

Community Ecology and perhaps some of the last chapter when the editor relates accounts of media attempts at changing our food habits in the interest of conservation. A suggestion of further study opportunities is also a positive informal note within the technical material. This is a go-to book for answers of what has been studied so far and a check-list of the people involved in the studies. I worked my way slowly through the

book and learned a lot of marine ecology in the process even though I pride myself in staying current with news and features involving general ecology topics. This text is a monumental work and we are better informed having it in hand.

JIM O'NEILL

26095 Taft Road, Novi, MI, USA, 483784

## Marmot Biology – Sociality, Individual Fitness, and Population Dynamics

By Kenneth B. Armitage. 2014. Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge, UK, CB2 8BS. 407 pages, 66.20 CAD, Cloth.

This is a solid book. The author has spent nearly half a century studying the Yellow-bellied Marmot (*Marmota flaviventris*) which certainly gives him the foundation to write such a work. This book is a massive synthesis of marmot biology; there are almost 800 references ...another indication of the thoroughness of this book. There are some nice pictures, and some interesting lore in the first chapter, but largely, this is not meant to be a coffee table book but is going to appeal to ecologists, ethologists and hard core marmot enthusiasts.

Although there are 13 (according to table 1.2) or 14 (according to Figure 2.3) other extant marmots (including the widespread groundhog/woodchuck *M. monax*), the book's coverage is dominated by the author's own focus animal. One entire section (of six in the book) is exclusive to the Yellow-bellied, with the other sections heavy with it. I think that another section in the book, with chapters focussed on the other species, would have balanced the book. However, the information presented on the other marmots is enough to justify titling the book as it is.

The ecology of marmots is largely the concern of the book, and the coverage here is both in depth and thorough. However, the section on predators barely occupied three pages of text, and parasites were given simi-

lar short shrift. It is unclear whether this represents a dearth in the literature, or the author's purposeful exclusion. However, the other fields, whether habitat use, play behaviour or alarm calls, were well-developed.

The long-term, continuous nature of the Armitage's study, the second longest for any mammal, allows for multi generational analyses of his colonies. Breeding success, kinship, and more can best be studied by long term determination of a researcher. We read about the marmots which leave their natal colony, which stay and why this is beneficial. We also learn about home range changes, over wintering physiology and burrow usage.

Technically, data were largely well presented. A few of the graphs had too much information and could have benefited from splitting the multiple curves among two sets of axes. There were several tables which I found odd...normally columns in a table represent the variable(s) being measured, and the numerical data for one or more parameters. Instead, these odd tables had only text, sometimes as abbreviated sentences which may have been summaries of field notes. It is unclear why these passages were not just incorporated into the text.

RANDY LAUFF

Department of Biology, St. Francis Xavier University, Antigonish, NS, Canada, B2G 2W5

## An Indomitable Beast: The Remarkable Journey of the Jaguar

By Alan Rabinowitz. 2014. Island Press, 2000 M Street, Suite 650, Washington DC, USA, 20036. 241 pages, 30.00 USD, Cloth.

The iconic jaguar is surprisingly one of the least known of the big cats that also includes tigers and lions. The largest spotted cat is more secretive and leery of humans, which has probably also contributed to the jaguar's relatively better conservation status. The author has traveled around the world to research and save not only many different species of endangered felids, but also their habitats. In this book, he gives a personal journey beginning in childhood and developing into a professional career spanning over 30 years that has primarily revolved around the jaguar, which is aptly

referred to as the indomitable beast and the reluctant warrior.

At the age of 5 years, Rabinowitz developed a mysterious fascination with the jaguar when his father regularly took him to the Bronx Zoo in his hometown of New York. Gravitating to the sciences in college and feeling more at home in the outdoors led him to complete an MSc on the biology of the endangered gray bat and a PhD on raccoon ecology in Tennessee. Then a serendipitous meeting with the legendary conservation biologist George Schaller brought Rabinowitz full cir-



cle back to his animal of first love. He jumped at the chance of conducting research on the poorly known jaguar in equally unknown Belize.

Afterwards, a two-decade hiatus took Rabinowitz to Asia and the study of other species in need of conservation, but the largest cat in the Americas was always back of mind. It wasn't until 1999 that he got back into jaguars when he organized a meeting on the current state of research and conservation of this species. This book, his second on jaguars, begins here when he sees the revelation of genetic data coalescing with corridors of fragmented forested habitats that gives a better understanding of how the indomitable beast can survive in the face of humanity.

