, was a chance to visit the Pleistocene story as well as the theme of atmospheric CO<sub>2</sub> and even to combine them. We don't take the field trip anymore due to the Greek economic crisis, but Barnosky remains on the reading list. I still drive across the plain of Ptolemaida, but I hardly notice the big smokestacks (and their deadly emissions) because I am thinking about mammoths, *Homotherium*, and *Elephus antiquus*, and what it was like 160,000 years ago. I blame Barnosky. One is supposed to extract dull facts from scientific articles, not the stuff of dreams. (Good thing that the road is straight.)

*Dodging Extinction* is about the 6th mass extinction, the one being caused by us and how we might dodge the huge bullet heading in our direction. There have been many books written on this subject. Do we need another? Barnosky's unique approach to the topic is via "global change issues . . . primarily from a paleobiological perspective." The book combines his own research insights with material he gathered from many other sources.

The first 3 chapters are mainly extinction stories in an evolutionary context. From some street-level stories of Galapagos tortoises to the big five mass extinctions, readers learn that current anthropogenic extinction rates are comparable with those of the big five mass extinctions. Evidence also shows that they were all preceded by a major buildup of greenhouse gases. The global CO<sub>2</sub>

changes we are inducing now rival even those preceding the Permian cataclysm. In a chapter entitled "Power," Barnosky introduces that utterly fascinating (and chilling) account (originally published in his 2004 *Science* paper) that gets quoted by many people I talk to: About 12,000 years ago, at the end of the Pleistocene, total megafaunal biomass crashed with many species suddenly disappearing. However, after this crash, human biomass continued to rise. The global ecosystem gradually reached a new state in which megafaunal biomass was now concentrated around one species, humans. Precrash biomass levels were reached just before the Industrial Revolution began; then, they skyrocketed above the precrash baseline as humans augmented the energy available to the global ecosystem by mining fossil fuels.

From the middle of chapter 4, Barnosky turns more to an analysis of our current situation, first addressing the harnessing of energy in a sustainable way. He considers how we could adapt our food requirements and our money system, destructive in their current configuration, so as to avoid the 6th extinction. Chapter 7 is a speed history and a polite rebuttal of the DNA dreamers' notion of de-extinction. Although it may be possible to recreate the genome, what would happen next? Even relatively recent cases are problematic. For example, if the Passenger Pigeon (*Ectopistes migratorius*) were brought back from extinction how would we recreate its chestnut (*Castanea dentata*) forest habitat and how would we get rid of all the Starlings (*Sturnidae*) that replaced them? Bringing back any Pleistocene megafauna would certainly be a mammoth endeavor.

When writing about the 6th extinction, the theme is so vast and so terrible that one could find a justification for almost any style: seriousness, cheerfulness, fury, comedy, or anguish. Barnosky situates himself squarely between the first two. He works hard to cultivate an approachable style to the point that it gets chatty in places ("it's here that things get tricky"). I rather like that gravitas present in his more academic writings. Barnosky writes with great power whenever it involves paleobiology and especially when there is global quantitative analysis involved. When he turns to modern issues, the result is mixed. Some of his sustainability and conservation analyses are a bit heavy going. Despite useful and interesting anecdotes, I felt carbon fatigue gaining on me.

Sometimes, when reading we-can-save-the-planet-together books, one gets the sinking feeling than unless one's opponents stop blocking environmental legislation, we are just spinning our wheels. The book *The Bet: Paul Ehrlich, Julian Simon, and Our Gamble over Earth's Future* is for those who are afraid we might be just spinning our wheels. It reminds us there are some in this world who do not even believe in an extinction crisis, or any other environmental crisis. One such was the late Julian Simon. For many, September 1990 was a dark moment of environmental history. That was when Simon,



notorious cornucopian economist, won his bet. Simon had challenged environmentalists to a bet “If you will pay me the current market price of \$1000 or \$100 each, of any standard mineral or other extractive product you name, and specify any date more than a year away, I will contract to pay you the then-current market price of the material. How about it, doomsayers and catastrophists?” (Simon 1981). Ehrlich and his colleagues John Holdren and John Harte accepted Simon’s offer, choosing 5 metals over a 10-year span: chromium, copper, nickel, tin, and tungsten (Ehrlich 1982). Between Ehrlich’s chosen dates, the prices of all these commodities fell. Simon received a check from Ehrlich for \$576.07, but the bragging rights were priceless.

