

BRIEF NOTE

MERCURY LEVELS IN A 21-YEAR-OLD BLACK-CROWNED NIGHT HERON (*NYCTICORAX NYCTICORAX*)¹

Elements occurring naturally in the environment can be chronically accumulated by living organisms. Mercury, believed a physiologically non-essential element, is non-toxic at the low concentrations found in nature. Natural levels of Hg have been increased by human agricultural and industrial activities, raising the concentrations to levels which may be toxic to animals. The biological magnification of mercury in aquatic ecosystems, although not completely defined, appears to be a function of a specific organism at each trophic level (D'Itri, 1971). Black-crowned night herons, because of their trophic position (piscivorous diet and long life span) may concentrate greater quantities of mercury than most other organisms.

At 5:30 PM on 7 July 1973, while collecting great blue herons (*Ardea herodias*), black-crowned night herons and great egrets (*Casmerodius albus*) on West Sister Island, Ohio, for scientific study, I collected a 21-year-old black-crowned night heron. This female had been banded as a nestling near South Bass Island, Ohio, on 6 June 1952. Total body weight (Fresh) was 765 g. Organisms in the stomach included two perch (*Perca flavescens*) and one fresh-water drum (*Aplodinotus grunniens*).

Total mercury concentrations in breast muscle (0.9 ppm), liver (3.1 ppm), brain (0.5 ppm) and primary wing feathers (17.9 ppm) were measured on a wet

weight basis, in duplicate, using flameless atomic absorption spectrophotometry. Duplicate liver tissue samples (sent to WARF, Inc., Madison, Wisconsin to verify analytical results) revealed 31 ppm total mercury concentration. Compared to mercury found in adult black-crowned night herons collected in 1972 by Hoffman and Curnow (1973), levels were below the 1.1 ppm they found in brain and breast muscle tissue; the same in liver tissue (3.1 ppm) and higher in primary wing feathers (11.5 ppm). Dustman *et al.* (1972) found 14 ppm mercury in the liver of a black-crowned night heron collected during 1970 in Lake St. Clair, Michigan.

Depending on the nature of the species, herons may establish and maintain feeding territories by active defense of an area (Meyerricks, 1962). Differences in mercury levels between the 21-year-old bird and other black-crowned night herons from the same heronry imply that the 21-year-old bird may have been feeding in an area of lower mercury contamination or that the maximum retainable mercury in black-crowned night herons is specific to an individual. ROBERT D. HOFFMAN. *Ohio Cooperative Wildlife Research Unit, 1735 Neil Avenue, Columbus, Ohio 43210.*

LITERATURE CITED

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