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Author: GREINER, ELLIS C.

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# A LOCALIZED EPIZOOTIC OF TRICHOMONIASIS IN MOURNING DOVES*

ELLIS C. GREINER,[1] Department of Zoology and Entomology, Iowa State University, Ames, Iowa 50010, U.S.A.

WILLIAM L. BAXTER, Research Division, Nebraska Game and Parks Commission, P.O. Box 30370, Lincoln, Nebraska 68503, U.S.A.

*Abstract: Trichomonas gallinae* was present in 47% (57/121) of adult, 41% (7/17) of juvenile, and 29% (2/7) of nestling mourning doves *(Zenaida macroura)* from Lincoln, Nebraska. Throat lesions were present in 5.9% (43/724) of the mourning doves trapped for banding. Two of four pigeons *(Columba livia)* possessed *T. gallinae,* but none contained throat lesions.

## INTRODUCTION

July 11, 1972, Burlington Northern Railroad officials notified Nebraska Game and Parks Commission biologists of an unusually large number of dead mourning doves in the Lincoln rail yards. A partial inspection of the yards yielded 13 dead and 3 sick mourning doves. One of the latter doves had gross caseation in the throat and harbored *Trichomonas gallinae*. This prompted the present survey of doves from Lincoln, Nebraska.

## MATERIALS AND METHODS

Every seventh mourning dove banded by the game biologists was sampled by swabbing the throat with a moistened swab. The swab was then placed into a small plastic centrifuge tube containing just enough Locke's solution to cover the cotton tip. The tube was labeled and closed with parafilm for transportation to the laboratory. Fresh wet preparations were scanned for active trichomonads and smears were stained. Emaciated and obviously diseased doves were taken to the laboratory for examination. Nestlings from various locations in Lincoln were swabbed. Grain elevators (sites of dove and pigeon concentration due to spilled grain) were checked throughout Lincoln and in all small towns immediately outside of Lincoln, following a report of an excessive number of dead doves in a local grain elevator. A semi-feral pigeon *(Columba livia)* flock located approximately 0.8 km from the rail yards was examined for trichomonads.

## RESULTS

Table 1 contains a summary of the overall prevalences of *T. gallinae* and lesions. All doves with lesions also harbored *T. gallinae*. Prevalence of *T. gallinae* in adult doves was 47% (57/121) while the prevalence in juvenile doves was 41% (7/17) and in the nestling doves, 29% (2/7). Since the swab specimens were not incubated, prevalence figures are minimum. One infected nestling had difficulty swallowing due to throat lesions and was dead 2 days after swabs were taken. No marked difference was observed between sexes with regard to prevalence [males 45% (39/87) and females 48% (19/39)].

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[1] Present address: Department of Biology, Memorial University, St. John's, Newfoundland.

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By swabbing every third pigeon in the sampled flock, two of four possessed *T. gallinae*, but none had throat lesions.

Checking the rail yards on 4 days revealed a total of 64 dead and several diseased doves. At one grain elevator, 110 dead doves and several sick ones were recorded on one day. All obviously diseased doves had throat lesions and trichomonads and caseation was present in some doves. Dead doves were too desiccated to examine for trichomonads. Other grain elevators in Lincoln did not have noticeable dove mortality, nor did any of the grain elevators in surrounding towns.

The epizootic lasted minimally from July 11 to the last of August. Major reported and observed mortality occurred between July 11 and 19, even though doves harbored trichomonads and had lesions through August.

## DISCUSSION

Stabler and Herman[3] referred to small outbreaks of trichomoniasis in which feeding stations were the epizootic foci. The question as to whether the disease was disseminated from the foci but not detected, or truly concentrated in the foci, was unanswered. However, transmission of a fragile etiological agent like *T. gallinae* would be enhanced by concentrating infected and uninfected susceptible hosts. Transmission interspecifically and between parental pairs would be facilitated by host concentrations as that induced by feeding stations and grain spillage along railroad tracks and at grain elevators. The present outbreak was during the dove breeding season as was the major epizootic in Alabama.[1]

Kocan and Knisley[2] discussed the differences in virulence of strains and stressed that all birds harboring trichomonads were not suffering from trichomoniasis. This was probably true in the present study, since it was impossible to know when the doves obtained their infections. If a dove had recently acquired its infection, lesions might not have formed and thus a recently acquired virulent strain in a susceptible host, a virulent strain in an immune host, and a non-virulent strain in either type of host would appear pathologically similar. As indicated in Table 1, a virulent strain was present causing caseation and death in some members of the dove population.

We have no evidence that the *T. gallinae* in the local pigeons was the same strain which caused the outbreak in the Lincoln mourning doves.

TABLE 1. Prevalence of **Trichomonas gallinae** and related lesions from doves trapped for banding.

| | Prevalence % Infected | Prevalence [1] % Morbidity |
|---|---|---|
| July 10-14 | 25% (2/8) | 5% (4/79) |
| July 17-21 | 20% (3/15) | 10% (11/107) |
| July 24-28 | 12% (2/17) | 6% (11/171) |
| July 31-August 4 | 0% (0/4) | 7% (2/28) |
| August 7-11 | 29% (4/14) | 4% (4/92) |
| August 14-18 | 23% (3/13) | 6% (5/79) |
| August 21-25 | 19% (3/16) | 2% (2/114) |
| August 28-31 | 38% (3/8) | 7% (4/54) |

[1] Doves in this category were removed from the sample population prior to swabbing and therefore were not included in the % Infected column.

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Although the samples were unequal in size, age prevalence data may suggest that young birds were being eliminated by the trichomonads, whereas the adults may have been resistant to the pathogenic strain. Therefore, some of the adults may have harbored infections longer and without gross physical damage. This does not imply that all adults were not affected by the outbreak, as some adults were markedly deformed.

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