

ASPERGILLOSIS IN A COMMON LOON (*Gavis immer*)

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the Bunyamwera group antigen in deer from the Ripley area and that no HAI titers to the other groups in deer from both areas were found warrant further investigation.

The findings of this survey offer leads for further study of infections of white-tailed deer, especially those caused by rickettsiae, and viruses of the Bunyamwera group, infectious bovine rhinotracheitis, and bovine virus diarrhea. Ecological factors such as variations in the fauna, population densities of the deer and the relationship of these densities to range condition should be considered.

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RABIES IN WILDLIFE AT FORT KNOX

A rabies survey was conducted in the wildlife population at Fort Knox, Kentucky, during the months, February to May, 1965. This program was initiated after a child had been bitten by a rabid skunk. Another person had been bitten by a skunk which was proven rabid the previous April.

The Post Game Warden and the Land Management Unit trapped the animals and submitted them to the Post Veterinarian. Trapping was distributed over most of the Post but was more intensive near housing, recreational and maneuver areas. The veterinarian selected fifty heads of the most likely species that were in good condition. These heads were shipped to Fort Meade under dry ice refrigeration because decomposition by autolysis and bacterial growth are both stopped at this temperature. The common objection that freezing always makes tissue unsatisfactory for histological studies is not valid. Rapid freezing at low temperatures does not cause swelling and rupture of the cells.

The brains were examined for Negri

bodies using Seller's stain and by the fluorescent rabies antibody technique. The positives were further confirmed by mouse inoculation. The following results were obtained:

Species	No.	Neg.	Pos.
Fox	19	19	--
Skunk	18	12	6*
Raccoon	8	8	--
Opossum	3	3	--
Mink	1	1	--
Cat	1	1	--
	50	44	6

* Includes the February bite case.

Finding rabies in 6 of 18 skunks pinpoints an acute problem, particularly since many skunks seemed to be present in the area. The high rate of rabies among skunks and the absence of the disease in other species is significant. The degrees of avoidance and aggression exhibited by animals for each other are probably important factors in the transmission of rabies. No further cases of rabies have been found at Fort Knox since completion of this survey.

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ASPERGILLOSIS IN A COMMON

LOON (*Gavia immer*)

Chute *et al.* (Maine Agric. Exp. Station Misc. Publ., 655: 1-120, 1962) listed five references which reported the occurrence of aspergillosis among loons (*Gaviiformes*); most of these cases occurred among loons being held in zoological parks. Hartman (Auk, 63: 588-589, 1946) reported a case of aspergillosis in an immature common loon collected in the wild near Everglade City (sic), Florida. The loon was swimming at the time of collection and when dissected was found to have an extensive mycotic infection of the abdominal and thoracic air sacs. Hartman reported that the lungs were grossly free of the infection.

Since 1963 rather extensive losses

have occurred among common loons along the shore of Lake Michigan, losses which seem to be due to Type E botulism (Kaufman and Fay, Michigan State Univ. Agric. Exp. Sta. Quar. Bull. 47: 236-242, 1964; Fay, Kaufman, and Ryel, Univ. Michigan Great Lakes Res. Div. Pub. 13: 36-46, 1965). Although Type E toxin has frequently been demonstrated in the tissues of the loons from the Lake Michigan area both by Fay and Kaufman's laboratories and by our own laboratory at the Patuxent Wildlife Research Center (Locke and Bagley, Fish and Wildl. Ser. Circ. No. 226: 13-14, 1965), captive loons have not been available to accurately determine the levels of toxin needed to produce botulism in loons.

In October, 1965 an apparently immature male common loon was discovered in a weakened condition along the edge of a road in Minnesota and forwarded to the Patuxent Center for use in our studies on Type E botulism. Four days after arrival at the Patuxent Center the loon was placed outdoors in a holding pen similar to those described by Cornwell and Hartung (Jour. Wildl. Mgmt., 27: 290-292, 1963). During the first 4 or 5 days the loon swam actively and dove after small fish (bluegills and goldfish) which were placed in the tank. On the 6th and 7th days the loon gradually stopped swimming, then stopped eating and was found dead on the 8th day.

At necropsy the loon was found to be in good flesh and weighed 7 pounds. There was still a considerable amount of both subcutaneous and abdominal fat. The heart weighed 44.5 gms. and there was a marked valvular endocarditis. Plaques of *Aspergillus* were growing on the adventitia of many of the great vessels leading into the heart. The lungs were consolidated, with irregular areas of hemorrhage, and contained several small mycotic granulomas. Air sacs were thickened, opaque, and there were widely disseminated mycotic granulomas

throughout all the thoracic and abdominal air sacs. The liver was light tannish brown in color, weighed 135 gms. and appeared normal grossly. The gall bladder was distended with bile and, in that condition, weighed 7.5 gms. The spleen appeared normal; it measured 21.5 mm long and weighed 3 gms.

Microscopically the lung contained several typical granulomas with *Aspergillus* hyphae. Sections of lung tissue stained by the periodic acid-Schiff technique contained a flowing sheet-like PAS positive material which had spread along and covered the alveolar capillary beds. Along the edge of this PAS positive material were distinct branching, septate hyphae typical of *Aspergillus* sp. which blended into the more amorphous sheet. Relatively few hyphae were seen extending into the lumens of the tertiary bronchi. Sections stained with H & E showed a typical cellular reaction to this spreading fungal sheet.

Loons have the reputation of being extremely difficult to keep in captivity and the rapidity of the spread of *Aspergillus* hyphae along the capillary bed suggests that loons might be highly susceptible to this mycotic infection.

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HELMINTHS OF THE DEER MOUSE, (*Peromyscus maniculatus*) FROM NORTHERN COLORADO

It is well known that the deer mouse, *Peromyscus maniculatus*, is host to a large number of parasites, many of which infect other rodents. Grundmann and Frandsen (1960, J. Parasitol. 46: 673-677) showed that the deer mouse with its high population density, omnivorous diet, and wide distribution, must be considered responsible for maintaining and distributing non-host-specific parasites amongst other rodents in different ha-