

SOME HAEMATOLOGICAL DATA FOR BIRDS OF PREY

by

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Abstract. Haemoglobin and pack cell values are given for 17 "normal" East African birds of prey of 12 species. The significance of such data is discussed.

Introduction. In both human and veterinary medicine blood examination plays an important role in the diagnosis of disease. In avian work there is a shortage of data on normal haematological values with the possible exception of the domestic fowl. One reason for this paucity of information is that a number of the standard haematological tests used in mammals (*e.g.* total white cell counts) cannot be carried out successfully on the blood of birds. As a result certain specialized techniques have to be used, as described by Lucas and Jamroz (1961). These and other techniques are discussed by Leonard (1969) who also gives a summary of figures from other workers. Leonard's summary includes very little information on predatory birds, however.

Two commonly used techniques in haematology are haemoglobin and pack cell volume (haematocrit) estimations. Both of these determinations have been found useful in the diagnosis of poultry diseases (Bierer *et al.*, 1963) and could possibly be of value in raptor work.

Materials and Methods. Birds sampled were either captives or recently captured wild individuals. All were considered "normal", but a number had previously received treatment by the author, mainly for injuries. They were examined at Kabete, Kenya at an altitude of 5000 feet.

Bleeding was carried out with a 25 or 26 gauge needle and a 1 ml (tuberculin) syringe. Birds were restrained on their backs. Following plucking and disinfection (with 70% alcohol) of the area over the brachial vein, up to 1 ml blood was withdrawn. This was placed immediately in a bottle containing crystals of EDTA as anticoagulant.

Pack cell volumes were measured using a micro-haematocrit centrifuge (Hawksley, Sussex, U.K.).

Haemoglobin estimations were carried out by a conventional mammalian colorimeter method.

Results. Data for pack cell volumes and haematocrit are shown in Table 1. The figures obtained are generally similar to those described for other non-domesticated birds (see Leonard, 1969) though the variations observed in some cases warrant further investigation. The haemoglobin values obtained for Barn Owls resemble those of Christoph and Frank (1965), but it is of interest that the latter authors' figure of 10.8 g% haemoglobin for the European Eagle Owl

Table 1. Pack cell volumes (PCV) and haemoglobin estimations for 12 species of birds of prey. [Additional sets of figures represent different runs with the same bird.]

Species	Age	PCV (%)	Haemoglobin (g%)	Comments
<i>STRIGIFORMES</i>				
Barn Owl (<i>Tyto alba</i>)	Adult	24	—	Blood partly clotted
	“	44	17.5	—
	4-5 weeks No. 1	46	13.4	—
	“ “ “	37	19.4	—
	4-5 weeks No. 2	39	13.0	Blood partly clotted
	“ “ “	35	17.5	—
Spotted Eagle Owl (<i>Bubo africanus</i>)	4-5 weeks No. 3	37	11.5	Blood partly clotted
	“ “ “	44	19.7	—
	Adult	38	20.8	—
“	43	22.3	—	
<i>FALCONIFORMES</i>				
African Harrier Hawk (<i>Polyboroides typus</i>)	Adult No. 1	38	23.1	Male bird
	“ “	47	22.7	“ “
	Adult No. 2	40	25.3	Female bird
	“ “	46	25.7	“ “
Hooded Vulture (<i>Necrosyrtes monachus</i>)	Adult	42	21.6	—
	“	41	20.1	—
Lizard Buzzard (<i>Kaupifalco monogrammicus</i>)	Adult	27	15.6	—
	“	38	14.1	—
	“	40	21.2	—
African Hawk-eagle (<i>Hieraaetus fasciatus spilogaster</i>)	Sub-adult	45	22.3	—
	“	40	23.8	—
Black Kite (<i>Milvus migrans</i>)	Sub-adult	39	20.8	—
	“	45	23.8	—
	2 weeks	32	15.3	Hand reared

Table 1, continued.

Species	Age	PCV (%)	Haemoglobin (g%)	Comments
African Goshawk (<i>Accipiter tachiro</i>)	Sub-adult	33	21.6	—
	“	37	20.1	—
Black Sparrowhawk (<i>Accipiter melanoleucus</i>)	Sub-adult	42	29.8	Just captured Before release
	“	52	—	
Augur Buzzard (<i>Buteo rufofuscus</i>)	Adult	39	21.6	Just captured Before release
	“	—	21.6	
Lanner Falcon (<i>Falco biarmicus</i>)	Adult	47	—	Shortly after capture
	“	42	12.3	
Tawny Eagle (<i>Aquila rapax</i>)	Adult	37	—	—
	“	35	—	—
	“	40	13.8	—
	“	39	19.3	—
	“	39	20.8	—

(*Bubo bubo*) is only half that obtained for the Spotted Eagle Owl (*Bubo africanus*) in this survey.

The number of birds covered in this study was small and relatively few samples were taken from each species. As a result it is not possible to give a range of values nor to compare accurately the results with those of previous investigators. Allowance should also be made for the fact that the work was carried out at relatively high altitude. Nevertheless, a number of species were studied for which, apparently, there are no existing PCV or haemoglobin figures. It is hoped, therefore, that these results may prove of value to those working with raptors. In addition it may serve as an impetus for other workers to take routine blood samples from both normal and sick birds of prey, and to test them for PCV and haemoglobin.

Haematological data probably have a part to play in the diagnosis of clinical disease in birds of prey. An anaemic bird will show changes in PCV or haemoglobin and it is probable that other variations occur in specific raptor diseases. Full blood examinations may aid accurate confirmation of diagnosis. In addition to continuation of this study on PCV and haemoglobin the author is collecting other haematological data, the results of which will be published in due course.

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