

The role of Ebola virus in the decline of great ape populations

I applaud Huijbregts *et al.* (2003) for highlighting the potential role of disease in jeopardizing the persistence of great ape populations. The evidence presented for Ebola virus causing the reported population declines is, however, only circumstantial. Without establishing a definitive diagnosis for the cause of death of these great apes it is not possible to say that the population declines were due to Ebola virus or other infectious diseases, alternative factors, or a combination thereof. To determine the role of disease in wildlife population declines, continuous active disease surveillance is necessary to establish baseline or expected incidence and prevalence and thus identify unusual morbidity/mortality events. Prompt investigation, by trained personnel to ensure appropriate diagnostic samples are collected, and to minimize risks to human health, as well as reporting of these outbreaks, is then required.

Establishing the aetiology and epidemiological determinants of a disease outbreak will then allow for appropriate disease preventive and control measures to be applied. While this may be difficult for Ebola virus due to its elusive reservoir and poorly understood epidemiology, there are an increasing number of disease surveillance and management techniques that can be applied to wildlife populations that are vulnerable to disease (Wobeser, 1994).

The Mountain Gorilla Veterinary Project is an example of the successful integration of veterinary medicine into a comprehensive conservation project, and has been providing veterinary expertise for the benefit of mountain gorilla conservation for nearly 20 years (Cranfield *et al.*, 2002). In addition, the Wildlife Conservation Society Field Veterinary Program is a leader in providing veterinary services to *in situ* conservation projects (see <http://wcs.org/home/science/wildlifehealthscience/fvp>).

As a result of these collaborative efforts the Wildlife Conservation Society and others have been able to make more definitive statements about the role of Ebola virus in wildlife population declines (Leroy *et al.*, 2004).

There are an unprecedented number of emerging and re-emerging infectious diseases that threaten wildlife, domestic animal, and human health (Daszak *et al.*, 2001). I encourage studies such as that by Huijbregts *et al.* (2003), but appropriate disease surveillance and outbreak investigations need to be conducted if we are to truly understand the role of disease as a threat to biodiversity conservation. It is important not to ignore the potential contributions of veterinary medicine and the health sciences to conservation projects.

Jonathan M. Sleeman

Director of Veterinary Services, Wildlife Center of Virginia

P.O. Box 1557, Waynesboro, Virginia 22980, USA

E-mail jsleeman@wildlifecenter.org

References

- Cranfield, M., Gaffikin, L., Sleeman, J.M. & Rooney, M. (2002) The Mountain Gorilla and Conservation Medicine. In *Conservation Medicine: Ecological Health in Practice* (eds A.A. Aguirre, R.S. Ostfeld, G.M. Tabor, C. House & M.C. Pearl), pp. 282–296. Oxford University Press, Oxford, UK.
- Daszak, P., Cunningham, A.A. & Hyatt, A.D. (2001) Anthropogenic environmental change and the emergence of infectious diseases in wildlife. *Acta Tropica*, **78**, 103–116.
- Huijbregts, B., De Wachter, P., Sosthène, L., Obiang, N. & Akou, M.E. (2003) Ebola and the decline of gorilla *Gorilla gorilla* and chimpanzee *Pan troglodytes* populations in Minkebe Forest, north-eastern Gabon. *Oryx*, **37**, 437–443.
- Leroy, E.M., Rouquet, P., Formenty, P., Souquiere, S., Kilbourne, A., Froment, J-M., Bermejo, M., Smit, S., Karesh, W., Swanepoel, R., Zaki, S.R. & Rollin, P.E. (2004). Multiple Ebola virus transmission events and rapid decline of central African wildlife. *Science*, **303**, 387–390.
- Wobeser, G. (1994) *Investigation and Management of Disease in Wild Animals*. New York, Plenum Press, USA.