

AN ASSESSMENT OF PESTICIDE-RELATED HAZARDS
TO BIRDS IN A RESIDENTIAL COMMUNITY

by

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This report describes the methods used to assess the health hazards to birds in a rural community where cyclodiene pesticides were once formulated. The assessment was designed to determine whether cyclodiene body burdens in the local avian population were significantly greater than "background" levels and whether these body burdens were clearly indicative of a health hazard. Several investigators have demonstrated that cyclodiene levels in brain tissue are the most valid criteria for accurately assessing cyclodiene body burdens and the associated health hazards to birds (Robinson *et al.*, 1967; Stickel *et al.*, 1969; Clark, 1975). Accordingly, for the purposes of this study, potential health hazards were assessed by comparing cyclodiene concentrations in brain tissues of local birds to: 1) background cyclodiene concentrations in birds from a nearby "control" town, and 2) the minimum brain cyclodiene concentrations required for lethality, as established in the scientific literature.

A representative number of live birds and fresh bird carcasses were collected from the town of concern ("study town") and the control town during a 5-week period. Live birds were collected through the use of mist-net trapping. Field criteria were employed to ensure that the collected carcasses were fairly recent mortalities that had undergone a minimal amount of deterioration. The brain tissues from each sample were analyzed for the presence of chlordane, heptachlor, heptachlor epoxide, aldrin, and dieldrin.

The geometric mean cyclodiene concentrations in live birds from either town were not significantly different, indicating that previous cyclodiene formulating activities had not resulted in increased cyclodiene body burdens. Only four of the eighteen bird carcasses collected in the study town contained total brain cyclodiene concentrations (6.9-10.5 ppm) that approached the minimal lethal levels. These birds had sustained injuries (i.e., broken legs and wings) and contained little to no body fat, suggesting that the elevated cyclodiene concentrations were a result of starvation-induced cyclodiene mobilization from adipose to brain tissue. Overall, the study indicated that the previous cyclodiene formulating activities did not result in an increased hazard to the local avian population.