Paul Sabin, associate professor of history at Yale, has gathered the larger story of this drama in his book, which should be on the reading list of anyone who cares about our environment and how to mobilize humans to help. The book is entertaining, illuminating, and chastening. In 6 chapters, Sabin skillfully weaves the story of the two huge egos and their clash and the wound that clash left behind. Sabin treats both his subjects with respect, and by the end of the book, we can sympathize with either or both. Also, he avoids casting the last stone. Although this is a scholarly book—one-quarter of the 300 or so pages are devoted to footnotes and references—the style is accessible. For me, the end came too soon.

Paul Ehrlich became something of a high priest for the rapidly growing environmental movement in the 1970s following his book *The Population Bomb*. His confrontational, entertaining, and humorous style made him a media sensation. Ehrlich’s message was simple—humans were approaching the limits foreseen by Malthus, we needed to urgently address the problems of overpopulation and overconsumption and to stop abusing the environment. This was a message whose time had come, and it rapidly gained traction. By contrast, Julian Simon was languishing in obscurity even as Ehrlich was drawing audiences of thousands. Simon, then a professor of economics and marketing at the University of Illinois-Urbana, also had been working for population control to combat poverty but was unable to find good evidence linking population to poverty. Simon started to think that the evidence was actually the reverse. In 1970, Simon had a kind of epiphany in which he switched to thinking about people as a great resource. Simon had been suffering from serious depression. But his epiphany now powered him out of depression and propelled him into a prophetic crusade against Ehrlich and the “doomsayers”. His emotional chemistry with Ehrlich was bad from the start. As time went on, it became worse, reaching a crescendo in the pages of *Social Sciences Quarterly*, where the famous bet was offered.

The Ehrlich-Simon debate also reflected the clash between the iconic presidencies of Jimmy Carter and Ronald Reagan. The environment was once a bipartisan

thing in U.S. politics. In the 1960s and 1970s even Richard Nixon, a pragmatic president who saw political potential in this popular movement, pushed through various pieces of new environmental legislation, and earmarked 10 billion dollars for cleaning up water bodies. These plans did not satisfy Ehrlich, who described them as “hilarious.” The administration started to take heat from business interests, so in 1970, Nixon started to back off because, as he said, “I have an uneasy feeling that perhaps we are doing too much.” Carter, however, was a true believer. As well as passing a raft of new environmental legislation, Carter believed that government should lead from the front. Under newly installed solar panels, White House staffers were expected to live frugally. One of the many amusing stories Sabin tells is how national security advisor Zbigniew Brzezinski would move a lamp closer to the thermostat in his office in order to get the air conditioning to turn on sooner. The backlash foreseen by Nixon came under Ronald Reagan. The solar panels were removed as Reagan started to roll back all of Carter’s legislation. As public opinion resisted, Reagan began to moderate and drift back toward the center. But the damage had been done. The polarization of U.S. politics had started.

Simon won his bet in 1990, and we in the environmental movement got egg on our faces. Sabin suggests that metals were a poor choice because of their high volatility—a deepening shortage crisis would be hard to spot. Many say that on chance alone Ehrlich should have won, that Simon was lucky.

But who was really right? Julian Simon, to his credit, said that what he was expecting people to believe seemed to argue against all logic and common sense. But Simon’s provocative stance is built on the work of other economists such as Ester Boserup and Simon Kuznets. Boserup, in particular, raised serious challenges to the arguments of Malthus (Boserup 1965). Boserup used agricultural data to show that there is little correlation between human poverty and population and theorized a staircase of technological innovations that allowed population to grow beyond the Malthusian limit. Simon pushed this argument to the limit: only the size of the universe was a real obstacle to the expansion of human numbers.

