Lyme Disease: The Ecology of a Complex System

Richard Ostfeld
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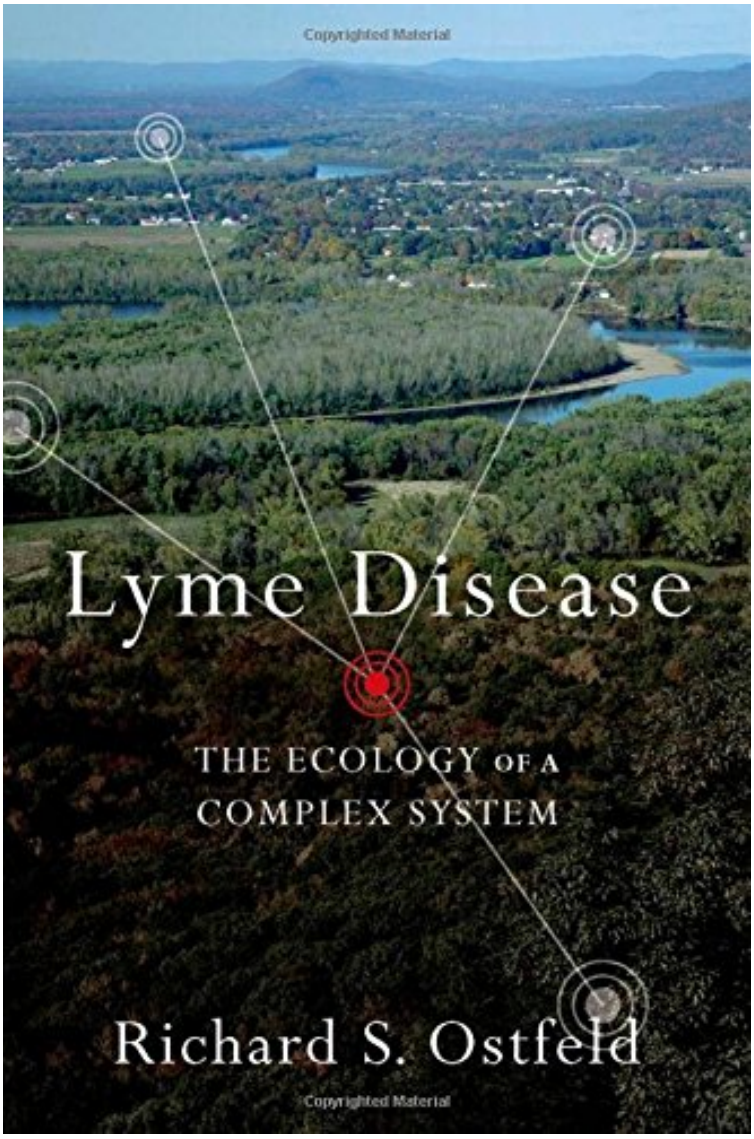

#712637 in Books Ostfeld Richard S 2010-11-10Original language:EnglishPDF # 1 6.20 x .70 x 9.10l, 1.00 #File Name: 0195388127232 pagesLyme Disease The Ecology of a Complex System | File size: 62.Mb

Richard Ostfeld : Lyme Disease: The Ecology of a Complex System before purchasing it in order to gage whether or not it would be worth my time, and all praised Lyme Disease: The Ecology of a Complex System:

1 of 1 people found the following review helpful. Deserves a prize for best science writing of the yearBy James H TimmonsThis is the best book on disease transmission thatI have read since I left medical school 32 years ago. I have personally lived through the failures of a reductionist approach to medicine. If we embrace the ecological wisdom contained in this book, we will improve our odds of surviving the post-antibiotic era of evolving superbugs.The book

