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Source: Journal of Wildlife Diseases, 12(4) : 587-590

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-12.4.587

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BLOOD PARASITES OF SOME BIRDS FROM GHANA

MICHAEL WINK[1] and GORDON F. BENNETT[2]

Abstract: A total of 135 birds of 26 species in 13 families was examined for blood parasites; 43 birds (31.9%) of 13 species were infected; species of the Ploceidae were the most heavily infected. Species of *Haemoproteus* occurred most commonly (29 birds) while *Leucocytozoon* and *Plasmodium* species were virtually absent. There was no significant difference in the prevalence of hematozoa in birds from the mature rainforest and those in a savannah-urban setting.

INTRODUCTION

The hematozoa of African birds was the subject of intensive taxonomic study during the first two decades of this century. Interest in the subject waned, however, and subsequently only sporadic studies on avian blood parasites are reported. Recently, a revival of interest in the subject has occurred, and a number of workers have published the results of their surveys, surveys which have been concentrated for the most part, on the eastern side of the continent. Few recent studies have been carried out on the west coast of Africa and there is little information on the occurrence, prevalence and distribution of the different species and genera of blood parasites encountered in this region of Africa. Studies by Wink[7] mainly on the passeriform fauna of Ghana provided the opportunity to study the blood parasites of some of them. This report summarizes the findings and provides information on the avian hematozoa of 137 birds of 26 species from the Accra-Bunso region of Ghana.

MATERIALS AND METHODS

Birds were obtained by mist-netting or hunting (*Corvus albus*) at Accra (5.35° N, 0.15° W) and at Bunso (6.17° N, 0.27° W), during the period February to April, 1973 by the first author, a period representing the dry season for this area. The Accra area consists of parks and gardens (outskirts of the city) and savannahs with thicket clumps. Bunso lies in the rainforest zone where cacao, oil palms and bananas are cultivated in the neighbourhood of large areas of primary and secondary rainforest. Blood was taken by cutting the bird's claw. Blood films were air-dried, fixed in 100% methanol and stained with Giemsa's stain.

RESULTS AND DISCUSSION

A total of 135 birds representing 26 species of 13 families was examined for blood parasites; 43 birds (31.9%) were infected with blood parasites (Table 1). Species of *Haemoproteus* were the most commonly occurring parasites, present in 29 birds and were represented by *Haemoproteus lannii* in *Lanius senator, H. raymundi* in *Cyanomitra olivacea, H. pratasi* in *Francolinus ahantensis, H. sanguinus* in the Pycnonotidae, and *H fringillae* and *H. orizivora* in the Estrildidae, Ploceidae and Sylviidae. Species of *Leucocytozoon* occurred in only four birds, namely *Leucocytozoon fringillinarum* in *Lagonosticta rufopicta* and *Ploceus nigerrimus, L. brimonti* in *Pycnonotus barbatus* and *L. neavei* in *Francolinus ahantensis. Plasmodium* species were uncommon, with only a single individual of *Cyanomitra olivacea* harboring *Plasmo-*

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TABLE 1. Blood parasites of some birds from Ghana.

	Birds examined total	infected	L.	H.	Pl.	T.	M.
ESTRILDIDAE							
Lagonosticta rufopicta	14	1	1				
LANIIDAE							
Lanius senator	1	1		1			
NECTARINIIDAE							
Cyanomitra olivacea	3	2		1	1	1	
Nectarinia seimundi	1	1				1	
PHASIANIDAE							
Francolinus ahantensis	1	1	1	1		1	1
PLOCEIDAE							
Passer griseus	21	11		9		2	2
Ploceus (Textor) cucullatus	16	11		9		1	1
Ploceus nigerrimus (=Ploceus castaneofuscus)	6	3	1	2			
Hyphanturgus brachypterus	1	1					1
Ploceus atrogularis	18	4		3			1
PYCNONOTIDAE							
Pycnonotus barbatus	5	4	1	1		2	
Eurillas (=Andropadus) virens	4	1		1			
SYLVIIDAE							
Hippolais polyglotta	1	1		1			
TURDIDAE							
Turdus olivaceus	6	1					1
NEGATIVE BIRDS:*	37						
TOTAL	135	43	4	29	1	8	7
PERCENT		31.9	3.0	27.5	0.7	6.0	5.2

* NEGATIVE BIRDS—ALCEDINIDAE: *Halcyon senegalensis* (3); *Ispidina picta* (2); CAPITONIDAE: *Pogoniulus scolopaceus* (1); CORVIDAE: *Corvus albus* (9); CUCULIDAE: *Chrysococcyx caprius* (2); ESTRILDIDAE: *Lonchura (Spermestes) cucullata* (3); NECTARINIIDAE: *Cyanomitra verticalis* (3); PLOCEIDAE: *Vidua lorenzi* (1); SYLVIIDAE: *Camaroptera brachyura* (7); *Cisticola lateralis* (1); TURDIDAE: *Saxicola rubetra* (2); ZOSTEROPIDAE: *Zosterops senegalensis* (3).

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dium vaughani. Eight individuals harbored trypanosomes (Table 1), representing the *T. avium* complex. Microfilaria, which occurred in seven birds (Table 1), were not identified.

The Ploceidae were the most heavily parasitized of the avian families studied, with the majority of the infections composed of *Haemoproteus fringillae* and *H. orizivora*. Ploceids also are recorded as being heavily parasitized in other parts of Africa.[3,4,6] Multiple infections were not common—only four individuals harbored more than a single blood parasite. The low multiple infection ration (9%), coupled with the low prevalence of infection (32%) indicates that the transmission potential of the area is low. The low multiple infection ratio is similar to that experienced in other surveys in Africa, but is in sharp contrast to the situation observed in North America, where multiple infections are commonplace,[5] and a multiple infection ratio of 50% or more is not unusual.

Prevalence of blood parasites in birds sampled in the tropical rain forest of the Bunso area was remarkably similar to that noted in birds from the savannah-urban area around Accra (Table 2). It would appear, on the basis of this sample, that the vector potential of both areas is similar. This is somewhat at variance with the results obtained in Uganda,[4] where it was found that birds obtained from a forested area had a markedly lower prevalence of blood parasites than those from the urban surrounds of a small city (Entebbe).

TABLE 2. Prevalence of blood parasites in birds from the Bunso and Accra regions.

	Total birds examined	infected	L.	H.	Pl.	T.	M.
Bunso	32	11(34.4%)	2	7	1	3	1
Accra	103	32(37.1%)	2	22	0	5	6

The parasite burden of these birds is similar in species distribution to those recorded for similar populations in Tchad,[6] Uganda,[4] and Kenya, Tanzania and Zaire.[3] The low prevalence of *Leucocytozoon* is presumably due to lack of an abundance of suitable breeding sites for the simuliid vectors in the local region as compared with North America.[1,2] The general prevalence of blood parasites in the area is in the same order of magnitude as for other regions of similar climatic and topographic features in Africa.

Acknowledgements

The support and assistance of Professor E. Scholtyseck of the Institute of Zoology, University of Bonn is gratefully acknowledged. The assistance of Dr. L. Grimes, Dr. M. Edmunds, Dr. D. Kramer and C. Pickup of the Department of Zoology, University of Ghana, and Mr. E. O. A. Asibey, Department of Game and Wildlife, Accra, made the field work possible. Without the financial assistance of the Studienstiftung des Deutschen Volkes to the first author and the National Research Council of Canada to the second author, this study could not have been undertaken.

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Received for publication 14 May 1976

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