AZA SSP BLACK RHINOCEROS (*Diceros bicornis*)

VETERINARY UPDATE

2011-2013

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Black Rhinoceros Species Survival Plan

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**VETERINARY MEDICINE**

For any veterinary issues related to black rhinoceroses, please contact Dr. Michele Miller, phone (561) 345-9085; e-mail: michelemiller128@gmail.com.

Please continue to contact Dr. Mary Duncan at the Saint Louis Zoo in the event of a black rhinoceros mortality (email: duncan@stlzoo.org). A copy of the TAG “Veterinary/Nutrition Blood and Tissue Collection Protocol for Rhinoceroses” is available on the AAZV website (under “SSP/TAG/VAG information”).

**Veterinary Blood and Tissue Collection Protocol**

This protocol is reviewed on a regular basis (latest version dated January 2012). The protocol is available on the AAZV website (www.aazv.org) in the “members only” section under “SSP/TAG/VAG Information – Necropsy and Pathology Protocols”. This protocol provides up-to-date sample and contact information for research projects and other tissue/serum requests. Those researchers interested in materials for TAG-approved research projects should contact the veterinary advisor with any updates.

**SSP/TAG/VAG Protocols for Rhinoceroses**

Recommended protocols for routine preventive health programs for rhinoceroses, preshipment exams, transport and quarantine have been developed by the rhino SSP/TAG to help standardize these procedures between institutions. The latest versions have been revised and are dated January 2012. These are available on the AAZV website or by contacting Dr. Michele Miller.

**Revised AZA Rhinoceros Husbandry Manual**

The TAG/SSP Rhinoceros Advisors and others are working to create an electronic version of the Rhinoceros Husbandry Manual that will be more easily searchable for information. An expanded veterinary section has been included.

**Rhinoceros Websites**

In addition to the AAZV website, several other websites with rhinoceros information may be of interest to veterinarians and other involved professionals.
Black Rhinoceros Iron Overload Disorder
The presentations from the workshop held at Disney’s Animal Kingdom in February 2011 have been published in a special supplement of the Journal of Zoo and Wildlife Medicine (September 2012). Iron storage disease has now been renamed “Iron Overload Disorder” (IOD). In addition to the presentations, recommendations for research and other focused priorities have been outlined by working groups in the supplement.

Therapeutic phlebotomy has been used at some institutions. This summary is provided by Natalie Mylniczenko:

“With voluntary phlebotomy procedures, we have had some big improvements in ferritin and iron saturations in 2 of our animals; one of animals was not participating as vigorously and so we didn’t see a substantial change, but she was also one of the older animals, so she had a lot of iron that needed removal before we anticipated a change. We have had a set back because vacuum bottles are no longer available, but we are creating some methods by which to continue to phlebotomies (modification of vacuum suction devices).” She reports collecting volumes between 2-4 liters monthly up to 4-5 liters biweekly.

Idiopathic Hemorrhagic Vasculopathy Syndrome
Cases of IHVS continue to be reported in black rhino, particularly in Texas. Etiology is unknown and treatment is supportive care. There appears to be increased occurrence during colder months of the year and may also be associated with concurrent health issues.

Black Rhino Research Updates
A research project to evaluate serum ferritin in black rhinoceros in southern Africa using the Kansas State University assay for comparison to U.S. black rhinos is underway. Since ferritin assays vary based on the standards used, this will provide a standardized assay for comparison iron stores of free-ranging and boma-confined rhinoceros to zoo animals.

The AZA Rhino Research Council is meeting in late August to re-evaluate the 2009 Research Priorities, which include rhino health, nutrition, reproduction, genetics, management, and conservation. These will provide future direction for funding, research, and conservation covering all the rhinoceros species.
## MORTALITY DATA

### Black Rhinoceros Deaths
**January 1, 2011 – December 31, 2012**

### Southern Black Rhinoceros (*Diceros bicornis minor*)

<table>
<thead>
<tr>
<th>SB#/Institution</th>
<th>Sex</th>
<th>DOB</th>
<th>DOD</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

