

Non-Native and Invasive Ticks. Threats to Human and Animal Health in the United States

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BURRIDGE, MICHAEL J. 2011. *Non-Native and Invasive Ticks. Threats to Human and Animal Health in the United States*. University Press of Florida, Gainesville, FL USA, xi-xiii + 292 pp., Hardback, ISBN 978-0-8130-3537-6, \$125.

In *Non-Native and Invasive Ticks*, Michael Burrridge has provided a major resource for scientists, acarologists, and pathologists by detailing invasive ticks, the diseases they potentially vector, and the various countries from which at least 100 non-native ticks have entered the United States in the recent past. The book is especially important for personnel who work in importation of domestic animals and pets, for Burrridge carefully documents the threat from ticks that have already come into the United States on large animals, migratory birds, and reptiles as pets. This is a timely and valuable contribution. Michael Burrridge, Professor Emeritus, University of Florida, Department of Infectious Disease and Pathology, has brought together in a single book details of these exotic ticks gleaned from over 2000 sources, with 669 cited references on hosts, distribution, life cycle, habitat, disease associations, and the potential that they pose to human and animal health. The book is organized into 18 chapters, with Chapter 1 as a brief 2+ pages of introduction and rationale for the book. In Chapter 2 Dr. Burrridge gives a short discussion of invasive ticks, the facilitation of their movement by the international trade in animals, and notes various ways in which ticks have entered the United States on humans, reptiles, mammals, migratory birds, and even on plant material. There are 50 illustrations of ticks and hosts (in black and white in the text, with color on the front and back of the hardback cover).

Beginning with Chapter 3, and continuing through Chapter 13, each chapter describes invasive ticks from a particular part of the world, including Africa, Afro-Caribbean region, Afro-Asian region, Afro-European region, Afro-Eurasian region, Europe, Eurasia, Asia, Australoasian-Asiatic region, Australia, and the Americas. Many of these chapters have a map (7 altogether) showing the native distribution of the ticks in the region. Chapter 14 is a 5-page chapter dealing with 2 widespread ticks, *Rhipicephalus (Boophilus) annulatus* (Say) and *R. (Boophilus) microplus* (Canestrini) that are very important to animal health in the United States because they can infest numerous wild and domestic large mammals, and can transmit several severe diseases. Although these 2 ticks have been eradicated from the continental U.S., their frequent reintroduction into southern Texas from Mexico requires watchfulness. Chapter 15 describes tickborne diseases, symptoms, possible treatments, and references to further literature. Chapter 16 covers the important area of evaluating the risks of invasive tick in the United States. In the introduction to

this chapter, the author notes that invasive ticks often have shown capability of infecting new hosts that are foreign to their native range, making them of even greater importance as invasive vectors. Twenty-three of the ticks described in the book can vector human diseases, and up to 63 will take blood from humans. Table 16.7 on page 169 lists diseases transmitted to humans, the causative agent, and the tick vector. Other tables (114 throughout the book) list similar information for diseases vectored by ticks to farm animals, wild animals, and domestic pets. Chapter 17, entitled "Measures Used to Combat Invasive Ticks" enumerates the various regulatory agencies in the U.S. that monitor and regulate trade in international wildlife, farm animals, and pets. As noted, smuggling of small animals, particularly reptiles, continues to be a problem. In this chapter, the author describes recent eradications of particular ticks from captive infested animals and their enclosures. Chapter 18 concludes with a 7-page summary of "Actions Needed to Minimize Introduction of Invasive Ticks".

Two appendices, a glossary, a complete listing of 662 references, and an index follow. Appendix 1 (about 22 pages) comprises a listing of the scientific name of each tick, its native host, the origin of its host, the year it came into the United States, the state where it came in or was discovered, and the original reference noting its presence. Appendix 2 (46 pages) lists the host of invasive ticks by taxonomic class (of host), scientific name of host and common name when known, and the scientific name of the tick taken from the host. The listing includes many birds, mammals, and reptiles as hosts of invasive ticks.

The glossary is particularly valuable for students, scientists, and those who must deal with potential tick invasions, but who may not be especially trained in acarology or all aspects of animal and human health. The listing of 669 references to the primary literature on ticks, their hosts, and the diseases they transmit is an invaluable resource for all who work with tickborne diseases to animals and humans.

Burrridge has provided a timely and valuable resource for naturalists, entomologists, acarologists, veterinarians, zoo-keepers, pathologists, and all those involved in buying and selling pets.

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