

diversity. The functions of legislation, agreements and funding sources are all discussed. These are often alien topics to even the most well-read of natural science students, and the author does well to link their uses to the activities discussed previously in the book. Finally, an agenda for the future is presented, reinforcing the ongoing problems and possible solutions, whilst describing the role that conservation biologists have to play in all this.

Essentials of Conservation Biology provides everything you could want from a textbook on the subject. Descriptions are clear and unpretentious, and the language is suitable for people from all backgrounds. Full-colour photographs and illustrations complement the text, whilst graphs and tables clearly show useful data. The text covers a variety of topics, providing an excellent background for non-biologists. Summary and

discussion points at the end of each chapter provide direct conclusions, in addition to areas for debate. Well chosen case-studies add substance to the text and help to prove that conservation biology is very much a practical science, based upon basic ecological theories. Primack himself encourages a hands-on approach for aspiring conservationists and advises readers to make contact with organizations that he references in the Appendix.

The author claims that he has intended to provide the reader with “a greater appreciation of the goals, methods and importance of conservation biology”. I feel that he has certainly done this and more, in a clear and detailed manner.

MATTHEW ILES

1431 Lakeshore Road, Apartment 308, Burlington, Ontario
L7S 1B4

The Game of Conservation – International Treaties to Protect the World’s Migratory Animals

By Mark Cioc. 2009. Ohio University Press, 88 University Terrace, Scott Quadrangle, Athens, Ohio 45701. 267 pages. 24.95 USD.

Migration is one of the great wonders of the natural world. One important thing uniting all migratory species is the fight to survive. Migration as a large-scale movement enables animal populations to spend their life in two or more different areas, usually because lack of food makes them impossible to stay in the same place. Other reasons for animals migrating might be to find essential minerals, shelter or to avoid harsh winter weather, to search for a mate, to give birth, lay eggs or raise young, to moult in a safe place, or to flee overcrowded conditions, and so on. Migratory species are in many ways more vulnerable as they use multiple habitats and sites and a wide suite of resources throughout their migratory cycle. The growing array of threats faced by them may include habitat destruction or fragmentation, overexploitation, forcing changes in migration routes, disrupting food sources, affecting nesting and breeding habits and increasing susceptibility to diseases, and global climate change will tend to impose further threats. The decline of migratory species is by no means a new problem. Saving the great migrations will be one of the most difficult conservation challenges of the 21st century, but failing to do so timely will cost heavily, ecologically and even economically.

To carry out conservation, measures such as maintaining a coherent network of stopover sites, creating and expanding suitable habitat and developing and sustaining trans-boundary corridors that allow species to migrate as the environmental changes should be taken. However, protecting animal migrations has been very unsuccessful since that conserving migratory animals poses some unique challenges, one of which is the efficient international coordination for such conservation.

Migration over long distances means crossing many international borders and entering different political areas with their own environmental policies, legislation and conservation measures. Thus, the management of migratory species with a multinational home-range need efficient international cooperation between governments, NGOs and other stakeholders along the whole route of a species to share knowledge and to coordinate conservation efforts. This is especially true for the endangered animal species, with so few individual survivors that the species could soon become extinct over all or most of its natural range, and for the threatened species, still abundant in their natural range but declining in numbers and likely to become endangered.

Traditionally, legislation on wildlife focussed on protected areas and hunting restrictions (e.g., protection of listed species), and has rarely adopted a comprehensive approach to wildlife management. Twentieth-century nature conservation treaties often originated as attempts to regulate the pace of killing rather than as attempts to protect animal habitat. All of these treaties are still in effect today, and all continue to influence nature-protection efforts around the globe. The treaties had many defects, yet they also served the goal of conservation to good effect, often saving key species from complete extermination and sometimes keeping the population numbers at viable levels. Recent wildlife laws contain important innovations.

The recently published book of *The Game of Conservation* is a readable examination of nature protection around the world. It introduces the handful of treaties (all designed to protect the world’s most commercially important migratory species) that have largely shaped the contours of global nature conservation over the past

century. The scope of the book ranges from the African savannahs and the skies of North America to the frigid waters of the Antarctic. The book also argues that the major animal-protection treaties of the early 20th century are better understood as international hunting treaties rather than as conservation treaties. These treaties were more concerned with the protection of hunting grounds and prized prey than with protecting habitats or ecosystems. The author described the formation and implementation of these treaties, as well as the efforts of conservationists and others to reform them and eventually institute new accords that would overcome the hunting ethos of the early treaties.