Even Sabin does not buy this. But human population through the 20th century has continued its hyperexponential trajectory, arguably with increasing levels of wealth. Classical ecological population theory exemplified by the logistic equation is based on common sense and predicts that as population increases, there should be a gradual slowing due to limiting factors. Now if logic and common sense say one thing and the facts say something else, what are scientists supposed to do? We are supposed to find a logical solution that encompasses the awkward facts through new theories and models. Jared Diamond (who does not appear in this book) has noted that many extinct civilizations did not go into decline

but collapsed right at their peak (Diamond 2011), something not foreseen in the logistic equation. Hern (1999) argues that the correct analogy regarding the appropriation of resources by human civilization (in its current configuration) is cancer, something that often exhibits hyperexponential growth followed by collapse. Thus, the staircase of technological fixes itself may peak and enter a cascade of hyperexponential decay. Both Simon and Ehrlich might be right, but they come down on different sides of a hyperexponential peak. A coherent theoretical perspective is needed, and we do not have one. It is a wonderfully interesting subject. One almost forgets the vast suffering that would follow if our civilization and its technological fixes went into collapse.

A great fissure has opened up in environmental politics in the United States and elsewhere. Nobody has fully explained this culture war. Why have the Republicans (the party of Theodore Roosevelt) become so anti-environment? Sabin does not fully explain, but he highlights the destructive power of the Ehrlich–Simon clash and thinks that both bear some blame for fueling this war. He quotes historian Naomi Oreskes, who points out that the hell-bent pursuit of a scientific trump card by both sides, but mainly the Simon camp, has excluded other human systems such as esthetic and moral choices. I would have liked to have seen more about this in the book. Social conservatives, cornucopians, and oil-business people are among those liable not to give serious consideration to the environment, for very different reasons. So, could I give any of these books to such opponents? The book by Ehrlich and Tobias is mainly for the converted. You could not give it to a cornucopian or social conservative. I could give Barnosky's to someone already wavering or on board and wanting to solve environmental problems or who has a taste for epic themes. A close colleague has already sent *The Bet* to oil-business friends in Calgary (who think the Alberta tar-sands project is a wonderful thing). I would give *The Bet* to anyone because it is a conversation starter for the environment.

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The last decades have witnessed major advances in techniques and methods in ecology, whereas concepts and definitions of terms have often been overlooked, despite their being fundamental. Misdefining basic ecological terms has important implications in conservation and management policies. For instance, the definition of *forest* according to the Food and Agriculture Organisation of the United Nations (FAO) is “land spanning more than 0.5 ha with trees higher than 5 m and a canopy cover of more than 10% or trees able to reach these thresholds in situ.” This encompasses old growth but also tree plantations and even gardens. This definition, also used by the European Commission and the European Environment Agency, has led to declaring that forests cover 31% of Earth's surface (FAO 2010) or more than 43% of Europe (EEA 2016). These declarations are followed by clarifying statements like only 27% of Europe's forests are of uneven age or only 5% of Europe's forests have trees older than 140 years, and forest assessments do not even mention forest exploitation among the pressures that affect the state of forests (EEA 2016).

The term *forest* in the reports cited above refers mostly to a land-use cover type (silviculture) but sometimes also refers to an ecosystem that is relatively undisturbed by humans and in which adult trees are just one of the components. Overuse and misuse of terms are

problematic and lead to deep misunderstandings in assessments, management, and policy. Currently, there is an ongoing debate on the management of the Białowieża Forest in northeastern Poland (Chylarecki & Selva 2016; Schiermeier 2016) initiated by the decision to increase logging as a response to a bark beetle (*Ips typographus*) outbreak, a measure that ignores that bark beetles are part of the forest and play a key role in their dynamics. This is a recurrent issue in the management of protected forests in Europe, for example, the Šumava Forest in the Czech Republic (Křenová & Kindlmann 2015; Kindlmann & Křenová 2016). A less confusing and more science-based definition of forest than the FAO's will yield different figures about how much forest is left and will promote different management approaches bring into question the need for interventions. Statements such as bark beetles or deer are damaging forests make sense from an economic but not from an ecological perspective. These forest issues illustrate how poor translation of scientific concepts into conservation practice creates considerable conflict.

