

Foreword

Just like a guy's first car or first girlfriend, a young field biologist's first close encounter with Big Oil is not easily forgotten. My coming-of-age with oil was in 1974 in the province of Madre de Dios in Peru's southern Amazon. More precisely, it was on the edge of 17,000-km² (6564-mi²) Manu National Park, arguably the most biodiverse protected area on Earth, having, for example, roughly 1000 bird species. I was a graduate student and Manu, one of my study sites, was remote. Largely uncontacted indigenous peoples lived in the park; species new to science were discovered regularly; jaguars, giant river otters, and other wildlife were abundant. Assuming you could find a vehicle and boat to rent, it could take a week navigating narrow winding mountain roads and meandering lowland rivers to make it from the Andean city of Cuzco to the lowland park. Much of this is only slightly less true today.

As I journeyed down the Madre de Dios River, few signs of human influence were visible. But, when I arrived at the mouth of the Manu River, there, at the confluence of the two rivers, was a massive oil exploration camp for hundreds of workers. I graciously welcomed the camp's invitation to cold beer and a steak dinner prepared by chefs flown in from Lima and to spend the night in a comfy cot. The next day, while ascending the Manu River in an oil-company boat, I could see arrow-straight seismic survey lines that had been cut through the forest as far as the eye could see—2800 km (1740 mi) of lines when they were finished. When it came time to leave the park, rather than a 2-day boat ride down the Manu to the oil camp, an oil company helicopter I stumbled upon at a supply site made it a 1-h trip. Clearly, I began to realize, Big Oil plays by a different set of rules.

This was not the last time I encountered Big Oil at my field sites. To the north, large reserves of oil were found in Peru's Amazonian province of Loreto, where 64,000 km (39,768 mi) of seismic survey lines, more than 1100 km (684 mi) of pipelines, and hundreds of kilometers (miles) of roads have yielded 1 billion barrels of oil over the last 40 years [1]. The province's 20,000-km² (7722-mi²) Pacaya-Samiria National Reserve has suffered significant oil spills, affecting wildlife and indigenous people alike. Further north, in Ecuador's Amazon region, pressure is building to expand existing oil production in the 10,000-km² (3861-mi²) Yasuni National Park, estimated to hold 20 % of the nation's reserves.

Oil followed me out of the tropics. In 2014, Canada's National Energy Board approved a 5-year, 16,000-km (9942-mi) seismic survey in the offshore waters near my former research site in the Inuit village of Clyde River, Baffin Island. And, in the Northern Great Plains, where I have most recently worked, some of North America's most intact prairies are threatened by oil development in the Bakken Shield, coal-bed methane in the Powder River Basin, and the proposed XL pipeline cutting through the heart of the region.

So, the invitation to write this foreword struck a long, deep nerve. All the more so because of my admiration for the work and experience of the coeditors, J. Edward Gates, David L. Trauger, and Brian Czech, who bring to this effort remarkably diverse experiences across North America in research and management; academia and government; and ecology, economics, and environmental policy. Their collective experience is evident in the results—a book that compellingly calls for “coming of age” environmentally with regard to our oil-dependent adolescence as a society. They have pulled together an extraordinarily comprehensive set of chapters written by experts who examine from multiple perspectives what Peak Oil means both directly and indirectly for not only wildlife, but for civil society. The contributors explore the threats and challenges posed by oil development and dependence, with chapters covering topics ranging from effects on biodiversity in various North American regions to impacts on the wildlife profession, economic development, and prospects for a sustainable future. Importantly, the chapters' authors do not shy away from offering solutions, many of them radical, which rightfully challenge the notion that business as usual, Adam Smith's “invisible hand”, and technological breakthroughs promise a pain-free and reliable path to future prosperity and sustainability. The ideas presented here are sure to both inform and challenge even the most seasoned experts and skeptics, whether in the oil industry, sustainable development, or wildlife conservation.

Civilization—and its carbon footprint—grew slowly beginning 10,000 years ago with the advent of agriculture. Over the last 200 years the pace of change greatly accelerated as the coal-powered industrial revolution and the oil-powered internal combustion engine fundamentally reshaped civilization, facilitated explosive growth of the human population, and launched planet Earth toward a warmer future. The message from this book is loud and clear, and needs to be taken to heart by anyone seriously concerned about the future of both humankind and Earth's biodiversity. Relative to the history of civilization, abundant oil is a flash in the pan. And, the flash will soon begin to subside, if it has not done so already. Short of the equivalent of a Moore's Law for alternative energy development—or a general belief in miracles—we need to take action now, on a bold scale, if future generations are to inherit an Earth as rich and varied and filled with opportunities as we and our ancestors have enjoyed. The coeditors give fair warning in the concluding chapter that we have a choice. We can be proactive so that the transition to post-Peak Oil is intelligent, well managed, and not overly disruptive, or we can wait until change is imposed on us in a less predictable and highly disruptive way by the physical laws of nature—the physical limits to growth.

