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AQUATIC INVERTEBRATES DOUBLY SUSPECT IN SPREADING DUCK MALADY

Evidence that aquatic invertebrates may play a double role in the spread of avian botulism has spurred the United States Fish and Wildlife Service to seek additional facts about the tiny creatures which inhabit the mud and water of western duck marshes, the Department of the Interior reports. These invertebrates include certain "bugs", many types of insects in larval stage and minute crustaceans.

Avian botulism is one of the most disastrous of the waterfowl diseases, comments Director D. H. Janzen of the Service's Bureau of Sport Fisheries and Wildlife. As many as 10,000 dead ducks to the mile have been counted along the shore of the northern end of Great Salt Lake during one of the bad outbreaks.

Other serious outbreaks have occurred in numerous parts of the West from marshes 200 miles north of the Canadian border to 250 miles south of the Rio Grande. Reports of such disasters to waterfowl date back almost a century although in early days there was no distinction between alkali poisoning and avian botulism.

For some years it has been generally believed that aquatic invertebrates are an important source of nutrients for Clostridium botulinum, the bacterial organism which causes the disease. Now, however, it is thought that these invertebrates may serve a second function--that of concentrating preformed toxin by ingesting bacteria in the course of their normal feeding habits. The invertebrates are then consumed by waterfowl and act as the mechanical media for transporting the toxin from its source to the bird.

While this and other phases of the avian botulism problem are still being studied, the Bureau of Sport Fisheries and Wildlife appears to be making progress

in reducing the incidence of the disease and curbing its serious effects, particularly through control and manipulation of water and through treatment of sick ducks with antitoxin. These methods are based upon earlier studies and experiments.

Since the sickness is intimately associated with areas of shallow, stagnant water and mud, increasing the depth of the water usually puts an end to the outbreak. From two-thirds to nine-tenths of the ducks given the antitoxin are saved, the results depending upon the severity of the disease at the time the antitoxin is administered. Recent investigations indicate that increasing the normal dosage has a benefit in severe cases.

The success of the Bureau's efforts in curtailing the disease in areas where it can establish necessary facilities is indicated in some recent data from Bear River National Wildlife Refuge on the northern end of Great Salt Lake, where dead birds in early outbreaks numbered many thousand a mile. In 1955, when a serious outbreak threatened, losses from botulism were held to 17,000 birds. Of the 2,811 sick birds picked up only 600 died. Less than 100 birds died on the refuge in 1956 and in 1957 less than 5,000 were victims of the disease.

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