Book Review
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Review by Amy T. Gilbert

The question about whether bats are special reservoirs of disease has intrigued mankind for the better part of the last century. Only a single chapter in Wang and Cowled’s Bats and Viruses directly addresses whether bats are comparatively unique in their ability to host or transmit diseases. However, the underlying resonance of this question is evident throughout this book, in the context of disease emergence throughout the 20th century to the present. In general, virus studies focused on bats had waned after heightened activity from 1940–60 following recognition that bats in the Americas were a reservoir of rabies virus, a highly lethal zoonosis. The potential for aerosol transmission of rabies virus from massive aggregations of cave-dwelling bats was demonstrated experimentally in animals and suspected for a few human cases during the 1950s and 1960s, but mass human or animal outbreaks from this type of exposure were never observed. In contrast, public and scientific alarm peaked during 1990–2010, when the world witnessed a repeated number of high-profile epidemic, and even pandemic, diseases affecting humans that were associated with bats. This list includes Hendra Virus deaths in Australia, Nipah Virus encephalitis in multiple countries of south Asia, Ebola and Marburg hemorrhagic fevers in several central African countries, and Severe Acute Respiratory Syndrome in southeast Asia. Each of these outbreaks triggered human cases, some with subsequent human-to-human transmission, which had never been observed for bat-transmitted rabies (with the exception of transplant cases). These emerging bat viruses also seemed to be transmitted by asymptomatic bats, consistent with the general concept of a wildlife reservoir, but in contrast to rabies, which is lethal to bats. The novel capacity for transmission and spread of these lethal emerging bat viruses when coupled with sophisticated and complex human contact and travel, quickly made the world a scarier place, as reviewed in the recent popular book Spillover (Quammen 2012), and evident in films such as Contagion (2011). Popular media has long presented bats as mystical flying vermin ready to attack humans indiscriminately without notice. Unprovoked behavioral aggression occasionally seen in rabies virus-infected bats and the existence of a small number of obligate blood-feeding species (three out of >1,200 species) fed this fear. Indeed, challenges remain in fostering a positive image and appreciation of these fascinating animals in the eyes of the public, which is necessary to counter emotional calls for reactive and largely ineffectual culling or displacement disease management strategies. As human population expansion requires increasing levels of food and land resources, managers face daunting challenges to minimize the threats of wildlife diseases to public and agricultural health, while also protecting the health of wildlife populations and ecosystems.