HEMATOLOGICAL VALUES OF CAPTIVE ROCKY MOUNTAIN BIGHORNS

Authors: WOOLF, ALAN, and KRADEL, DAVID C.

Source: Journal of Wildlife Diseases, 6(1) : 67-68

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-6.1.67

HEMATOLOGICAL VALUES OF CAPTIVE ROCKY MOUNTAIN BIGHORNS

Reports of blood values for Rocky Mountain Bighorn Sheep (*Ovis canadensis canadensis* Shaw) have not been published to our knowledge and we needed to know normal values for our studies of the physiology and diseases of bighorns in captivity. In April 1969, blood samples were collected from 10 captive bighorns in apparent good health. The only known health problem affecting the animals at the time of sampling were light to moderate endoparasitic infestations in all sheep determined by Baerman extraction and sugar-flotation analysis of fecal samples. However, the parasitism was not severe enough to produce signs of illness or discomfort.

Erythrocytes and leucocytes were counted with a hemacytometer manufactured by Celloscope Particle Data Inc. Hematocrit was determined by the microhematocrit method, spinning for five minutes at 14,300 RCF. Hemoglobin was measured by the cyanomethemoglobin method. The differential WBC was determined by standard methods.

Total serum protein, albumin, and globulin were measured by the Biuret Ferro-Ham modification reported in the Dade Manual (Anom. 1965. *Dade Manual of Clinical Chemistry Procedures.* Dade Reagents, Inc. Miami, Florida, 194 p.). Serum phosphorous was determined by the Fiske and Subba Row-Gomori modification (op. cit.); magnesium by the Orange - Rhein - modified (Titan Yellow) method (op. cit.); and calcium by the Murexide method — modified (Virginia Marshall, Iowa Veterinary Diagnostic Lab, pers. comm.).

Since these are preliminary data, the results are presented without interpretation. The hematological values are shown in Tables 1, 2, and 3. Additional sampling will continue to represent all seasons, to obtain a range of values for each animal, and to compare "normal" values with those determined when animals are displaying visual signs of disease.

TABLE 1. *Erythrocyte and leukocyte values for captive bighorn sheep.*

Sex/Age	Test Number	WBC*	RBC ($x10^6$)	PCV (%)	Hemoglobin (g/100ml)
M—2 yrs	# 5	6,494	9.17	48	16.4
M—6 yrs	# 2	7,814	10.42	55	23+
F—1 yr	# 2	6,821	10.23	53	18.5
F—2 yrs	# 8	5,677	10.43	56	19.0
F—2 yrs	#11	6,009	9.70	50	17.4
F—3 yrs	# 3	6,716	10.07	54	19.0
F—4 yrs	# 1	5,723	10.51	53	18.0
F—5 yrs	# 4	7,719	9.96	54	18.0
F—5 yrs	# 9	6,245	10.28	56	19.0
F—8 yrs	#10	7,458	10.05	52	18.0

* Abbreviations stand for leukocytes (WBC), erythrocytes (RBC), and hematocrit (PCV).

TABLE 2. *Differential white blood cell counts for captive bighorns.*

Sex/Age	Test Number	Percent of Count			
		Polymorphs	Lymphocytes	Monocytes	Eosinophiles
M—2 yrs	# 5	61	32	3	4
M—6 yrs	# 2	53	35	4	8
F—1 yr	# 6	38	58	1	3
F—2 yrs	# 8	39	53	2	6
F—2 yrs	#11	42	56	1	1
F—3 yrs	# 3	55	42	1	2
F—4 yrs	# 1	56	39	2	3
F—5 yrs	# 4	55	40	2	3
F—5 yrs	# 9	36	53	3	7
F—8 yrs	#10	41	39	3	7

TABLE 3. *Blood serum proteins and minerals for captive bighorns.*

Sex/Age	Test Number	Total protein (grams per 100 ml)	Albumin	Globulin	A/G	Ca	P (mg/100 ml)	Mg
M—2 yrs	# 5	6.8	4.0	2.8	1.4	11.3	10.8	3.5
M—6 yrs	# 2	7.9	4.0	3.9	1	11.3	9.2	3.0
F—1 yr	# 6	8.2	4.5	3.7	1.2	12.4	7.6	3.5
F—2 yrs	# 8	7.9	5.5	2.4	2.2	13.2	8.2	—
F—2 yrs	#11	7.0	4.4	2.6	1.7	9.6	7.3	—
F—3 yrs	# 3	7.5	4.5	3.0	1.5	10.9	5.8	3.0
F—4 yrs	# 1	7.2	4.5	2.7	1.6	12.4	6.0	—
F—5 yrs	# 4	7.7	4.4	3.3	1.3	11.0	5.6	—
F—5 yrs	# 9	8.2	4.5	3.7	1.2	12.0	4.7	3.0
F—8 yrs	#10	7.7	4.5	3.2	1.4	11.7	4.5	2.7

ALAN WOOLF
Rachelwood Wildlife Research Preserve
New Florence, Pennsylvania

DAVID C. KRADEL
Animal Disease Laboratory
Pennsylvania State University
University Park, Pennsylvania

July 31, 1969