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BLOOD PARASITES OF SOME COLUMBIFORM AND PASSERIFORM BIRDS FROM CHILE[1]

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Abstract: Ninety-one birds of 23 species from Chile were examined for haematozoa; 13 birds of seven species harbored species of *Haemoproteus, Leucocytozoon, Plasmodium, Trypanosoma* and microfilariae. Haemoproteids (representing four species) were the most common parasites and occurred in 10 of the 13 infected birds.

INTRODUCTION

Virtually nothing is known about avian blood parasites from Chile. Lucena,[6] in his checklist of neotropical avian haematozoa, cites two reports: *Haemoproteus danilewskyi* from *Sturnella defilippi*[7] and *Leucocytozoon* sp. from *Sycalis arvensis*.[8] However, both findings involve captive Chilean birds in the Zoological Gardens in London, England, and may not be valid records for Chile.

During 1973, one of us (R.W.M.) had an opportunity to obtain blood films from a small sample of columbiform and passeriform birds from Chile. The results of analyses of these slides are presented.

STUDY AREAS AND METHODS

The Department of Arica, Province of Tarapacá, is the northernmost political subdivision of Chile, bordering both Peru and Bolivia. Although it lies within the tropics at 18° S latitude, its climate is basically arid and temperate. Rainfall is virtually unknown at low elevations and seldom exceeds 25 cm in the Andean highlands. The narrow east-west valleys which traverse the Atacama Desert provide meager vegetation and birdlife except where agricultural irrigation contributes to greater habitat diversity. Above the desert lie narrow north-south altitudinal zones of vegetation which ascend from columnar cacti to xerophytic scrub (tola) and finally tussock grassland (puna). The occurrence and dispersal of many avian species are thus restricted to certain elevations.

Birds were collected with mist nets from March to June, 1973, from three agricultural valleys and two higher localities: Molinos (930 m elevation) and Chapisca (1010 m) in Lluta Valley, Azapa (250 m) in Azapa Valley, Taltape (780 m) in Camarones Valley, the agricultural community of Putre (3500 m) in the tolar zone, and Chilcaya (4250 m) in the puna zone. Blood films were air-dried in the field, subsequently fixed in 100% methanol and stained with Giemsa's Stain. A minimum of 20,000 erythrocytes was examined on each slide. All positive smears have been deposited in the collection of the International Reference Centre for Avian Haematozoa, Memorial University of Newfoundland, St. John's, Newfoundland, Canada.

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RESULTS AND DISCUSSION

Blood films from 91 birds of 23 species representing eight families were examined (Table 1). Thirteen birds (14%) harbored one or more parasites; five of these had multiple infections. The most commonly occurring parasite genus was *Haemoproteus* which was represented by four species: *H. columbae* in two of two *Zenaida asiatica* and one of five *Columbina cruziana, H. sacharovi* in one of two *Z. asiatica, H. orizivora* in all infected *Phrygilus fruticeti* and *Zonotrichia capensis* and *H. fringillae* in one of four *P. fruticeti* and all three infected *Z. capensis. Leucocytozoon fringillinarum* and *L. majoris* occurred concurrently in *P. fruticeti. Plasmodium relictum* was found in *Passer domesticus. Trypanosoma* sp. occurred in *P. fruticeti,* but because only one specimen was found in one bird it was not identified to species. Microfilariae were not further identified.

TABLE 1. Blood parasites of some columbiform and passeriform birds from Chile.

Bird Species	Total number						
	Examined	Infected	H*	L*	P*	T*	M*
COLUMBIDAE							
Columbina cruziana	5	1	1				
Zenaida asiatica	2	2	2				
COEREBIDAE							
Conirostrum cinereum	4	1					1
FRINGILLIDAE							
Phrygilus fruticeti	4	4	4	1		1	2
Zonotrichia capensis	15	3	3				
PLOCEIDAE							
Passer domesticus	5	1			1		
TYRANNIDAE							
Elaenia albiceps	2	1					1
Uninfected species (see below)	54						
Totals	91	13(14%)	10	1	1	1	4

*H = *Haemoproteus*; L = *Leucocytozoon;* P = *Plasmodium;* T = *Trypanosoma;* M = microfilariae.

Uninfected Species (number examined in parentheses): Columbidae— *Metriopelia ceciliae* (1); *Metriopelia melanoptera* (3); Coerebidae—*Conirostrum tamarugensis* (1); Fringillidae—*Catamenia analis* (2); *Phrygilus plebejus* (4); *Sicalis uropygialis* (6); *Spinus magellanicus* (13); *Sporophila telasco* (6); *Xenospingus concolor* (4); Furnariidae— *Asthenes dorbignyi* (1); *Asthenes modesta* (1); *Cinclodes fuscus* (2); *Upucerthia vallidirostris* (1); Thraupidae—*Thraupis bonariensis* (3); Turdidae—*Turdus chiguanco* (2); Tyrannidae—*Anairetes flavirostris* (4).

Haemoproteid infections occurred in all collection sites except Chapisca and Chilcaya. This would indicate that elevation may not be a factor in haemoproteid vector distribution in Northern Chile. The single bird infected with *Leucocytozoon* was collected at 3500 m whereas the only occurrence of *Plasmodium* was at 250 m.

The low overall prevalence of haematozoan infection observed in this sample of birds from Chile is in agreement with results obtained recently in Columbia,[1] Venezuela[2,3] and Brasil.[4,5] Reasons for the low prevalence are unknown but, as suggested by Bennett and Borrero,[1] may be due to a lack of suitable vector species.

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