These three books bring the reader back to the essence of ecological concepts. *Wildlife Habitat Conservation* provides an inspiring discussion and thorough review and clarification of terminology related to *habitat*, a commonly used word that is often inappropriately assigned multiple meanings in theory and practice. The authors state that the oversimplification of the term *habitat* as a vegetation type or as a spatially delineated area in legislation and policy can result in the mismanagement of both resources and wildlife. In its classical sense, habitat is an area with a combination of resources (e.g., food, cover, and water) and environmental conditions (e.g., temperature, precipitation, and presence/absence of predators and competitors) that promote occupancy by individuals of a given species (or population) and that allow those individuals to survive and reproduce (Morrison et al. 2006). It is therefore a species-specific concept; so, for instance, unsuitable habitat does not exist because the lack of suitability means the area is just not habitat. The hierarchical definition that refers to an arbitrary area of interest composed of unique subunits (also called habitats or habitat types) that can be further subdivided is also recognized in the book. Other habitat-related terms are deeply explored and rigorously defined, such as *habitat use*, *habitat selection*, *habitat preferences*, *habitat quality*, *habitat loss*, *habitat fragmentation*, *corridors*, *habitat models*, *monitoring*, *disturbance*, *succession*, and *habitat restoration*.

The authors emphasize the need for fitness covariates to support habitat-quality assessments, the need to consider density-dependence and carryover effects among seasons and locations used across the full life cycle (e.g., in migratory species), and the need for community-level approaches to understand responses to habitat degradation. They also discuss the issues of spatial scale

and temporal patterns relative to habitat (alas, often our scale and not that of the organism in question), and how habitat relationships documented at one time may not apply at other times. Some chapters deal with practice and how genetic tools, predictive modeling, species monitoring, and consideration of specific impacts, such as light pollution, noise, or nonnative species, can help managers identify, protect, and restore habitat. The book is multiauthored and divided into three parts: foundation of the habitat concept, factors that put habitats in peril, and tools to preserve and manage habitats. It ends with a plea for transparency in research articles regarding the definition of *habitat* and for consideration of the issues they raise in order to move conservation forward. Habitat is the most important element of management and conservation efforts, and this book is an excellent contribution to the understanding of what habitat is and how to conserve it.

Wilderness is defined as a social and ecological concept in *Rewilding European Landscapes*. The concept appeared in the conservation realm after the end of the frontier exploration in North America in the 19th century. *Wilderness* is synonymous with *freedom*, *naturalness*, *beauty*, *sanctuary*, and *retreat from modern life*. From the perspective of wildlife and nature management, wilderness is the absence of management and the lack of human control over ecological processes and the communities and ecosystems created and sustained by them. The book defines rewilding as the passive management of ecological succession to restore ecosystem processes and reduce the human control of the landscape. Inspired by the process of farmland abandonment in Europe, the authors give a European perspective to this conservation strategy. It is a timely contribution to the ongoing debate on rewilding (Nogués-Bravo et al. 2016).

The first part is about the theory of rewilding and tells the reader about the history of the concept, describes the benefits for the provision of ecosystem services, and reviews the metrics used to map and identify wilderness areas in Europe. The second part examines the consequences of rewilding for biodiversity and the response of different animal groups (large carnivores, avian scavengers, Lepidoptera). Here, the authors offer a range of views on rewilding, such as land sharing, the new wild, promoting human-wildlife coexistence, and "controlled rewilding," which is similar to ecological restoration. The section on disturbance-dependent systems discusses the role of prescribed fires and herbivore reintroductions as management tools, thus offering another perspective on rewilding. The last part of the book is about how to put rewilding into practice. It describes initiatives that, although without a clear concept and scientific rigor, have widely disseminated the idea of rewilding. The final chapter examines how wilderness and rewilding could fit into European and global conservation policies.