### Eastern Black Rhinoceros (*Diceros bicornis michaeli*)

<table>
<thead>
<tr>
<th>SB#/Institution</th>
<th>Sex</th>
<th>DOB</th>
<th>DOD</th>
<th>Cause of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>364/San Antonio</td>
<td>F</td>
<td>27Dec85</td>
<td>7Feb11</td>
<td>Hx of IVHS, dermatitis, chronic IBD –lymphoplasmacytic enterocolitis, glomerulosclerosis and mineralization, mineralization in foot/jt, hemosiderosis</td>
</tr>
<tr>
<td>365/Brookfield</td>
<td>F</td>
<td>18Jan85</td>
<td>29Sep11</td>
<td>Hx of renal disease – severe nephritis, poor body condition</td>
</tr>
<tr>
<td>332/Denver</td>
<td>M</td>
<td>11Jan83</td>
<td>15Nov11</td>
<td>Pending necropsy report</td>
</tr>
<tr>
<td>488/Columbus</td>
<td>M</td>
<td>6Oct93</td>
<td>28Dec11</td>
<td>Acute necrotizing typhlocolitis (r/o Clostridial inf), nephritis, SND</td>
</tr>
<tr>
<td>376/Portland</td>
<td>M</td>
<td>7May87</td>
<td>21Feb12</td>
<td>Hx chronic ISD, epistaxis, pustular dermatitis – iron overload disease, nephrosclerosis, metastatic mineralization, hypertension</td>
</tr>
<tr>
<td>377/San Francisco</td>
<td>M</td>
<td>21Jul87</td>
<td>27Feb12</td>
<td>Hx renal disease, epistaxis, dental dz –marked glomerulonephropathy and nephrosclerosis, hemosiderosis</td>
</tr>
<tr>
<td>301/Sedgewick</td>
<td>M</td>
<td>25Feb80</td>
<td>17Apr12</td>
<td>Pending necropsy report</td>
</tr>
<tr>
<td>363/Brookfield</td>
<td>M</td>
<td>14Dec85</td>
<td>5Nov12</td>
<td>Hx chronic renal dz, dental dz, dermatitis – nephritis and glomerulonephropathy, secondary mineralization, hemosiderosis, bronchopneumonia, gastritis</td>
</tr>
</tbody>
</table>
Rhino Health Bibliograph (2009-2013) – All Species

Anderson, C. 2012 Surveillance for anthrax (Bacillus anthracis) in water buffalo (Bubalus bubalis) sympatric with the Javan rhinoceros (Rhinoceros sondaicus) population in Ujung Kulon National Park, Indonesia. Report to Cornell University College of Veterinary Medicine, pp. 1-2


Bryant, B. 2012 Mycobacterium avium paratuberculosis cultured from the faeces of a black rhinoceros (Diceros bicornis minor) and observations subsequent to anti-tuberculous therapy. Proceedings of the 11th International Colloquium on Paratuberculosis 5-10 February Sydney, p.241

Bryk, J.M. 2009 Effect of increased activity on metabolic markers in captive black rhino: a pilot study. Project report to the Ohio State University, pp. 1-21


Devkota, R. A.; Branta, S.V.; Thapa, R.A.; Loker, E.S. 2013 Sharing schistosomes: the elephant schistosome Bivitellobilharzia nairi also infects the greater one-horned rhinoceros (Rhinoceros unicornis) in Chitwan National Park, Nepal. Journal of Helminthology DOI: http://dx.doi.org/10.1017/S0022149X12000697: 1-9


Espie, I.W.; Hlokwe, T.M.; Pittius, N.C. Gey van; Lane, E.; Tordiffe, A.S.W.; Michel, A.L.; Muller, A.;...


Mondal, S.; Manna, B. 2010 Probstmayria bengalensis n.sp. (Cosmocercoidea: Atractidae) in captive Indian one horned rhinoceros (Rhinoceros unicornis) from Alipore Zoological Garden, Calcutta, West Bengal, India. Proceedings of the Zoological Society of Calcutta 63 (2): 129-134


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Obanda, V.; Kagira, J.M.; Chege, S.; Okita-Ouma, B.; Gakuya, F. 2011 Trypanosomosis and other co-infections in translocated black (Diceros bicornis michaeli) and white (Ceratotherium simum simum) rhinoceroses in Kenya. Scientific Parasitology 12 (2): 103-107


Ruetten, M.; Steinmetz, H.W.; Clauss, M.; Pospischi, A. 2009 Haemochromatosis in the black rhinoceros (Diceros bicornis michaeli): acquired or congenital. ESVP/ECVP Proceedings 2009: 306

Sangster, C; Bryant, B; Campbell-Ward, M.; King, J.S.; Siapea, J. 2010 Neosporosis in an aborted southern white rhinoceros (Ceratotherium simum simum) fetus. Journal of Zoo and Wildlife Medicine 41 (4): 725-728


