

Guest editorial

Time for concern: is the health of Antarctica's wildlife in danger?

The high degree of isolation of Antarctica may well have protected its seals and birds from many of the diseases found in related species outside the continent. Our recent review of diseases in penguins has shown that birds taken into captivity are susceptible to a wide range of diseases, many of which have not been recorded in the wild. The same situation presumably applies to Antarctic seals. Adélie penguins in Antarctica have been shown to have antibodies to Newcastle disease virus, avian influenza virus and the Chlamydia group of bacteria. From this we could infer that wild birds have had contact with these diseases but, in the cases of viral diseases at least, a more likely explanation could be that the antibodies are the result of cross-infection with related but benign viral strains. There is no evidence to date that any major exotic diseases have been introduced into the Antarctic ecosystem. However, unless non-pathogenic strains are present to provide cross-immunity, all birds and seals are likely to be highly susceptible to such introductions.

So far as we are aware there have been no outbreaks of a major introduced disease, despite human activities over the past 100 years which have included the disposal into the environment of meat and poultry products, and the introduction and maintenance of potential vectors of disease including sledge and domestic dogs, horses, cats, rats, mice, cage birds and homing pigeons. Humans themselves may also be possible vectors for bacterial diseases.

The introduction of disease has been recognized as a problem by the Antarctic Treaty nations who, through the Agreed Measures for the Conservation of Antarctic Flora and Fauna, and more recently the Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol) have agreed regulations which prohibit the disposal of poultry products into the wild and the importation of exotic animals and birds into Antarctica. It is to be regretted that there continue to be serious breaches of the letter and the spirit of these regulations. Stricter quarantine procedures must be exercised by all nations operating in Antarctica to ensure the exclusion of alien animals and birds from the continent, and improve the screening of imported food products and disposal methods for food wastes. With the number of people living in and visiting Antarctica increasing each year the risks of introducing disease into animal and bird populations must also be increasing.

The detection and estimation of diseases is of particular importance to long-term monitoring studies, such as those taking place under the CCAMLR Ecosystem Monitoring Programme, where it is possible that subclinical disease will make subtle changes in population performance difficult to disentangle from fishery activities. Knowledge of infectious diseases is also necessary for quarantine and conservation purposes. We believe, therefore, that it is now important to draw attention to our inadequate knowledge in this field. Should we develop specific measures for dealing with an outbreak of a serious exotic disease in Antarctic regions which would involve resolving such questions as how to contain an outbreak, and what steps we should take to eliminate the causal agent? Should we intervene only if the disease is known to be a direct result of human activity, or should we aim to control and/or eliminate any disease outbreak we come across? We therefore urge national Antarctic agencies and SCAR to consider these questions, determine the degree of threat from exotic diseases, develop quarantine measures, and draw up contingency plans for the handling of various types and levels of disease outbreak. The results of delay could be catastrophic, if, for instance, there were outbreaks of diseases such as Newcastle disease in birds or phocine distemper virus in seals.

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