*Rewilding European Landscapes* would have benefited from more thorough coverage of systems other than farmlands, particularly forests, and of other geographical regions, such as Northern and Eastern Europe, which also have potential for rewilding. Little explored is the option of nonintervention approaches in both wilderness and rewilding areas—these deserve more attention. The book provides a good overview of rewilding issues for readers who are not familiar with the topic and for practitioners, while getting them on the conservation agenda. In this sense, it is very commendable that the electronic version of the book is open access.

*Europe's Changing Woods and Forests* is an exciting trip through the history of human use and management of trees and forests in Europe. Most natural forests were cleared for farming, a process that started in the Neolithic. The remaining forests were subject to traditional uses and were slowly transformed into wood pastures, coppice systems, or hunting reserves. Forest use changed dramatically with the emergence of forestry in the middle of the 18th century. Trees were treated as crops, planted in a regular pattern, and monocultures of fast-growing conifers and exotic species, like *Eucalyptus* or *Robinia*, were promoted. Humans had a full control of the lives of trees, from planting till harvest. This was the start of plantations and high-intensity forest management, which still dominates European woodlands today and has led to a homogenization of forests.

The book documents these historical changes in forest management and policy very well and chronicles how they affected old and veteran trees, saproxylic insects, understory plants, birds, mammals, diseases, invasions, and tree composition. Some chapters nicely illustrate the range of forest uses and management through history with examples from well-studied forests such as Lorraine (France) or Białowieża (established above). The history presented is based on remote-sensing techniques, molecular tools, pollen and charcoal analysis from sediments and archaeological sites, and dendrochronology and historical data.

Two primary conclusions from *Europe's Changing Woods and Forests* are that all forests in Europe are marked by human activity and that the levels and ways humans have influenced and exploited forests ecosystems differ greatly. This volume is an amazing compilation of forest history, but the authors' use of terms is not consistent or clear for the gradient of human influence. *Wood*, *woodland*, and *forest* are defined in the beginning as “extensive tract[s] of tree-covered land.” Dualities such as forestry versus woodmanship, woodland versus land-bearing trees, natural versus cultural, and seminatural forest versus plantations are presented. The term *wildwood* is introduced at the end as a concept in a new approach to forest conservation in which managers deliberately and knowingly step back from intervening in forests, letting them rewild.

Importantly, this book offers a crucial step in recognition of the fuzziness of terminology, and some authors make an effort in this sense. The book also addresses the globalization of threats, such as climate change, disease, and excess nitrogen deposition, and therefore emphasizes that there is no forest on Earth beyond human influence. It states that Europe has the lowest percentage of forests classified as primary (<3%) and the highest proportion of plantations (>20%). *Europe's Changing Woods and Forests* also describes alternatives to modern forestry that are closer to natural processes and sustainable, how policies protecting and restricting the use of forests were implemented as early as in the 7th century, and the motivation for increasing forest protection in the second half of 20th century. This book provides an outstanding basis for further development of definitions that clearly distinguish forests as ecosystems with dynamics shaped mainly by nonhuman factors from human-managed systems bearing trees, such as wood pastures and plantations. Silvicultural practices have far-reaching environmental effects, even on climate (Naudts et al. 2016). Crucial to successful conservation of our forests is learning from history, and this book is an excellent starting point for translating knowledge from the past into clear concepts for the future.

These three books are all stimulating and inspiring reads and valuable contributions. They not only greatly improve understanding of habitats, forests, and wild landscapes but also induce deep thinking on what these terms mean and what we want to preserve.

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**Noted with Interest**

**Eden Again: Hope in the Marshes of Iraq.** Alwash, S. 2013. Tablet House Publishing, Fullerton, CA, U.S.A. 242 pp. US\$29.95 (hardcover). ISBN 978-0-98886514-2-5.

