

Book Reviews

Book-review Editor's Note: We are continuing to use the current currency codes. Thus Canadian dollars are CAD, U.S. dollars are USD, Euros are EUR, China Yuan Remimbi are CNY, Australian dollars are AUD and so on.

ZOOLOGY

The North American Porcupine (Second edition)

By Uldis Roze. 2009. Cornell University Press, Ithaca and London. 282 pages, 35 USD Cloth.

The North American Porcupine, second edition, is a beautiful book. Written by Uldis Roze, professor emeritus of biology at Queens College, City University of New York, and porcupine researcher extraordinaire, it provides highly readable and informative insight into the biology and life history of a highly underappreciated and often misunderstood (and persecuted) denizen of North American forests. This is a must-read for any naturalist seeking to develop a deeper understanding of our native wildlife.

The book is divided into 14 chapters that discuss a comprehensive range of topics: porcupine anatomy, defence reaction (those formidable quills and how they work), and parasites; the animal's salt drive, and seasonal foraging and denning habits; its social structure, reproduction, and maternal care; members of the greater global porcupine family; porcupine-human relations; and two chapters focusing on individual porcupines, Musa and Squirrel, the author had the pleasure to study in depth. A detailed references section and index, along with colour and black-and-white photographs, accompany the text.

The content of the book is based on the author's long-term telemetry study of porcupines in the Catskill Mountains. Over the course of more than 25 years, Roze followed porcupines through the woods at all hours of the day and night, observing their behaviour and environment and capturing them to conduct physical examinations. He also conducted laboratory analyses to solve puzzles, and he nursed individual porcupines back to health (at his home in New York City!) when they were ill.

It is his personal touch, his intimate involvement with his research subjects, his obvious appreciation and respect for the individual animal, that make this book a true gem and make Roze a particularly credible and sympathetic author. In the preface to the second edition, for example, he writes that his later studies revealed the length and complexity of porcupine life, reinforcing his decision not to conduct experimentation that would harm the animals—a decision he has not regretted. He adds, at the end of the "Porcupines and People" chapter, that the porcupine has repeatedly

played the role of "a teacher, a storyteller of the woods, a complexifier and adorer of the world" (page 14).

Roze's many porcupine teachers appear in the descriptive and lyrical pieces that open each new chapter and in the personal stories woven throughout the book. Things he learned from porcupines include the way in which they cope with the toxicity of the tree leaves and bark they eat; porcupines ingest clay, which detoxifies plant tissues by binding with their tannins and alkaloids. Roze also learned, from the porcupines he followed, about their strategy for assembling the intestinal flora necessary to digest the complex polymers present in the changing pattern of plants available in new locations: the animals eat parts of droppings left by previous porcupine inhabitants.

By far the most intimate and engaging parts of the book are the last two chapters: "Travels with Musa" and "The Oldest Porcupine." The first traces a five-month adventure literally walking with Musa, an orphaned baby porcupine Roze adopted, nurtured, and raised—in full recognition of what he expresses as his responsibility for the emotional and intellectual development of a sensitive and intelligent animal—for ultimate release back into the wild. Along the way, through wanderings and occasional misadventures, Musa provides teachings about porcupines that more traditional studies could not reveal, a process Roze compares to friendship, "the slow opening of inner secrets that add dimension and empathy to a life not one's own" (page 237).

In "The Oldest Porcupine," Roze portrays the other end of porcupine life, old age, with the spotlight on Squirrel, a porcupine he followed for over 20 years as she navigated through young adulthood, fruitful motherhood, menopause, and old age. As the world's oldest monitored porcupine in the wild, Squirrel has scientific importance. As an animal Roze watched, followed, and admired for decades, she has personal significance, altering his perception of the landscape through memories associated with her presence in particular places. "I will always see the forest differently" he writes (page 258)—because of Squirrel.

The North American Porcupine, second edition, is a comprehensive and compelling book, a tribute to a mysterious and often unloved wildlife species written by a man who studied the animals intimately for decades. It is both a valuable source of scientific information about porcupines and an eloquent appeal to respect and appreciate these animals for their uniqueness, adaptability, and ability to astonish. Time and time again, Roze writes, the porcupine has forced him to

“take another look at the forest, its natural home, from a different perspective” (page 14).

