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Some Blood Parasite and Disease Antibody Findings in Wild Rio Grande Turkeys Stocked in Iowa¹

DAVID J. ROSLIEN² and ARNOLD O. HAUGEN³

Abstract. Thirty-nine wild Rio Grande turkeys (*Meleagris gallopavo intermedia*), live-trapped near Sonora, Texas, were tested for various blood parasites and disease antibodies before being released in the Yellow River State Forest in Allamakee County, Iowa, in the fall and winter of 1960-61. *Haemoproteus meleagridis* was found in 79% of the 39 turkeys; *Salmonella pullorum* in 15%; and chicken embryo lethal orphan virus (CELO) antibodies in 1 of 9 birds tested for evidence of that disease. Ornithosis was found in one pooled sample of serum that involved 4 birds, but it was absent in 15 birds. No evidence was detected for *Salmonella typhimurium*, *Leucocytozoon*, *Trypanosoma*, *Plasmodium*, *Mycoplasma*, Newcastle disease virus or western equine viral encephalomyelitis.

Forty Rio Grande turkeys (10 male and 30 female) were live-trapped near Sonora, Texas during the fall of 1960 and the winter of 1961 and transported to Iowa in two shipments via automobile by Iowa Conservation Commission personnel. The birds were brought to the Iowa Cooperative Wildlife Research Unit at Iowa State University and blood samples were collected before the birds were released in the Paint Creek Unit of the Yellow River Forest, Allamakee County, Iowa. Twenty birds were released on November 18, 1970 and 19 on March 7, 1961 (one hen in the March shipment was dead on arrival at Iowa State). To shorten the period of confinement and stress, the turkeys were released before the blood samples could be checked for various blood parasites and disease antibodies. The turkeys appeared healthy when released except for a few which had slight bruises on their heads and one which had a bruised eye.

METHODS

Blood samples were collected from turkeys by venipuncture with a hypodermic syringe. Blood smears were prepared from peripheral blood, then air-dried and fixed in methyl alcohol for 1 min. before being stained in unbuffered Giemsa's stain (1:40 dilution) for 30 min. Each smear was examined for 5 min. at 430X and for 10 min. under oil immersion (970X) for evidence of intracellular

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blood parasites. Blood parasites were characterized under oil immersion, and specific identification was accomplished by making comparisons with published descriptions (Levine, 1961, Morehouse, 1945, and Cook et al., 1966).

Serum was separated and collected from clotted blood samples and submitted to the Iowa State Veterinary Diagnostic Laboratory for testing. This laboratory conducted standardized tests for *Salmonella pullorum*, *Salmonella typhimurium*, *Mycoplasma*, Newcastle disease virus, western equine viral encephalomyelitis, and CELO (chicken embryo lethal orphan virus). Tests for CELO were performed on saturated sero-discs as well as on serums.

RESULTS AND DISCUSSION

Blood smears prepared from 39 turkeys revealed 31 positive (79%) for *Haemoproteus meleagridis* (table 1). The sample is too small to make accurate predictions regarding any differential susceptibility to *Haemoproteus* related to sex and age of the birds. Some difficulty also was encountered in aging seven birds from the March 1961 sample. The data suggest that *Haemoproteus* might be more prevalent in juvenile birds since the 25 birds judged to be juvenile had an incidence of 88%, while the 14 birds judged adults had an incidence of 64%. In many avian species (Roslien and Haugen 1964), juveniles seemingly are more susceptible because of undetermined factors of host-vector and (or) host-parasite interaction. *Leucocytozoon*, *Trypanosoma*, and *Plasmodium* were absent from peripheral blood smears. Inoculation studies for *Plasmodium* and culture studies of *Trypanosoma* were not attempted.

Serums from 5 females and 1 male had an antibody titer when tested by tube agglutination for *Salmonella pullorum*. Serial dilutions from 4 birds had a titer of only 25 and were classified as suspicious. However, a tube agglutination titer of 50 in two females was classified as positive evidence of exposure to *Salmonella pullorum* at some time. End-point titers for reactors were not determined. All birds appeared healthy, and it is likely that our results indicate past exposure to *Salmonella* rather than a developing infection. No reactors for *Salmonella typhimurium* were found in the sample. Glazener et al. (1967) reported no *Salmonellosis* from 87 turkeys live-trapped on the southern Gulf Coast of Texas.

Serologic evidence of ornithosis occurred in a single, pooled serum sample, which showed a titer of 8. Small amounts of serum from 4 birds were pooled because they were insufficient for individual testing. No evidence of ornithosis was found in serums from 15 birds tested individually. Ornithosis has previously been reported from the Rio Grande turkey by Glazener et al. (1967).

All 39 serums tested for CELO were negative with the serum test; however, one of these samples reacted at a titer of 200 when

Table 1. Occurrence of blood parasites and antibodies in wild Rio Grande turkeys stocked in Allamakee County, Iowa.

Species	Number tested	Positive	Suspicious	Negative	Percent positive or suspicious
<i>S. pullorum</i>	39	2	4	33	15
<i>S. typhimurium</i>	20	0	—	20	0
<i>Haemoproteus</i>	39	31	—	8	79
<i>Leucocytozoon</i>	39	0	—	39	0
<i>Trypanosoma</i>	39	0	—	39	0
<i>Plasmodium</i>	39	0	—	39	0
<i>Mycoplasma</i>	39	0	—	39	0
Newcastle	39	0	1	38	2
CELO					
serum	19	0	—	19	
disc test	9	1	—	8	11
Western equine encephalomyelitis	9	—	—	9	0
Ornithosis	19	*	—	15	—

* One pooled sample of serum from 4 birds was positive.

The viral antibodies could have come from only one bird since the titre was very low.

tested by the disc method. The reason for this discrepancy is not known.

No evidence was found to indicate the presence of *Mycoplasma* or western equine encephalomyelitis virus in the sample. A single suspicious reactor for Newcastle disease virus was observed. Glazener et al. (1967) found evidence of both Newcastle disease and western "encephalitis" viruses in the Rio Grande turkey.

One hen turkey found dead on arrival from Texas was submitted to the Iowa Veterinary Diagnostic Laboratory for autopsy. Postmortem examination revealed no gross lesions or evidence of infections or contagious bacterial, viral, or parasitic disease. The Diagnostic Laboratory suggested shock as the most probable cause of death.

These findings indicate the importance of adequate quarantine of birds and testing for parasites and diseases before restocking or introducing into any area.

The presence of *Haemoproteus* in turkeys is not presently known to be serious; therefore, little significance is currently attached to the incidence of the disease in the Rio Grande turkey. The presence of *Salmonella pullorum* is more serious because it could cause mortality in young poults, and thereby slow down reproductive success. Each of the diseases for which evidence was found is present already in Iowa poultry.

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Literature Cited

- COOK, R. S., D. O. TRAINER, & W. C. GLAZENER. 1966. *J. Protozool.* **13**: 588-590.
- GLAZENER, W. C., R. S. COOK, & D. O. TRAINER. 1967. *J. Wildl. Mgmt.* **31**: 34-39.
- LEVINE, N. D. 1961. *Protozoan parasites of domestic animals and of man*. Burgess Publishing Co., Minneapolis, Minn. 271-5.
- MOREHOUSE, N. F. 1945. *Trans. Am. Microscop. Soc.* **64**: 109-111.
- ROSLIEN, D. J., & A. O. HAUGEN. 1964. *Iowa Acad. Sci. Proc.* **71**: 235-240.