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Avian Cholera in A Trumpeter Swan *(Olor buccinator)*

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Avian cholera (pasteurellosis) has been found in at least 36 species of wild birds, including 13 species of waterfowl (Locke, 1965). Until recently, however, the disease had not been observed in the trumpeter swan in its natural enviroment. Banko (1960) states that "symptoms of both aspergillosis and fowl cholera were apparently present" in a captive trumpeter at the Delta Waterfowl Research Station in the winter of 1955-56 but the diagnosis was not confirmed by microbiological examination. While the present paper is only of academic interest as a new host record for *Pasteurella multocida*, it may be of greater significance as evidence of a possible threat to a rare species of waterfowl.

A well-nourished adult male trumpeter, found dead on the Red Rock Lakes National Wildlife Refuge (Monida, Montana), was submitted to the Bear River Research Station for diagnosis in November, 1964. Gross examination of the carcass disclosed that the liver was slightly swollen, with areas of light and darker brown mottling its surface. The pericardium contained an excess of straw-colored fluid. The left lung was hyperemic, while the right lung and trachea contained free blood. Mechanical injury, as evidenced by a large contusion on the breast and a puncture wound on the right side of the neck, may have accounted for the hemorrhage into the lung and trachea. It is possible that disturbed equilibrium caused the sick bird to fall while in flight — a common occurrence in waterfowl affected with avian cholera.

Microscopically, many gram-negative, bipolar-staining bacilli, small but variable in size, were seen in smears of liver, lung, heart blood, and pericardial fluid. A tentative diagnosis of avian cholera was confirmed by isolating the organism from the same tissues and fluids on brain heart infusion agar (Difco) and identifying it as *Pasteurella multocida* by the following tests:

> Produces acid but no gas from glucose, sucrose, levulose, arabinose (slight), mannose, xylose, galactose, mannitol, and sorbitol. No acid produced from trehalose maltose, lactose, rhamnose, raffinose, inositol, glycerol, dulcitol, dextrin, and salicin. Nitrites produced from nitrates. Indole was produced. Hydrogen sulfide was not produced in either triple sugar iron agar (Difco) or sulfide motility medium (Difco). Gelatin not liquefied. Non-Motile. Virulent for white mice.

In view of the environmental conditions on the Red Rock Lakes Refuge in the winter months, it is of epizootiological interest that only one diseased swan was observed. The carcass was found on the shore of one of two small warm spring impoundments that pro-

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vide the only wintering habitat for trumpeters on the Refuge. Mixed small grains (poured into the water) are provided twice each week to supplement the natural foods available to the swans, thus bringing the birds into close contact during the feeding periods. An estimated 600 adults and cygnets wintered in the principal districts of the tri-state (Montana-Idaho-Wyoming) area in 1964-65; and, since there are movements of birds from one district to another, a major part of the trumpeter population of the United States (exclusive of Alaska) could ultimately have been exposed to infection. No other cases have been seen, however, within the intervening six months.

LITERATURE CITED

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Leptospiral Agglutinins In Sera from Southern Illinois Herpetofauna

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ABSTRACT

A total of 84 amphibians and reptiles were collected in southern Illinois and cultured for leptospires. All cultures were negative. Sera from 182 specimens were tested, and leptospiral agglutinins were detected in 6 of the 12 species examined. Sera from 18 (26%) of 69 seropositive turtles reacted to *Leptospira ballum* and 59 (86%) reacted to *L. hyos*. Inversely, 6 of 9 seropositive snake sera (67%) reacted to *L. ballum*, but only 1 (11%) reacted to *L. hyos*. Agglutinins were also detected for *L. canicola, L. icterohaemorrhagiae, L. pomona, L. sejroe* and *L. hardjo*. The highest percentage (89.1%) of reactors was in red-eared turtles (*Pseudemys scripta elegans*). There was no diference in the response of either sex or size classes of the red-eared turtles, although no small turtles were collected. It was postulated that high titers and high reactor rates developed in aquatic turtles in response to continue exposure to water-borne leptospires. In terrestial snakes the mode of infection was probably associated with preying on infected rodents.

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