

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 a AUD and so on.

ZOOLOGY

Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in Our Understanding, Sixth Edition

Edited by Brian I. Crother. 2008. Society for the Study of Amphibians and Reptiles Herpetological Circular 37. 84 pages. USD 12.00.

This slender volume resets the standard for scientific and English ["common"] names to current usage for all amphibians and reptiles recorded for North America (Canada and the United States) and is the official list for all three major herpetological societies based in the United States (The Society for the Study of Amphibians and Reptiles, The American Society of Ichthyologists and Herpetologists, The Herpetologists League). It is the product of a committee of prominent herpetologists consisting of Crother (chair), Jeff Boundy, Frank T. Burbrink, Jonathan A. Campbell, Kevin de Queiroz, Darrel R. Frost, Richard Highton, John B. Iverson, Fred Krus, Roy W. McDiarmid, Joseph R. Mendelson III, Peter A. Meylan, Tod W. Reeder, Michael E. Seidel, Stephen G. Tilley, and David W. Wake. This sixth edition is the second for which this committee has been responsible. The first was in 2001 (SSAR Herpetological Circular 29) and is now available on the web (<http://www.ssarherps.org/pdf/Crother.pdf>). It was reviewed, together with some historical background on the evolution of the list, in *The Canadian Field-Naturalist* 116(4): 656-658 (2002).

After a one-page introduction and acknowledgments, the text is divided into sections: Anura – frogs: Frost (chair), McDiarmid, Mendelson; Caudata – salamanders: Tilley (chair), Highton, Wake); Squamata – lizards: de Queiroz (chair), Reeder; Squamata – snakes: Crother (chair), Boundy, Burbrink, Campbell; Crocodylia – crocodylians (Crother); Testudines. Turtles: Iverson (chair), Meylan, Seidel.

There are some major changes from the previous edition that affect the scientific names of many Canadian species. The majority of these involve the long-overdue breakups of large genera distributed over more than one continent into groups of their most closely related species. This had been long-delayed because previous piecemeal changes of small segments were not generally adopted due to the lack of an overall revision. This was finally overcome by the publication of a comprehensive synthesis for world amphibians by

Frost et al. in 2006 (Bulletin of the American Museum of Natural History 297).

For toads (*Bufo*) and typical frogs (*Rana*) this has meant major shifts to unfamiliar genera. All strictly North American toads now are designated *Anaxyrus*, including the five (or four, depending on what species concept you follow) Canadian species. All the *Rana* except a few western species become *Lithobates*. This necessitates changes in the termination of some species names to agree in gender with this genus (*Lithobates catesbeianus*, *Lithobates sylvaticus*). The western species which occur in Canada that are retained in *Rana* are *R. aurora*, *R. pretiosa*, and *R. luteiventris*, because they are more closely related to the Eurasian species in this genus than to other North American frogs. Two genera are recognized for spadefoots with the two species reaching Canada both placed in *Spea*.

Other generic changes accepted which affect the names for species which occur in Canada include *Plestiodon* for skinks formerly included in *Eumeces*, and *Pantherophis* for the North American Ratsnakes, formerly included with the Eurasian *Elaphe*. However, not included are changes in a later study which combined the Ratsnakes with the Bullsnares and Gopher Snakes in the genus *Pituophis*; or another study that retains the latter genus in its traditional sense and erects separate genera for the Ratsnakes and the Fox Snakes. In turtles the breakup of the genus *Clemmys* leaves it with only *guttata* while the Western Pond Turtle is placed in the genus *Actinemys* and the Wood Turtle in the genus *Glyptemys*. The genus *Opheodrys* is retained for the Smooth Green Snake rather than following a proposed change to *Liochlorophis*.

On the species level, two species of *Ascaphus* (tailed toads) are recognized and the western populations of the Tiger Salamander are elevated to species status as *Ambystoma mavortium*, but the later move is still controversial. In the rattlesnake genus *Crotalus*, the pacific and the prairie forms are regarded as species, *C. oreganus* and *C. viridis*. The species *Hypsigena torquata* has now been restricted to Mexico, so the form ranging into British Columbia, the Desert Nightsnake, is now *Hypsigena chlorophaea deserticola*.