This book has forced me to look at porcupines from many different perspectives—I will never look at the animal or its traces the same way—and for that, it has gained a prominent place on my bookshelf.

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Amphibian Biology Volume 8: Amphibian Decline: Diseases, Parasites, Maladies and Pollution

Edited by Harold Heatwole and John W. Wilkinson. 2009. Surry Beatty & Sons Baulkham Hills, Australia. xiii + 338 pages.

This series began in 1994, inspired by the classic multi-volume *Biology of the Reptila* series begun in 1969 by Karl Gans. The amphibian equivalent was initiated by its senior editor Harold Heatwole. There have been seven previous Amphibia volumes in this series covering Integument, Social Behaviour, Sensory Perception, Palaeontology, Osteology, Endocrinology, and Systematics. The pages in the series are numbered consecutively from volume one. This volume is pages 2963 to 3290.

The new volume tackles the highly publicized causes implicated in a worldwide amphibian decline. There are 12 chapters produced by an international group of 29 authors, 14 are the United States. The remainder are 6 from Australia, 3 from Spain, and 1 each from Canada, Italy, Nigeria, Puerto Rico, Switzerland, and the United Kingdom. The problem of the rapid changes in nomenclature as promoted by Frost et al. (2006 American Museum of Natural History Bulletin 297) is solved by letting authors of each chapter adopt the new nomenclature or use the old.

The introduction flatly states that basic to the problem of apparent declining biodiversity is the ever-expanding human population. This now exceeds the carrying capacity of the earth. Its maintenance at present levels is sustained by fossil reservoirs of energy, soil, water, and even oxygen. As these continue to be depleted the obvious conclusion is that the long-term future is bleak for our own species, and perhaps for all life. But that is far ahead and here the focus is on present and immediate declines and extinctions of many frog species and some of the major contributing factors.

The book is dedicated to Lee Burger, who co-authored the volume's two initial papers. In 1998, Dr. Berger published the discovery of *Batrachochytrium dendrobatidis*, causing chytridiomycosis, an infection of the skin of frogs. Subsequent work has implicated it in mass mortalities and documented its spread worldwide. A map on page 2988 gives its world distribution. North America and Australia both have continent-wide incidence of reports, but no continent has completely escaped its presence.

Initially the book concentrates on this and other infections and then moves to the variety of other causes of declines. The first three chapters focus on: viral, bacterial, and fungal outbreaks and interspecific variation in susceptibility. Chapter 4 is on digenetic trematodes and 5 on the incidence of malformations and the ongoing debate on their major causes. Chapter 6 is on ultraviolet-B radiation. Chapter 7 covers nitrogen pollution, 8 impact of pesticides, 9 endocrine disrupting chemicals, 10 petrochemicals and heavy metals, 11 acidification and 12 climatic change. The only Canadian contributor, David Green of McGill, coauthored Chapter 11.

The result of the documenting and synthesis of many approaches is somewhat inconclusive. At some localities some species have been directly and heavily impacted. Species have disappeared from known causes but others are still speculative. We still lack conclusive evidence for one single causative factor worldwide or a single strategy to reverse the widespread trend of amphibian decline. This despite massive concentration of recent and continuing research on the problem.

Future volumes for *Amphibian Biology* are already planned. These will be on (1) the roles of anthropogenic influences such as habitat change; introduction of alien species; roadkills; direct harvesting, trade, and the use of amphibian species by humans, (2) various ecological, phylogenetic, and geographic correlates of amphibian decline, (3) monitoring programmes and concentration practices such as the establishment of refugia, captive breeding and re-introduction; and mitigation; as well as the application of education. The last volumes will assess the global status of conservation and decline on a region-by-region basis to serve as a bench marks for subsequent changes that take place.

Concerned naturalists will seek the current volume out in libraries to widen their appreciation of just how complicated the interactions between the various studied factors are. Researchers will value it as a reference to what has been accomplished so far.

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