

## TUBERCULOSIS TESTING OF CAPTIVE RHINOCEROS

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Tuberculosis (TB) is a difficult disease to assess due to a long incubation period and the lack of a standard testing procedure in exotic animals. It has been indicated that TB is not prevalent in rhinoceros, and this may have contributed to the lack of concern about testing rhinoceros for TB. A survey was distributed to North American institutions holding SSP-managed rhinoceros in order to determine the current status of TB testing in the captive species of rhinoceros. The survey was sent to 68 institutions holding rhinoceros and 40 (58.8%) of the surveys were returned. Of the 40 institutions responding, 26 (65.0%) indicated that they did not TB test their rhinos while 14 (35%) had tested rhinos for TB at some time. Two of the 14 (14.2%) tested their rhinos regularly. Eight institutions (11.8%) indicated that they requested TB tests prior to introducing animals into their collection, and 9 institutions (13.2%) indicated that they would test rhinos prior to transfer to another zoo. Test results were provide for 53 intradermal tests which were conducted on 45 different animals and 3 tests conducted at necropsy. The most commonly used antigen for intradermal testing (45.5%) was purified protein derivative bovis (PPD-B), with PPD-avian, mammalian tuberculin, mammalian old tuberculin and avian for export used less frequently (22.75, 22.75, 4.6%, and 4.6%, respectively). The test location use most often (34.2%) was the caudal fold, with the eyelid, vulva and base of the ear being lower in frequency of use (21.05, 21.0%, and 18.4%, respectively). The abdomen and side of the neck were utilized in 1 instance each (2.6%). The most common form of reading the TB test was by visual inspection,with palpation, caliper measurement and biopsy used less frequently (47.4%, 31.6%, 13.2%, and 7.9%, respectively). Antemortem cultures taken included 2 instances each of nasal discharge and feces and 1 each of urine and gastric lavage.

Out of the 53 intradermal tests administered, 43 (81.1%) were considered complete negatives. Two animals (*C.S. simum*) were classified as having minor reactions but still negative, and 8 animals (7 *C.s. simum* and 1 *D.b. michaeli*) had equivocal results. One animal (*D.b. michaeli*) was classified as positive based on test results at necropsy with no antemortem tests reported. Seven rhinos (*C.s. simum*) were tested more than once (1 mo to 8 yr apart), and only 1 (14.3%) had the same results (negative) at each test. Two rhinos (*C.s. simum*) had intradermal tests and tests at necropsy (2 d and 2 yr apart), and only 1 of these rhinos had results (negative) that were in agreement between the 2 tests. Of all the rhinos tested, 62.2% were southern white rhinos (*C.s. simum*), 31.1% were eastern black rhinos (*D.b. michaeli*), 6.7% were Asian one-horned rhinos (*R. unicornis*) and 2.2% were southern black rhinos (*D.b. minor*). Based on current captive populations, less than 21% of any 1 species of rhino has been tested for TB at the present time. based on the results of this survey, it is apparent that there is not any one standard test for TB in rhinos. Due to the large size of the animal, skin thickness and variation in response, it may be necessary to be very selective in the site of the intradermal test and reading method as well as the antigen used. It may be necessary to develop a species-specific antigen to use when TB testing rhinos. Although rhinos are not easily or frequently transported

between institutions, it is a necessary part of the captive population management program. With the limited genetic pool available to the captive breeding program, it may be necessary to increase efforts in testing and monitoring TB to prevent its spread.