EVALUATION OF LEPTOSPIROSIS IN FREE-RANGING BLACK RHINOCEROSES BY MICROSCOPIC AGGLUTINATION TITERS

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To determine exposure of wild black rhinoceroses *(Diceros bicomis)* to *Leptospira interrogans,* and to help investigate the role of leptospirosis in cases of hemolytic anemia, serum samples from 63 wild-caught black rhinoceroses were tested for antibodies against *L. interrogans.* A microscopic agglutination test was used to detect antibodies against 8 serovars of *L. interogans* (Table 1). Serological data from wild black rhinoceroses found evidence of exposure to varying serovars of *L. interrogans* in different geographic and ecological areas. Our data suggest that free-ranging black rhinoceroses may have area specific natural exposure to one of two serovars, and thus only limited resistance to additional serovars they may be exposed to if taken into captivity for breeding or moved to new locations for conservation purposes. For comparison, serum was tested from nonvaccinated captive black rhinoceroses as well as rhinoceroses after they had been vaccinated with a pentavalent leptospiral bacterin. Leptospiral titers in nonvaccinated captive black rhinoceroses were generally low, including several rhinoceroses that had survived or been exposed to mild episodes of hemolysis (Table 1). Post-vaccinal titir responses in captive black rhinoceroses (Table 2) were similar to those that would be expected in domestic species. Vaccination at time of capture, a booster within one month, and biannual revaccination with a leptospiral bacterin is recommended. The cooperation of veterinarians from three countries, a national laboratory and a non-profit organization made this project possible.

TABLE 1. PREVALENCE OF MICROAGGLUTINATION ANTIBODY TITERS TO *LEPTOSPIRA INTEROGANS* EQUAL TO OR GREATER THAN 1:100 IN WILD AND CAPTIVE BLACK RHINOCEROSES.

LOCATION	# SAMPLED	AUT	BRAT	CANI	GRIP	HARD	ICTE	POMO	TARA
FREE-RANGING									
Zimbabwe									
Kachowe	16	-	6	-	4	-	15	-	7
Mana Pools	9	-	2	-	-	-	3	2	7
Chenji River	7	-	1	-	-	-	2	-	7
Escarpment	11	-	-	-	1	-	-	-	2
Scattered or Unspecified	17	-	2	1	1	-	1	2	4
Namibia Damaraland	3	-	-	-	-	-	-	-	-
CAPTIVE									
United States	26	-	-	-	3	-	7	-	1

TABLE 2. RESPONSE TO VACCINATION WITH LEPTOSPIRAL BACTERINS* CONTAINING 5 SEROVARS (*AUTUMNALIS, BRATISLAVA, CANICOLA, HARDJO, ICTEROHEMORRHAGIAE, TARRASOVA, POMONA, AND GRIPPTYPHOSA*) IN CAPTIVE RHINOCEROSES*

MONTHS POST-VACCINATION	# SAMLPLES	AUT	BRAT	CANI	GRIP	HARD	ICTE	POMO	TARA
NON-VACCINATES	30	.1	.8	.5	.43	.04	2.2	.25	.14
.5-1.5 Mos.	3	5.3	6.6	6.6	7.0	4.3	7.7	6.6	-
4 Mos.	4	3.3	6.5	7.0	5.0	5.8	9.5	8.3	.5
6 Mos.	4	1.5	3.3	4.0	4.0	3.8	6.3	3.8	.5
7-12 Mos.	5	2.4	2.8	6.2	5.6	2.6	6.4	6.0	-
15-24 Mos.	3	.3	3.7	1.7	3.0	1.3	4.3	3.0	.7

* Leptoferm-5, Norden, Lincoln, Nebraska 68521, USA or Lepto5, Tech America, Kansas City, Missouri 64190, USA.

** Data are presented as geometrical progression, each incremental increase in the microagglutination titer expressed as follows:

0 = 0
1 = 1:12.5
2 = 1:25
3 = 1:50
4 = 1:100
5 = 1:200
6 = 1:400
7 = 1:800
8 = 1:1600
9 = 1:3200
10 = 1:6400