But the story actually starts further back in the Pleistocene ice ages about 2 million years ago when now extinct species and/or subspecies lived in Europe and the Americas. However, only the tropical jaguar survives today with a range from the southern United States to northern Argentina. The big cats, including jaguar, are thought to have their origins in Asia and the likely route of New World colonization was across the Bering Strait land connection in the northern hemisphere. The corridors in these colder, harsher climates were the precursors to the present-day fragmented landscapes that the jaguars now need to navigate and that governments need to preserve.

After the jaguar became established in the Americas and the Eurasian jaguar went extinct, modern man crossed the same land bridge into the New World as early as perhaps 40,000 years ago. With the gradual change from hunter-gatherers to farmers, humans began to have a profound influence on the distribution of jaguars by altering the natural habitat. Early civilizations such as the Olmecs in 1,500 BC Mexico further

modified the landscape but also established a cultural and spiritual link with the jaguar, a mystique that still exists to some extent today.

Paradoxically, the European colonization of the New World in the 15<sup>th</sup> century was devastating to the indigenous pre-Columbian civilizations but enabled the jaguar to re-establish itself in a reforestation of previously modified landscapes. However, by the 19<sup>th</sup> century population growth and development were slowly reclaiming again the forested jaguar habitats. The double-edged sword of overhunting of jaguars for the fashion industry and hunting its prey species such as deer and peccaries for human consumption further endangered the chances of survival. This prompted the Convention on International Trade in Endangered Species (CITES) and the US Endangered Species Act to protect the jaguar and its habitat beginning in the 1970's.

Rabinowitz does a stellar job in weaving the complex and compelling stories of the jaguar by telling them through the lens of evolutionary and cultural history. This starts from day one in the Bronx Zoo during his childhood to the Cockscomb of Belize in his earlier groundbreaking research and the recent drive to ensure its survival through the Jaguar Corridor Initiative that preserves the connections between fragment habitats in the New World tropics. He tells this life-long journey through his association with the Wildlife Conservation Society and now the charitable organization Panthera. This is an inspirational read for not only professional biologists but also amateur naturalists with an interest in the passion of science and environmental conservation.

BURTON K. LIM

Department of Natural History, Royal Ontario Museum,  
100 Queen's Park, Toronto, ON, Canada, M5S 2C6

## BOTANY

### **Flora of Virginia**

By Alan S. Weakley, J. Christopher Ludwig, and John Townsend. 2012. Botanical Institute of Texas Press, 1700 University Drive, Fort Worth, TX, USA, 76107-3400. 1572 pages, 89.99 USD, Cloth.

If a Canadian botanist were looking for just one volume to provide a clear window into much the flora of the eastern United States, this would be it. This opinion offers no disrespect to the floristic treatments from some border states (e.g. Voss and Reznicek's remarkable 2012 *Field Manual of Michigan Flora*) but those must-have volumes are from the neighbourhood, as it were. The *Flora of Virginia* covers the more distant geographic heartland of the eastern United States. In doing so it treats some 3,200 (2,500 native) taxa and provides insight into the biodiversity of one of North America's floristic hot spots. Amongst the treatments of many familiar species, the Canadian botanist will find the discussions of seemingly exotic southern taxa to be both fascinating and helpful.

This flora is the product of careful and thorough scholarship by many of the state's top field botanists and builds upon some 300 years of previous investigations. Moments in the historical progression leading to this publication are colourfully described as constituting "fire, piracy, plague, penury [and] plagiarism" (page 21). Hopefully not for the current team! The end product is a superb marriage of field-based skills, herbarium investigations and the review of mountains of scientific analysis.

*Flora of Virginia* is really two books in one. The first 'book' is the 85 page introductory section that provides a comprehensive biophysical and historical foundation for the study, explaining the complex geological nature and landform history of Virginia. This introduc-



Lim, Burton K. 2015. "An Indomitable Beast: The Remarkable Journey of the Jaguar, by Alan Rabinowitz [Review]." *The Canadian field-naturalist* 129(1), 104–105. <https://doi.org/10.22621/cfn.v129i1.1682>.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/307675>

**DOI:** <https://doi.org/10.22621/cfn.v129i1.1682>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/353608>

#### **Holding Institution**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

#### **Sponsored by**

Harvard University, Museum of Comparative Zoology, Ernst Mayr Library

#### **Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Ottawa Field-Naturalists' Club

License: <http://creativecommons.org/licenses/by-nc-sa/4.0/>

Rights: <http://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.