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Primate Parasite Ecology
The Dynamics and Study of Host–Parasite Relationships

Anyone who has spent an extended period in the tropics has an idea, through caring for others or first-hand experience, just what it is like to be a primate parasite host. Monkeys and apes often share parasites with humans, for example the HIV viruses which evolved from related viruses of chimpanzees and sooty mangabeys, and so understanding the ecology of infectious diseases in non-human primates is of paramount importance. Furthermore, there is accumulating evidence that environmental change may promote contact between humans and non-human primates and increase the possibility of sharing infectious disease. Written for graduate students and academic researchers, this book addresses these issues and provides up-to-date information on the methods of study, natural history, and ecology/theory of the exciting field of primate parasite ecology.

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Preface

Anyone who has spent any extended period living and researching in the tropics has an idea, whether by second-hand experience caring for others or by being infected themselves with malaria, amebic dysentery, sand fleas, or some of the other local milieu of parasites, just what it is like to be a primate parasite host. The effects of parasitism can be serious or even deadly, warranting that all precautionary measures be taken. However, for some like ourselves who have had the experience more than once, it can lead to an interest to understanding the nature of host–parasite relationships and the effect parasites can have on the host. For both of us, the study of primate parasite ecology is truly infectious, and it is our wish that this enthusiasm is transmitted to you the reader!

The sudden appearance of diseases like SARS (Severe Acute Respiratory Syndrome) and bird flu or the devastating impacts that diseases like Ebola have had on both human and wildlife communities, and the immense social and economic costs created by viruses like HIV underscore our need to understand the ecology of infectious diseases. Given that monkeys and apes often share parasites with humans, understanding the ecology of infectious diseases in non-human primates is of paramount importance. This is well illustrated by the HIV viruses, the causative agents of human AIDS, which evolved recently from related viruses of chimpanzees (*Pan troglodytes*) and sooty mangabeys (*Lophocebus atys*) and the outbreaks of Ebola virus, which trace their origins to zoonotic transmissions from local apes. A consideration of how environmental change may promote contact between humans and non-human primates and increase the possibility of sharing infectious disease detrimental to humans or non-human primates is now critical to both conservation and human health planning.

Such emerging diseases and the impact that they have had on humans and wildlife has stimulated a considerable amount of recent research and it is clear that the field of primate disease ecology has recently been gaining momentum. The study of disease adds a new and important dimension to primatology, as most previous research has focused on predation and resource competition, with almost no research on infectious disease as an ecological force. The relevance of issues of disease ecology is wide with an expected impact on a diverse set of

researchers including the veterinary sciences, conservation, zoonotic diseases, zoology, and evolutionary biology. This is a very young field, but the time is right to gather together what information has recently become available on primate disease ecology to clearly illustrate the "state of the art" and to also point the way forward.

This book covers a diversity of aspects of host–parasite relationships integrating laboratory methodology, field research, and theory. In general, the chapters fall into three broad categories: (1) Methods to study primate–parasite interactions, (2) The natural history of primate–parasite interactions, and (3) The ecology of primate–parasite interactions. Within this general framework chapters in the section on field research cover a variety of primate species ranging from tropical to temperate habitats. They cover host–parasite, pathogen interactions of both internal and external parasites. Authors address the dynamic nature of host–parasite relationships and look at such aspects as host behavioral counter-measures in response to infection, inter- and intra-species difference in parasite prevalence as a consequence of climatic and environmental variation, habitat fragmentation, and seasonality. Chapters include original research papers, reviews, methodology, theory on various aspects of host–parasite ecology research, and resources for species identification.

This book would not have come to fruition had it not been for the enthusiasm and efforts of all the authors and colleagues who offered their time and assistance in preparing and reviewing the manuscripts. To all of you we give our hearty appreciation.