Chapter 10
Wildlife Disease Surveillance and Monitoring


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10.1 Introduction

Emerging diseases of human or veterinary importance are a major challenge to human society. As previously discussed, infectious diseases of wild mammal populations can have significant economic impact, may threaten human and livestock health (Artois et al. 2001), and can affect the welfare and conservation of game (Gortazar et al. 2006) and species of high conservation value (Cleaveland et al. 2002). Wild mammals are also implicated as sources of emerging diseases (Daszak et al. 2000a; Cleaveland 2003; Cunningham 2005). Comprehensive epidemiological investigations and disease surveillance of wild mammal populations will enhance our capacity to detect and control infectious diseases that may emerge in the future in human and domestic animal populations. Given that the majority of diseases that have emerged in the last couple of decades had a wildlife origin (see Chapter 1), surveillance for wildlife diseases may be seen as an essential tool for the protection of human health.

For these reasons, the development of effective programmes for the surveillance of disease in wildlife populations is becoming increasingly important. Epidemiological investigations in wildlife are similar in many respects in terms of their objectives, concepts and methodology to those undertaken for domestic animal health surveillance and monitoring. However, there are also substantial differences, owing to the zoological, behavioural and ecological characteristics of wildlife populations. Consequently, definitions, methods and procedures must often be adapted to suit the unique conditions of wildlife disease surveillance.

10.1.1 Definitions

Several terms can be used to describe an investigation of disease in a population (see Table 10.1), but as they may refer to distinctly different concepts, or time frames, it is important to clarify their respective definitions. The main difference between surveillance or monitoring on the one hand and surveys on the other, is their duration. Surveillance and monitoring usually refer to an ongoing process, whereas surveys are more often limited in duration (i.e. a ‘snapshot’ in time). The term surveillance is commonly used to refer to the monitoring of behaviour or events from a distance. In an epidemiological sense however surveillance (sometimes called epidemiological surveillance) should be restricted to the ongoing recording of diseases in wildlife populations with a view to disease management (OIE 2006). It has been traditional to separate surveillance into scanning (or passive) surveillance (recording cases as they occur) or targeted (or active) surveillance (targeting individuals to detect the disease). An epidemiological survey on wildlife should not be considered as disease surveillance unless the survey is continuous and specifically designed to analyse and manage any associated health risks. In contrast, surveillance data are used to identify the areas to be targeted for control, and to anticipate spatial and temporal resurgences so that pre-emptive management interventions can be used to reduce disease risks.