References

1. Finer M, Jenkins CN, Powers B (2013) Potential of best practice to reduce impacts from oil and gas projects in the Amazon. PLoS ONE 8(5):e63022. doi:10.1371/journal.pone.0063022

Preface

At the beginning of the new millennium, Brian Czech and several other members of The Wildlife Society (TWS) were lobbying this professional organization to adopt a position statement on economic growth, highlighting the fundamental conflicts between economic growth and wildlife conservation. The recognized need for a position statement led to the formation of TWS Working Group for the Steady State Economy (WGSSE) in 2002. During those early years, TWS leaders charged a committee chaired by David Trauger with conducting an economic growth technical review. This committee produced a 2003 publication entitled “Relationship of Economic Growth to Wildlife Conservation.” In 2004, TWS adopted a position statement on economic growth at the TWS meeting in Calgary, Alberta, Canada. It was also during this same time that several publications and books appeared on Peak Oil, discussing the consequences for our industrialized society, particularly its effect on our fossil fuel-powered economy. We thought that it would be tremendously valuable for wildlife and conservation professionals to understand how these issues might affect our profession and the organizations that represent us. As a means of jump starting such a discussion, we decided to bring together authorities on these subjects to give oral presentations at an annual meeting of TWS, followed by questions from the audience and answers from a panel of speakers.

We were successful at putting together a symposium at The Wildlife Society 13th Annual Conference, Anchorage, Alaska, 23–27 September 2006, which was entitled, “Peak Oil, Economic Growth, and Wildlife Conservation.” The WGSSE and the Center for the Advancement of the Steady State Economy (CASSE) sponsored the conference, and J. Edward Gates and Brian Czech were moderators. The talks presented related to the peaking of world oil extraction and its effect on a number of issues, including drilling in the Arctic National Wildlife Refuge, Peak Oil and wildlife issues encompassing diverse stakeholders, friction between economic growth and wildlife conservation in Alaska, perspectives on the market economy, the fundamental conflict between economic growth and wildlife conservation, the relevance of the steady state economy (SSE) after Peak Oil, implications for wildlife conservation and management, the role of professional societies and organizations, and the application of Aldo Leopold’s thoughts to wildlife conservation and economic growth issues. Speakers included J. Edward Gates, Peter Van Tuyn,

Stephen M. Murphy, Falk Huettmann, Lisi Krall, Max Christian, Brian Czech, David L. Trauger, Rhonda D. Jackson, and Michael P. Nelson. Our symposium was attended by over 200 members and concluded with a stimulating panel discussion with the audience.

Following the meeting, and heartened by the response that we received from the audience in attendance, we decided that we could reach a much larger audience by developing the talks into a book. This audience would include different professional groups and their members; wildlife and conservation ecologists; natural resource managers, planners, and policy-makers; and economists in federal, state, and provincial governments. A book could also form a component of university courses, such as conservation ecology, wildlife ecology and management, and ecological economics at both graduate and undergraduate levels. It could be a primary text in seminars dealing with sustainability. Students of Peak Oil and energy depletion literature might also read it to understand its consequences for wildlife and biodiversity conservation. At the time, most books on these subjects focused on the human predicament with very little mention of wildlife other than as a source of protein for survivalists. People interested in alternatives to a growth economy will also find the discussion of a SSE enlightening, given that lack of cheap, abundant energy may force us in that direction anyway.

We contacted our speakers about the book project, and a majority of the original speakers agreed to write chapters for our book, updating, revising, and greatly expanding upon their oral presentations. Since then, we have added several new chapters that strengthened and improved coverage of the material. The section on *The Energy Dilemma* was lacking some important information, particularly in the areas of energy return on investment (EROI) as well as alternatives to fossil fuel energy. We were extremely happy when Jason M. Townsend and Charles A. S. Hall and his research group and David Pimentel agreed to write chapters on these subjects, respectively. Brian Czech and Herman Daly rounded out our section on *Economic Considerations* with a new chapter on the SSE as an alternative to economic growth. As the symposium was held in Alaska, presentations dealing with *Fundamental Conflicts* between economic growth and wildlife conservation focused primarily on that region. In order to broaden coverage of this particular topic in our book, we investigated who was working in different oil and gas plays in North America and whether they would be available and willing to write chapters. These are authorities who had worked on the conflicts between oil and gas development and wildlife conservation in particular regions throughout the USA and Canada, including offshore oil and gas development (Gulf of Mexico, Atlantic Coast); Alberta, Canada, oil sands; and oil shale in the West. We were successful in recruiting several well-qualified professionals, including Gail S. Fraser, Matt Carlson and Brad Stelfox, and Sally Benjamin, respectively. Concluding our section on *Wildlife Conservation and the Future*, our final chapter cowritten by the editors briefly recaps some of the issues covered previously and addresses important topics not dealt with in earlier chapters.

Today, there are numerous books available on the subject of Peak Oil; however, most, if not all, address the consequences of peaking on our industrialized society and how we might adapt. There also are several excellent books available dealing

with economic growth. Some have even been written by our chapter authors. Books on wildlife conservation are also commonplace. However, no book currently integrates the topics of Peak Oil, economic growth, and wildlife conservation into one narrative. Our book attempts to do just that. It is our hope that readers of our book will have a deeper understanding of the linkages between energy and economic growth and the conservation of natural landscapes and native species.

Lastly, this edited book is a collaborative effort involving 13 authors and 10 coauthors, without whose expertise the book would not have been possible. The editors thank all the authors and co-authors for “hanging in there” during the long, arduous task of obtaining, editing, revising, and updating chapters during the development of this book. I personally thank my coeditors, David Trauger and Brian Czech, for their editorial comments on all aspects of the book, as well as long discussions on a wide range of topics, including the biodiversity crisis, economic growth, energy depletion, SSE, sustainability, wildlife conservation, and what it all means for the future of Life on Earth.

Frostburg, Maryland, USA

J. Edward Gates

Peak Oil, Economic Growth, and Wildlife Conservation

Gates, J.E.; Trauger, D.L.; Czech, B. (Eds.)

2014, XX, 346 p. 54 illus., 35 illus. in color., Hardcover

ISBN: 978-1-4939-1953-6