



# United States Department of the Interior

FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

National Fish and Wildlife Health Laboratory  
1655 Linden Drive  
Madison, Wisconsin 53706

April 27, 1978

Dr. George H. Balazs  
Assistant Marine Biologist  
University of Hawaii at Manoa  
Hawaii Institute of Marine Biology  
P.O. Box 1346, Coconut Island  
Kaneohe, Hawaii 96744

Dear Dr. Balazs,

Thank you for your inquiry regarding the disease problem in albatross at Midway and for the reprints you provided me. The following response to your questions can be expanded upon if you desire additional information.

1) Confirmation of the disease as avian pox is only 99% certain at this point. Histological sections (including special stains) of fixed tissues disclose that a DNA virus with all of the characteristics (inclusion bodies and general tissue response including invasion of bacteria) of avian pox virus produced the lesions observed. These findings are consistent with the gross pathology and distribution of lesion seen in birds examined in the field. Final diagnosis is dependant upon virus isolation and characterization. We have not completed this aspect of our studies due to a higher priority problem involving some rare and endangered species of cranes. Virus characterization must be completed on that problem (which occurred at about the same time) so that a decision can be made whether or not to release some Siberian cranes on the area.

2) Avian pox has previously been reported in seabirds. A die-off of red-tailed tropicbirds occurred at Midway in 1963. Information I obtained while on the Island suggests that a large die-off of albatross also occurred that year. It is possible that die-off was also due to avian pox, however, since no specimens were submitted for laboratory examination this is purely speculative.

3) The likelihood of birds on other Leeward islands becoming infected is unknown. The pelagic nature of the birds once they leave Midway and their fidelity for the island they are hatched upon help to minimize potential spread to other islands. Infected birds or vectors (mosquitos, flies, etc.) must carry the virus to these other islands for the infection to spread. The distance between islands also serves as a buffer. However, there is a strong likelihood of other species of birds on Midway being infected.

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4) I expect that avian pox will reoccur at Midway during future years. Therefore, it is important that we fully understand the epizootiology of this disease so that greater control can be exercised in dealing with this problem.

Please don't hesitate to contact me if you have any further questions. I would appreciate receiving reports of any suspect cases you encounter during your studies. Fixed tissues (10% formalin -- about 10 times the volume of formalin as tissue) are suitable for an evaluation of whether or not avian pox is involved. If you take specimens, please cut deep into the supporting tissue. Shipment is best made in plastic bags (Whirl-Pac), containing the formalin and tissues, packed within ice cream or milk (or juice) cartons. These cartons should then be placed in a cardboard box for shipping and contain a letter with as complete data as possible (location, date, species, sex, age, etc.).

Sincerely,

*Milton Friend*

Milton Friend  
Director, NFWHL

cc: J. Brent Giezantner





# United States Department of the Interior

FISH AND WILDLIFE SERVICE

IN REPLY REFER TO:

National Fish and Wildlife Health Laboratory  
1655 Linden Drive  
Madison, Wisconsin 53706

October 31, 1978

Mr. George H. Balazs  
Assistant Marine Biologist  
University of Hawaii at Manoa  
P.O. Box 1346  
Coconut Island  
Kaneohe, Hawaii 96744

Dear Mr. Balazs,

Thank you for the observation of pox lesions on a Red-tailed Tropic bird on Sand Island, Midway. As you know, this disease occurred in that species on Sand Island in 1963. It is likely that infection resulted from carryover from the Albatross problem earlier this year.

I am especially pleased to hear that you have not encountered other cases of pox either on Sand Island or any of the other Leeward Islands in recent months. This indicates that the control efforts extended were worthwhile.

Because of other problems we have encountered and a severe shortage of personnel (a problem I know you are faced with continuously), I have not completed analysis of the Midway pox data yet. When this has been accomplished I will send you the completed report for your files.

Thank you again for taking the time to inform me of your observations.

Sincerely,

Milton Friend  
Director, NWHL

cc: J. Brent Giezentanner, Refuge Manager  
C. Harrison, Seabird Biologist

MF:msk