This book fascinatingly describes the successful restoration of the Mesopotamian marshes. Suzanne Alwash shows how these marshes in southern Iraq are one of the most important wetland complexes in Eurasia for migratory waterbirds. In the northern part of Persian Gulf, this region encompasses the Mesopotamian alluvial plain bordered by the northwestern end of the Zagros mountain range and the eastern part of the Syrian Desert. The Tigris and Euphrates cross the center of Iraq and flow into the Shatt al-Arab near the Persian Gulf. In the heart of this territory, within the world's largest desert, are the Mesopotamian wetlands, originally covering 20,000 km<sup>2</sup>. Its shallow lagoons harbor immense populations of resident and migratory birds, including endemic species. These marshlands are a biodiversity hotspot, and the region is among the 200 most important ecosystems in the world. They are also a historical relict of the cradle of European culture and one of the few ecosystems where humans and nature peacefully coexist. The marshlands of southern Iraq also harbor a threatened human culture connected to the native wetlands. The author vividly portrays how close Saddam Hussein's regime came to completely eradicating this wonder of nature, which has recently been restored. This book is suitable for all readers with an interest in wetland ecology and in ancient and modern history of the lost and found Eden.

**Hemlock. A Forest Giant on the Edge.** Foster, D., editor. 2014. Yale University Press, New Haven, CT, U.S.A. 336 pp. US\$40.00 (hardcover). ISBN 978-0-300-17938-5.

This volume tells the story of the eastern hemlock (*Tsuga canadensis*) in the eastern United States. This noble, dominant species' great decline was caused by an exotic invasive insect, the hemlock woolly adelgid (*Adelges tsugae*), which was introduced to the eastern United States in the early 1950s. David Foster and coauthors guide the readers on a look into the natural history of hemlock and its role in human history from the end of the last ice age. The almost emotional storytelling is coupled with sound scientific knowledge provided by the long research traditions at Harvard Forest. The authors show how natural processes and human-induced changes have shaped this forested landscape. This book will attract the interest of those ready to admire how eastern hemlock has adapted, through extreme shade tolerance, to its harsh environment and to understand the causes and possible effects of the rise and fall of this iconic tree species.

**DDT Wars: Rescuing Our National Bird, Preventing Cancer, and Creating the Environmental Defense Fund.** Wurster, C.F. 2014. Oxford University Press,

Oxford, U.K. 256 pp. £16.95 (hardcover). ISBN 978-01-90219413.

Charles Wurster, scientist and a founding member of the Environmental Defence Fund, is a legend of the environmental movement. When reading this book, it feels as if one were in his living room listening to him recount the story of how DDT was banned and the environmental movement took shape. Wurster tells these stories from his point of view, which is both a strength and a weakness. More emphasis on the most important cases and less on the minor ones would have been good. Still, this is a good reading. Many tense scenes keep one's interest, and the book's powerful stories could change the way people think about and act in favor of nature.

**Conserving America's National Parks.** Abella, S.R. 2015. CreateSpace, Charleston, SC, U.S.A. 194 pp. US\$18.00 (paperback). ISBN 978-1515062546.

In 1916, 45 years after the founding of Yellowstone National Park, the management of the nation's national parks was transferred to the newly created National Park Service. This centenary is worth celebrating, and Scott Abella's slim, self-produced, and apparently self-published book is a good attempt. The author makes a decent effort to survey the most important forces of change in the parks, from fire to climate change, tries to take stock, and provides a useful introduction to several important issues. Two problems detract from his mission: an apparently very small page budget and poor graphic design. Forests are covered in a 15-page chapter, 7 pages of which are figures and tables, although some forest-related information is presented elsewhere. The many photographs are interesting, but their placement and size are often suboptimal. Figures and maps are of low quality, pages are cluttered, and the typography is odd. The lack of editorial oversight, no doubt due to budget constraints, thus somewhat undermines the book's rich content. Despite these problems, it is a useful introduction to the host of challenges U.S. national parks face in the 21st century.

**Noted with Interest\***

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\*We thank these reviewers and those who provided reviews of featured books.