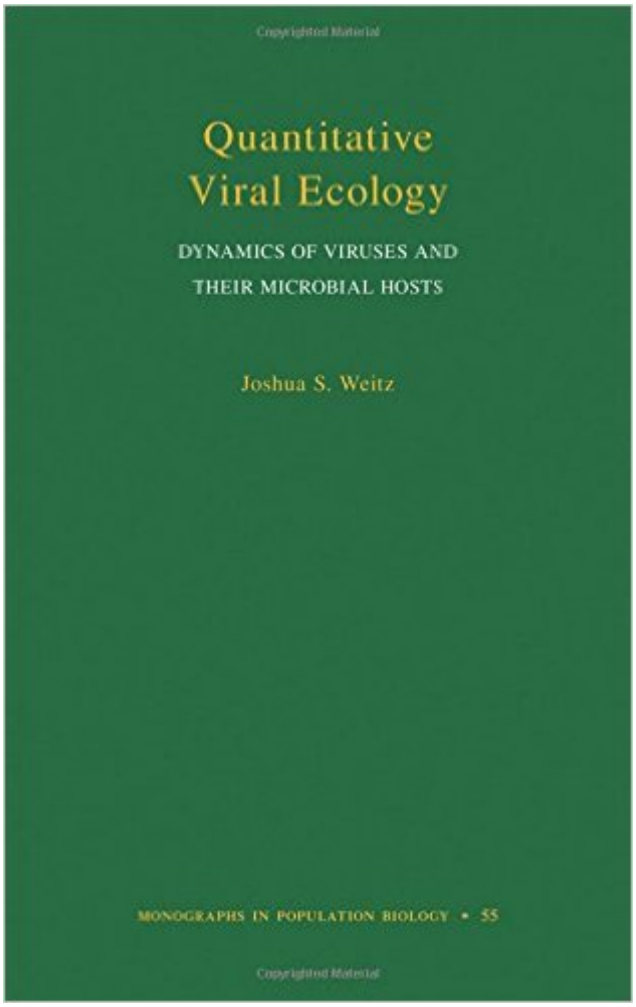
Quantitative Viral Ecology: Dynamics Of Viruses And Their Microbial Hosts (Monographs In Population Biology)



Synopsis

When we think about viruses we tend to consider ones that afflict humans--such as those that cause influenza, HIV, and Ebola. Yet, vastly more viruses infect single-celled microbes. Diverse and abundant, microbes and the viruses that infect them are found in oceans, lakes, plants, soil, and animal-associated microbiomes. Taking a vital look at the "microscopic" mode of disease dynamics, Quantitative Viral Ecology establishes a theoretical foundation from which to model and predict the ecological and evolutionary dynamics that result from the interaction between viruses and their microbial hosts. Joshua Weitz addresses three major questions: What are viruses of microbes and what do they do to their hosts? How do interactions of a single virus-host pair affect the number and traits of hosts and virus populations? How do virus-host dynamics emerge in natural environments when interactions take place between many viruses and many hosts? Emphasizing how theory and models can provide answers, Weitz offers a cohesive framework for tackling new challenges in the study of viruses and microbes and how they are connected to ecological processes--from the laboratory to the Earth system.Quantitative Viral Ecology is an innovative exploration of the influence of viruses in our complex natural world.

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