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AN EPIDEMIOLOGICAL APPROACH TO STUDYING HEALTH AND DISEASE IN WEDDELL SEALS *(LEPTONYCHOTES WEDDELLI)*

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A population of Weddell seals (*Leptonychotes wedelli*) from the Vestfold Hills, East Antarctica, was examined for clinical and laboratory evidence of disease to develop a baseline to enable the consideration of management issues relating to disease introduction and amplification. A cross sectional study (n= 342 adults/157 pups) of the population was examined for evidence of clinical disease and the prevalence, incidence and spatial distribution of respiratory and ocular diseases and wounds is described. Laboratory samples and detailed clinical examinations were made of 56 restrained seals in a case-control study for evidence of disease agents of potential clinical, zoonotic and quarantine importance.

Significant clinical findings include an estimated prevalence of respiratory disease of 15.5% in adult seals and 18.5% of pups. Necropsy evidence of acute, fatal, mixed anaerobic pulmonary abscesses in the absence of evidence of viral or respiratory parasite infection is described. Age-associated periodontal disease was also observed in addition to wearing and infection of ice abrading teeth described previously only from carcasses. Significant laboratory findings include serological evidence of antibodies to *Brucella spp.* in 96.4% (n=55) of the seals sampled, evidence of exposure to Phocine Herpes virus 1 and Phocine Distemper Virus. Reference ranges for biochemical and haematological parameters are also presented.

This is a minimally biased, repeatable study of wildlife health that contributes to our understanding of the disease status of Antarctic wildlife and its investigation. In combination with survival data for the tagged population it provides an important tool to assess change. The absence of most pathogens investigated highlights the relative naivety of this genetically distinct Weddell seal population and its vulnerability to the effects of disease introduction. The effect of climate change is considered.