This book would be a good reference for the persons who are engaged in conservation ecology, population or ecosystem ecology, or environmental law or policy makers, etc., or any other persons who are interested in this field.

LI DEZHI¹ AND QIN AILI²

¹ Lab of Urbanization and Ecological Restoration of Shanghai; National Field Observation and Research Station in Tiantong Forest Ecosystem of Zhejiang; Department of Environmental Science, East China Normal University, 3663, Zhongshan Road (N), Shanghai, China. 200062

² Shanghai Vocational and Technical College of Agriculture and Forestry, 658 Zhongshan 2 Road, Songjiang, Shanghai, China. 201600

MISCELLANEOUS

The Ptarmigan's Dilemma: An Exploration Into How Life Organizes and Supports Itself

By John and Mary Theberge, 2010. McClelland and Stewart, 75 Sherbourne Street, Toronto, Ontario M5A 2P9 Canada. 401 pages. 34.99 CAD, Paper.

This is a remarkable book. It chronicles the professional life of a husband and wife team who, with their students, have conducted field studies for over 40 years and now have spent 6 years in putting it all together in this book. The subjects of their work included a wide range of species involving foxes, wolves, pikas, ptarmigan, ruffed grouse, caribou, white-tailed deer in various settings across Canada. The breadth of detailed studies were enhanced by many eco-tours in the Arctic, USA, Africa, Antarctic and Central/South America. It is an exceptional story, as they have followed through on many tasks in a very focussed way and applied seemingly boundless energies to often difficult projects. In so doing, John and Mary Theberge have come full circle, in not only spending their time in the field, but also effectively publishing their findings in scientific journals, taught university ecology courses and have been in the front lines in battles to protect the natural world. But this book is more than just a review of events and achievements; it is a scholarly account on how nature evolves and renews itself. A precedent had been set by a series of similar books, most notably in recent years in the book by Richard Dawkins entitled "The Greatest Show on Earth – The evidence for Evolution".

I found the title "The Ptarmigan's Dilemma" somewhat misleading. John Theberge did write his PhD about ptarmigan, and in the course of that work found out that ptarmigan mysteriously grew gallbladders to cope with the birds' artificially manipulated diet. That anecdote comes early in the book. Very much later the authors inform us that the real dilemma that these grouse face is whether it is evolutionarily more rewarding for the survival of ptarmigan to leave the security of cover under the hens, or face potentially lethal low temperatures to obtain food. The point is, evolutionarily speaking, there are always tradeoffs. Natural selection

does the rest. That is not a dilemma – it is the natural selection pressures that operate in all situations – Charles Darwin told us that a long time ago. Possibly "The healing hands of nature and mankind's role in destroying it" might have been a better title. Nevertheless, title aside, the authors have cleverly tied their vast experiences with what is known about the broader concept of evolution, genetic variability, natural selection, epigenetic inheritance, Darwinism, and Lamarckism. All concepts are well supported with appropriate citations. They cite important scientific papers, mixed in with anecdotal experiences, graduate students (their students only) projects and serendipitous findings, as occasions permitted.

The authors explore the notion that external factors may have a greater impact on the speed of evolution than mere natural selection as derived from Darwinian Theory. It leaves the reader with the hope that all is not lost in the bigger scheme of things and as such might be considered a relief from the "gloom and doom" themes outlined by many authors, when discussing the multi-faceted problems of our current biodiversity crisis, worldwide. I find little comfort in knowing that it will take between 3.3 to 5.5 billion years to create a new species of bird to replace the many of those that now have found themselves on the IUCN's (International Union for Conservation) endangered species list. I suppose a gloom and "doom" message does little to attraction the attention of our next generation of nature enthusiasts.

Not only species, but systems in which they thrive, are dealt with in this book. I learned, with great interest, about the specifics of dynamics relating to phenomena which are common knowledge but only in a general way. For example, why the modern population explosion of Snow Geese in North America? What are the reasons for mass concentrations of Sandhill Cranes

Erratum The Canadian Field-Naturalist 126(4)

In response to the review of *Contributions to the History of Herpetology*. CFN 126(3): 344-345, the book's editor Kraig Adler pointed out (personal communication to FRC 12 May 2013): "Only one small correction. Mrs. Martof used a kitchen knife, not a gun. She told the police she slipped while cutting some pizza. But Bernie was stabbed up under his rib cage several times!"

Erratum The Canadian Field-Naturalist

It has come to our attention that sections of many of the book reviews by Li Dezhi and Qin Aili were copied from sources without attribution. The journal and the authors apologize for this oversight.