

RTD14 The role of infectious and parasitic diseases in threatened and endangered avian populations

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1 Issues

This RTD addressed the importance of infectious and parasitic diseases as an additional threat to endangered bird populations. Although disease pressures have not traditionally been considered as threats to endangered avian populations, there is growing evidence of their significance. Certain specific conditions have come to be recognized in which diseases are the major factors determining the survival of a population; indeed, as populations shrink, and their genetic diversity reduces, they can become increasingly susceptible. In general, threats of disease tend to be of greater significance in avian K strategists residing within closed systems rather than r strategists or migrants. Thus diseases can have a marked impact on small isolated populations such as those restricted to islands or confined ecosystems. For example, it has been well recognized that disease caused by avian malaria has been a major factor in the decline of native Hawaiian birds. This highlights the potential risk to populations such as those of the kakapo (*Strigops habroptilus*), a priceless biological resource on Codfish Island off New Zealand.

The role of disease was also examined in species that had suffered contractions of range to relatively small areas. An example is the rapid terminal decline of the regional subspecies of Attwater's prairie chicken on the gulf coast of Texas. Loss of habitat through urban sprawl and changed agricultural practices led to a decline of that regional form to low but sustainable numbers. However, the spread of reticuloendotheliosis virus from poultry into the survivors resulted in a further rapid drop, and the subspecies is now surviving only through captive breeding programs. Susceptibility conferred by life in confined space is manifest too in colonies of breeding sea- and water-birds, and indeed, all colonially breeding birds. Recent major declines in the population of the Amsterdam Island albatross (*Diomedea* sp.) may well be due to introduced disease, although this remains speculative.

2 Outcomes

Discussion made it clear that, while the number of good examples of extinction or severe population reductions mediated by disease were relatively few, the issue may well be growing in significance. This was especially true for small, residual populations of critically endangered species in captive breeding programs or other conditions of isolation. The continued spread of avian malaria in the Hawaiian Islands exemplified the situation, posing a threat not only to surviving wild native birds but also to those in captive breeding programs and presenting a dilemma over release. While it is possible to carry out captive breeding in insect-free facilities, released birds become totally susceptible to infection. To this there seems to be no easy answer.

Much of the discussion centered on the "quarantining" of endangered species on islands or in captive breeding colonies. It was agreed that functional barriers needed to be established between poultry or avicultural operations and the isolated populations of endangered taxa. Indeed, even humans exposed to poultry or avicultural operations should not be permitted to come into contact with the Codfish Island population of kakapos. Circumstances are a little different in the Galapagos where commercial poultry operations are already established, presenting a significant disease threat to the wild birds. However desirable, the removal of commercial poultry from the Galapagos is not practical. An alternative solution aired would replace all present commercial poultry on the Galapagos with guaranteed disease-free stock.

The meeting clearly felt that ornithologists needed to become increasingly aware of avian diseases and their potential to spread. The recent introduction of West Nile Virus into North America and its rapid expansion across that continent will probably prove an unwelcome opportunity to investigate disease spread in natural populations and to remind us all that wild birds get sick too.