

GODDARD, J. 2013. *Public Health Entomology*. CRC Press, Boca Raton, FL. XIX + 210 pp. ISBN 978-1-4398-4881-4, US\$89.00 (hardback), US\$80.00 (eBook). Amazon

Emergent and re-emergent diseases continue to wreak havoc in many tropical and temperate countries. While habitat modification provided the ideal stage for the emergence of Lyme disease in the northeastern United States during the late-20th Century, the 1999 introduction of West Nile (WN) virus in New York and recent dengue virus outbreaks in the Florida Keys are somber reminders of the speed and unpredictability that vector-borne disease outbreaks can occur. Public health entomology is an integrated practice focused on population biology, ecology and epidemiology of vector-borne diseases with local and state government policies to essentially alter the pathogen-host relationship (Spielman et al. 2001). Few textbooks exist detailing the aspects of public health entomology, especially ones addressing the recent public health threats in the United States. Surveys in the U.S. assessing the public's response to vector-borne diseases clearly demonstrate a growing concern for their control and knowledge, especially those transmitted by ticks and mosquitoes (Hill et al. 2009).

Dr. Jerome Goddard, the author of *Public Health Entomology*, provides readers with a comprehensive 210-page textbook detailing aspects of modern-day public health entomology. An associate extension professor of medical and veterinary entomology at Mississippi State University, Dr. Goddard is an accomplished author who has written over 175 scientific papers, 8 book chapters, 4 college-level reference or textbooks and 6 fiction novels.

The book is divided into 2 sections; the first section comprises chapters 1 to 8, while chapters 9 through 21 complete the second section. Chapter 1 provides a detailed overview of early public health intervention in the United States. Offering a number of historical photographs depicting the struggle of malaria throughout the Southern United States, the author successfully illustrates the challenges that health officials faced during the early 1900's. Chapter 2 covers pest control issues in modern public health, including pesticide laws, regulations, history and current uses of pesticides, whereas chapter 3 describes steps involved in setting up a public health entomology program. Chapter 4, the lengthiest chapter in the book, provides an overview of vector-borne disease surveillance, including the advantages and disadvantages of a variety of surveillance systems. This chapter provides a thorough review of mosquito surveillance techniques used to target different mosquito life stages, as well as providing examples of forms used to record mosquito collections. In Chapter 5, Dr. Goddard details regulatory issues and political challenges, subjects commonly overlooked by those not inti-

mately involved in the practice of public health. Specifically, he addresses the public's negative response to many vaccination and pesticide programs by citing personal true stories. In Chapter 6, Dr. Goddard discusses the challenges of emerging and re-emerging vector borne diseases that face public health entomologists citing recent dengue outbreaks in the Florida Keys, travelers' malaria, cutaneous leishmaniasis among returning Iraqi war veterans, and Lyme disease. The majority of chapter 6 is devoted to vector control issues experienced during natural disasters, including numerous examples of the U.S. military's aerial spraying capability during World War II to the recent involvement in the disaster relief caused by hurricanes Katrina and Rita. Working as the state medical entomologist at the Mississippi Department of Health for 20 years, it's no wonder why Dr. Goddard specifically focused 10 pages of this chapter on the pest control issues after hurricane Katrina and challenges faced by employees of the Mississippi Department of Health. Chapters 7 and 8 describe research opportunities relating to public health entomology, additional references, information and points of contact relating to public health.

The second section of the book focuses on insects associated with public health entomology. Chapters 9 through 18 describe the importance, distribution and impact on human health for the following blood-sucking arthropods: mosquitoes, ticks, fleas, lice, sand flies, tsetse flies, black flies, bed bugs, kissing bugs and mites. Chapter 19 discusses pests involved in mechanical transmission of disease. This chapter describes filth flies, rodents and cockroaches; and while some would question the purpose of rodents in an entomology reference, the inclusion of this topic makes the book more comprehensive, especially for any pest control expert. In Chapter 20, Goddard discusses the medical significance of arthropod bites and stings and places a special emphasis on clues to recognizing the types of bites and stings, a difficult challenge for anyone serving in the medical field. The final chapter provides thorough information on myiasis, to include the types of myiasis, common fly larvae involved, and some scenarios many physicians or other healthcare providers may encounter while treating cases of myiasis.

The book is free of typographical errors; however, one criticism from this reviewer's viewpoint is the number of figures containing line or bar graphs that are squeezed within the text. These graphs are in black and white, making treatment comparisons within the figures difficult to decipher. Moreover, while the author provides excellent photos depicting wounds or clinical manifestations, the book would be considerably improved

if these pictures were in color, preferably on glossy paper. This book is ideal for any graduate level public health entomology course and should be considered seriously as part of a library for any public health professional.

REFERENCES CITED

HILL, C. A., WHITFORD, F., AND MACDONALD, J. F. 2009. Assessing and responding to public health entomology needs in Indiana. *American Entomol.* 55: 114-121.

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