also provides powerful support for the central place of ecology in planning environmental protection or remediation. It is filled with cautionary tales about the failures of "shoot from the hip" environmental interventions based on inadequate understanding of the complex ecologies of diseases. In an age that relies increasingly on social media supported self-selected silos of mutually reinforcing prejudices, this book is a refreshing silo buster. Understanding anything of importance requires a tolerance for complexity. Action in a world of complexity requires deep understanding. This book delivers on deep understanding of an amazingly context-dependent disease transmission system.Finally, this book is well-written, logically consistent, and pulls the reader along like a well constructed murder mystery. It achieves the rare trifecta of science reporting: accurate, informative and entertaining. This is a great read!19 of 19 people found the following review helpful. Thoughtful and compellingBy gavagaiA rigorous and careful analysis of the Lyme disease ecosystem in eastern and central North America, this book is accessible to lay people who are familiar with scientific research. It is very well written, with occasional wry asides, and the content is both important and fascinating. It is also a story of scientific mistakes such as oversimplification and poor experimental design, and unscientific attachment to simple explanations which then become dogma. While Ostfeld shows some understanding of why the narrative of Lyme disease research has played out this way, he is very clear in his call for better-informed experimental design. Ostfeld's goal is to understand what causes Lyme disease to emerge and spread, so that we are in a better position to mitigate disease risk -- for other emerging infectious diseases as well as Lyme.A few examples of insights from the book: - The tick that carries Lyme disease is not the "deer tick," which doesn't exist as a separate species, but the blacklegged tick. Further, this tick is a host generalist and is not a specialist on white-tailed deer. This has enormous implications for both research and risk mitigation. - Tick populations and Lyme disease are not closely coupled with dense deer populations. - Lyme disease is sometimes absent in areas with abundant blacklegged ticks and white-tailed deer, which indicates that other factors are playing a significant role. - White-footed mice are the easiest host mammals to catch and to inspect for immature blacklegged ticks, but other hosts are significant as well. - Four small mammals (including white-footed mice) host 50% of ticks, but account for 90% of infected ticks. That means that all the other possible hosts account for only 10% of infected ticks. Since ticks take only one blood meal at each stage of life, infection prevalence depends on the composition of host species. - In areas with lots of oak trees, acorn production (which leads to a population explosion of mice and chipmunks) is an excellent leading indicator of the ecological risk of human exposure to Lyme disease. - Biodiversity, which depends on intact habitats, is a critical factor in Lyme disease risk. - When a system is complex (as the Lyme disease ecosystem is), you cannot understand it via reductionist, simplistic models.Throughout, and at the end of the book, Ostfeld discusses other zoonotic diseases, such as SARS, West Nile, and hantavirus.What makes this book compelling is a combination of good science, clear writing, skilled explanations of the functioning of complex systems, and good choices of supporting graphics.The result is a fascinating book, especially given the density and rigor of the material.7 of 7 people found the following review helpful. GOOD REASONING. CLEAR. THEE TEXT. THANK YOUBy Un esclave ignorant s'inclina devant un Saint Majestic DieuThis profoundly experienced researcher offers a definitive study of all aspects of the major vectors, environments, and animals involved with Lyme diease.His analogies are superior.His summary of all major studies is highly readable but does not compromise depth.Anyone interested in preventing Lyme disease in their community, or who is involved in land care or actions impacting any natural setting as an official in a local, state or federal agency, or those involved in zoning new areas of non-urban land, should read this book.Further, people looking to relocate or move to areas that are pondering their risk of vector illnesses, like the many new fatal Hanta virus forms throughout all the America's, or tick infections like Lyme disease, Babesia, prolific Bartonella, etc. might find this very useful.He is also an interesting teacher of the ways we are exposed, and why we are more exposed beyond basic 1990 causes--mice and deer numbers.Golfers, gardeners and others working in fields, pastures or woods, who like reading at a college level, will find this of use.

Most human diseases come from nature, from pathogens that live and breed in non-human animals and are "accidentally" transmitted to us. Human illness is only the culmination of a complex series of interactions among species in their natural habitats. To avoid exposure to these pathogens, we must understand which species are involved, what regulates their abundance, and how they interact. Lyme disease affects the lives of millions of people in the US, Europe, and Asia. It is the most frequently reported vector-borne disease in the United States; About 20,000 cases have been reported each year over the past five years, and tens of thousands more go unrecognized and unreported. Despite the epidemiological importance of understanding variable LD risk, such pursuit has been slow, indirect, and only partially successful, due in part to an overemphasis on identifying the small subset of 'key players' that contribute to Lyme disease risk, as well as a general misunderstanding of effective treatment options. This controversial book is a comprehensive, synthetic review of research on the ecology of Lyme disease in North America. It describes how humans get sick, why some years and places are so risky and others not. It challenges dogma - for instance, that risk is closely tied to the abundance of deer - and replaces it with a new understanding that embraces the complexity of species and their interactions. It describes why the place where Lyme disease emerged - coastal New England - set researchers on mistaken pathways. It shows how tiny acorns have enormous impacts on our probability

of getting sick, why biodiversity is good for our health, why living next to a small woodlot is dangerous, and why Lyme disease is an excellent model system for understanding many other human and animal diseases. Intended for an audience of professional and student ecologists, epidemiologists, and other health scientists, it is written in an informal style accessible also to non-scientists interested in human health and conservation.

"Researchers and graduate students interested in ecological and population aspects of Lyme disease will find value in this concise, well-argued booklet, with its clear historical account of Lyme disease epidemic, an up-to-date list of primary citations on Lyme disease ecology, and a rich source of ecological hypotheses for future studies. Especially, I recommend this volume highly to graduate students and researcher entering the field of ecology of enzootic infectious disease (Lyme disease, in particular) for its values in both as an introductory text of the field and as a vivid and inspiring guide on how to build a successful research career by being a contrarian and iconoclast." -- New Biological Books "In sum, this book is an excellent reference and very insightful review of the history and co-epidemiology of Lyme disease. Focused more on the ecology than the epidemiology of Lyme disease and other emerging zoonoses, it will surely provide useful background and new ideas to those interested in wildlife, vectorborne, and zoonotic diseases, providing a much more nuanced appreciation of their complex natural history and interactions with humans." -- Journal of Wildlife DiseasesAbout the AuthorRick Ostfeld is Senior Scientist and Animal Ecologist at the Cary Institute of Ecosystem Studies, Millbrook, New York.