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HOW HEALTHY ARE SOUTHERN AFRICA'S WATERBIRDS?

When scientists assess the quality of life of human populations, they often use health as an indicator. In South Africa, for example, statistics such as annual changes in the number of children who die before the age of five and the number of people who suffer from HIV tell important stories about wellbeing and governance.

The same principle is true for animal populations: their health offers a valuable indicator of long-term changes in habitat quality. Most conservation efforts are triggered by declines in animal populations and, correspondingly, the condition of these creatures can indicate the effectiveness of conservation action. In addition, the interactions that occur between people and animals, and domestic animals in particular, mean that disease can be transmitted to human populations and create new infectious diseases in them. For example, the recent episode of swine 'flu that killed a student at Stellenbosch University had its origins among domestic pigs in South America.

In 2007 the Fitzpatrick and our collaborators at CIRAD (the French agricultural research centre) in Zimbabwe, and the Onderstepoort Veterinary Institute in Pretoria started a new project on waterbirds and their diseases. The project had two main objectives: to understand where and why ducks are moving around southern Africa, and to start monitoring and quantifying the incidence of avian parasites and pathogens in our waterbirds, focusing on avian influenza and avian malaria.

Between 2007 and 2009 we sampled a total of nearly 5 000 water-associated birds, spread over six different sites in four countries (Lake Chuali in Mozambique,

Lakes Manyame and Chivero in Zimbabwe, Lake Ngami in Botswana, and Barberspan and Strandfontein in South Africa). Across all sampled individuals (the majority of which were ducks) we found an overall prevalence of avian influenza of about 2.5 per cent, but no evidence of the highly pathogenic H5N1 bird 'flu. There was significant variation in levels of infection between different species and locations. Overall, the prevalence of influenza decreased from north to south, with the highest numbers of infections occurring at the Zimbabwean study sites, among White-faced Ducks, Red-billed Teals and African Jacanas.

The incidence of avian malaria appears to be considerably higher than that of avian influenza, and the preliminary analysis of blood samples and slides indicates that almost 10 per cent of birds are infected. Fitzpatrick post-doctoral fellow Dr Felix Nchu and PhD student Sharon Okanga are currently collecting additional data that should allow us to explore how the prevalence of malaria is influenced by the locations and characteristics of wetlands.

A key piece of the puzzle as to why disease levels differ between sites and species is movement, because that is what brings infected birds into contact with one another. Another important element is life history: the timing and location of breeding influences the likelihood of infection, and juveniles with their untested immune systems are more vulnerable to infection than adults. These questions are being explored using satellite telemetry together with a detailed analysis of nest record cards and bird counts. We will provide an update on the telemetry study in a future Fitz News.

Fadzai Matzvimbo of BirdLife Zimbabwe prepares to take Red-billed Teals out of a walk-in trap on the shores of Lake Manyame, near Harare.



If you would like to be part of our bursary and research fund-raising drives, please contact the Institute's Director, Prof. Phil Hockey, Percy FitzPatrick Institute, University of Cape Town, Rondebosch, South Africa 7701. E-mail phil.hockey@uct.ac.za, fax +27 (0)21 650 3295, tel. +27 (0)21 650 3290/1 or visit www.fitzpatrick.uct.ac.za

