

ENVIRONMENT

Amphibian Ecology and Conservation: A Handbook of Techniques

Edited by Kenneth Dodd. 2010. Oxford University Press Inc., New York.

Amphibians, the original pioneering land vertebrates, have survived their displacement from former dominance by more advanced vertebrates as numerous and diverse, generally relatively small, forms. These include the familiar and widely distributed frogs, the northern temperate and tropical American salamanders, and the tropical caecilians. These, however, are now regarded by many leading researchers as faced with a new wave of extinctions due to increasing loss of habitat, chemical residues pollution, and the spread of devastating disease. As a consequence, their study and habitat management is widely pronounced as an immediate world conservation priority. It is estimated that of the 6400 modern species described to date, one-third are threatened and 168 are judged now extinct. As well, an unknown number of yet undescribed species may disappear before they are found.

The purpose of this book is present a comprehensive survey of the current state of research on amphibians. To accomplish this, editor Dodds has enlisted contributions from 52 herpetologists. Americans dominate, only nine are from elsewhere, one each residing in Australia, Brazil, Germany, France, Panama, Russia, Switzerland, Tanzania, and the United Kingdom. That none are from Canada does not fairly reflect the active research and conservation initiatives, past and current, here.

The text is divided into six parts containing 27 chapters in all. Part 1 is an overview on diversity and life history ending with why amphibian declines matter, and a chapter on field study objectives. Chapters in Part 2 concentrate on larvae and included chapters are on morphology, sampling, dietary assessments; mesocosms, and water quality criteria. Part 3 focuses on juveniles and adults containing chapters on measuring and marking post-metamorphs, egg mass and nest count, dietary assessments of adults, movement patterns and radiotelemetry, field enclosures and terrestrial cages. Part 4 deals with population: drift fences,

coverboards and other traps, area-based surveys, rapid assessments of diversity, auditory monitoring of populations, and measuring habitats. Part 5 tackles communities in two chapters, one on diversity and similarity, the other on landscape ecology and GIS methods. Part 6 is on physiological ecology and genetics with chapters on field methods, models in field studies of temperature and moisture; genetics in field ecology conservation; selection of species and sampling areas; the importance to inference; capture-mark-recapture, removal sampling, occupancy models; quantifying abundance: counts, detection probabilities, and estimates; disease monitoring and biosecurity; and conservation and management. Each chapter has its own reference section which facilitates quick reference to studies cited. There are over 50 black-and-white photographs and diagrams and a number of tables scattered through the text where relevant.

Naturalists will find much of interest in the studies and approaches described which will further their perspective of past and current field research undertaken on amphibians. But its widest use will be as a technical reference for further scientific studies. As such its usefulness as a lecture and graduate studies reference will be great.

Surprisingly, although there are useful suggestions on ethics in research, there is no emphasis and little mention of the necessity of applying for permits for studies of at least some species in most jurisdictions. This exercise must precede research. Regulations vary widely between provinces, states, and countries. As well, these frequently change. A check must be made on current requirements and applications submitted months before planned initiation of any study. Early application is essential as there is a universal tendency for permit issuing authorities to act at glacial speed.

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The Changing Arctic Landscape

By Ken Tape. 2010. The University of Chicago Press, 1427 East 60th Street, Chicago, Illinois 60637 USA. 132 pages. 35.00 USD Cloth.

The author, Ken Tape, has turned a very interesting idea into an intriguing book. He has collected as many old photographs of the Alaskan Arctic landscape as he can. He has then travelled to the same locations, searched for the exact location of the original photographer and then re-taken the photograph. This allows

the reader to directly compare the way the landscape looked in years past to modern photographs. Generally the originals were taken at least 50 years ago, but some are much older.

For most, but not all, there are noticeable differences. Typically, there is a noticeable expansion of shrubs or

small trees. Places that had the typical, low-growing tundra vegetation are now shrubby. Where there were shrubs in the past now has a significant development in the size and extent of these plants.

To understand these modifications, Tape explains the impact of changes in the climate. He considers more or less snow, temperatures, rain, albedo, and permafrost. For example, a loss of permafrost causes slumping and bushes like to move into the little furrows left by this process. These explanations are carefully crafted and reveal a great deal of Arctic biology.

The photograph comparisons also document the reduction in size of northern glaciers. There are some carefully reconstituted panoramas from the past to compare to recent digital images. Where useful the author marks in arrows or lines to help orient the reader. To achieve these paired views the author has had to work very hard. First, he collected old photographs from explorers, geologists and institutions. Not all of these are useful as most were taken for specific objectives that do not relate to Tape's. Next, they had to be copied and perhaps joined to be valid for this exercise. Then the author had to journey back to the area shown and find the exact spot to take a repeat picture. Those who have plodded across Arctic terrain will know this is no easy task.

During his research Tape met some of the pioneers of Alaskan exploration, mostly geologists. He includes short background biographies of these people and their

work, along with comments from his interviews. This is a delightful addition to the book and gives a human aspect to this dominantly scientific text. These accounts are charmingly illustrated with old photos. Where possible there is an adjacent, recent picture of these people.

I have a very tiny technical quibble. The authors research area is Alaska north of the Arctic Circle. Not all of this area is within the "Arctic" [The modified 10°C isotherm] as some parts are south of the sheltering Brooks Range.

This book is a very enjoyable read. The text, including the scientific explanations, is easy to follow and, while descriptive, does not waffle. The photographs are fun to explore and re-explore. It is also an important scientific text, for it is written with objectivity and is backed by hard data. I think this short [alas, too short] book should be read by all fans of the Arctic, students and those who say nay [or is that Ni?] to climate change. So I have to give the last word to the Knights who say Ni:

HEAD KNIGHT: We shall say 'ni' again to you if you do not appease us.

KING ARTHUR: Well, what is it you want?

HEAD KNIGHT: We want... a shrubbery!

[*Monty Python and the Holy Grail (1975)*]

Do we?

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