The book concludes with a section by Klaus on alien (introduced by humans) species: 6 anurans, 54 lizards, 4 snakes, 1 crocodylian, and 2 turtles, the majority of these established in Florida or Hawaii. Of all these newcomers to North America, only one is in Canada, a European lizard on Vancouver Island. Checklists can only reflect the state of knowledge up to press time and how rapidly they become outdated is a direct reflection of how active and innovative current research is in the field they cover. Taxonomy and phylogenetics

in herpetology have enjoyed explosive growth in recent decades and will continue for the near future at least. This checklist cannot be the last word in species status and relationships, but is an essential authoritative benchmark for naturalists' and conservationists' reference now.

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Arctic Fox: Life at the Top of the World

By Garry Hamilton. 2008. Firefly Books Ltd., 66 Leek Crescent, Richmond Hill, Ontario L4B 1H1 Canada. 231 pages. 39.95 USD.

Garry Hamilton has produced a wonderfully written account of a whimsical predator that's not as well researched as some of the more charismatic canid species. He has gone to the source to obtain the most accurate and reliable information: the biologists and graduate students that ventured to the circumpolar region and studied the fox first hand. These interviews and summations of their research provide an added edge that is lacking in today's natural history writing.

The book is divided into three parts: Origins, Adaptations, and Change, with each part containing several chapters. Each chapter covers a particular aspect of Arctic fox biology and is accompanied by outstanding full-color photos by photographer Norbert Rosing. Hamilton uses the stories told by researchers to make various points about the amazing ecology of the Arctic fox and incorporates the journal writings of fox hunters, explorers, and early naturalists that lived within the Arctic fox's realm. With these stories and writings, Hamilton paints a picture of a fox that is a master of conserving energy, is a clever hoarder of goose eggs, and is bold enough to follow polar bears (*Ursus maritimus*) to take advantage of the seal carcasses left behind. Indeed, the most striking aspect of Hamilton's writing is his ability to communicate the adaptability of the little fox, from reproduction to the constant struggle in obtaining food.

When I first saw the book, I assumed it was some sort of coffee table tome – it measures 28 × 22 × 2 cm and is not something easily carried around. However, once I began reading, I soon realized that it was a very well researched book that contains nearly everything currently known about the fox. In short, it is a thorough species account of the Arctic fox, and exceeded my initial expectations.

I was most interested in finding out exactly where the Arctic fox came from. Chapter 3 delves into this question, explaining that it is a result of rapid evolution 200 000 to 400 000 years ago from the swift fox (*Vulpes velox*), which occurs in the Great Plains of the United States stretching from Texas to Canada. Hamil-

ton explains the evolutionary mechanisms and the pressures of natural selection with ease, providing a classic example of adaptation and survival.

The final chapters provide a cautionary statement regarding Arctic fox conservation. One would think that a fox as adaptable as the Arctic fox would not be in jeopardy. But this is not necessarily true. Global climate change is likely to thrust the fox into a state of peril. But other landscape-level challenges are becoming more of an issue. The northern expansion of the red fox (*Vulpes vulpes*) may be driving some populations of Arctic foxes to extinction, especially those in northern Europe. Hamilton explores these inter-specific interactions as well as the lemming cycles and other variables that continue to keep the Arctic fox in survivor mode.

There was only one major error in this book—the use of the Latin name *Alopex lagopus* for the Arctic fox. Whether this is a remnant of past research or the inability to change the name because of publication schedules, it is an unfortunate oversight in a work that is so rich with detail. The 3rd edition of *Mammal Species of the World: A Taxonomic and Geographic Reference* (Wozencraft 2005) places the Arctic fox with the rest of the vulpine foxes, *Vulpes lagopus*. This is mainly due to recent genetic work that proves a close relationship with the swift fox, as mentioned above.

Hamilton's book is a must for those interested in carnivore ecology, and seeking a volume detailing the Arctic fox's struggle within the brutal frozen habitat north of the Arctic Circle. Hamilton states, "...we have come to praise and not to bury our most worthy emperor of the north. Its days are far from done. Indeed, there is only one way in which we could possibly view this most remarkable of creatures – as shining examples of life's ability to survive" [page 216].

Literature Cited

Wozencraft, W. C. 2005. Order Carnivora. Pages 532–628 in *Mammal species of the world: a taxonomic and geographic reference* Edited by D. E. Wilson and D. M. Reeder. 3rd edition. Johns Hopkins University Press, Baltimore, Maryland.

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