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March 15, 2003

Dear Curator,

Please find enclosed a survey of your rhino and/or tapir exhibits. This survey is part of a doctoral research project, conducted through Utah State University, on the effects of enclosure attributes on the health, mortality and breeding success of rhinos and tapirs. *This project is supported by the AZA Tapir and Rhino TAGs* (see attached letters of support by Rick Barongi and Evan Blumer). Studbook records are being used to assess individual fitness, but specific data from zoological parks are required. In order for this project to be a success, I need your help and am asking for your participation.

Please complete the survey as thoroughly as possible for all rhino and tapir exhibits and return the forms within two weeks if at all possible. If you cannot respond, please let me know by telephone, fax, or email.

Your data contributions are vital to this project. I need to obtain information from all institutions to compile an adequate data set. Please fill out a separate form for each species and exhibit. For example, if your zoo has a Malayan tapir and a Baird's tapir, then please fill out two (2) forms. If one species has multiple enclosures, then please fill out a separate form (Section C) for each enclosure. Please make as many copies of the survey form as necessary. Close estimates of exhibit dimensions and features are acceptable. The survey should only take a few minutes to complete. Your time, effort, and participation are greatly appreciated. You can either mail, fax, or email the forms to the above address. I also have enclosed a pre-addressed envelope for your convenience.

The information obtained through this study will be shared, providing valuable information to zoological institutions. By increasing our understanding of the effects of enclosure attributes on rhinos and tapirs, this study should provide a basis for better captive management. If you would like a summary of the results, please indicate on the survey form or send me an email requesting a copy.

If you have any questions, please feel free to contact me. I look forward to working with you. Thank you in advance for your cooperation!

Sincerely,

Lisa A. Nordstrom



January 28, 2003

AMERICAN ZOO AND
AQUARIUM ASSOCIATION

Species Survival Plan
Taxon Advisory Group
Fauna Interest Group
Scientific Advisory Group

Lisa A. Nordstrom
Dept. of Fisheries & Wildlife
Utah State University
Logan, UT 84322

Dear Ms. Nordstrom,

Thank you for your recent correspondence regarding your planned survey. I have reviewed the materials that you have sent, and am both comfortable, and convinced of the value of the work that you propose. While the current 5-year Action Plan for the Rhino Advisory Group does not specifically address the project that you propose, clearly there is significant overlap with issues that have been identified as priorities for research in the captive rhino population. By way of this letter (which you should feel free to copy and provide to relevant zoos), I support your efforts and encourage our member institutions to cooperate with you as much as possible. The findings of your study will clearly be valuable to us as we attempt to improve our ability to manage rhinos in captivity.

I wish you success in your efforts, and hope to have the chance to review your findings as they become available. Please let me know if I, or the AZA Rhino Advisory Group, can be of further assistance.

Regards,

Evan S Blumer, VMD, MS
Chair
AZA Rhino Advisory Group

All AZA Institutions with *Tapirus* spp.

The AZA Tapir TAG supports this survey by Lisa Nordstrom, a graduate student at Utah State University. I encourage all tapir holding institutions to complete this survey, so we can begin to correlate exhibit design and husbandry practices with the long term health and well being of tapirs in captivity.

Rick Barongi
AZA Tapir TAG Chair
RBarongi@aol.com

Email Correspondence:
Date: Mon, 06 Jan 2003 23:23:55 -0500 (EST)
From: RBarongi@aol.com
To: slv2v@cc.usu.edu
Subject: Tapir Survey and Letter of Support



Zoological Enclosure Survey for Rhinos and Tapirs

Name of Facility: _____

Your Name: _____ Title: _____

Address: _____

Phone #: _____ Email: _____

Please check here if you would like to receive a summary report of this research.

A. SPECIES (*Check one – Please fill out a separate form for each species*)

Tapirs:

- Malayan
- Baird's
- Lowland
- Mountain

Rhinos:

- White
- Black
- Indian
- Sumatran

If subspecies, please indicate: _____

B. FACILITIES DESCRIPTION –

1. Description of Facilities for this Species:

Total number of animals: ____ M ____ F

Total number of enclosures: *

***Note:** If there are more than four (4) enclosures for this one species, then please fill out an additional form.

Enclosures:	Enclosure 1	Enclosure 2	Enclosure 3	Enclosure 4
Enclosure Type (please check all that apply)	<input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor <input type="checkbox"/> Night barn <input type="checkbox"/> Shift/Off Exhibit	<input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor <input type="checkbox"/> Night barn <input type="checkbox"/> Shift/Off Exhibit	<input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor <input type="checkbox"/> Night barn <input type="checkbox"/> Shift/Off Exhibit	<input type="checkbox"/> Outdoor <input type="checkbox"/> Indoor <input type="checkbox"/> Night barn <input type="checkbox"/> Shift/Off Exhibit
Age of enclosure	_____ yrs.	_____ yrs.	_____ yrs.	_____ yrs.
Principal Functions (please check all that apply)	<input type="checkbox"/> Public Display <input type="checkbox"/> Breeding Facility <input type="checkbox"/> Surplus Holding <input type="checkbox"/> Night Quarters <input type="checkbox"/> Other (please explain) _____	<input type="checkbox"/> Public Display <input type="checkbox"/> Breeding Facility <input type="checkbox"/> Surplus Holding <input type="checkbox"/> Night Quarters <input type="checkbox"/> Other (please explain) _____	<input type="checkbox"/> Public Display <input type="checkbox"/> Breeding Facility <input type="checkbox"/> Surplus Holding <input type="checkbox"/> Night Quarters <input type="checkbox"/> Other (please explain) _____	<input type="checkbox"/> Public Display <input type="checkbox"/> Breeding Facility <input type="checkbox"/> Surplus Holding <input type="checkbox"/> Night Quarters <input type="checkbox"/> Other (please explain) _____

2. Number of Animals in Each Enclosure:

Enclosures:	Enclosure 1	Enclosure 2	Enclosure 3	Enclosure 4
# Animals	___M ___F	___M ___F	___M ___F	___M ___F
Are the animals kept together or separate in the enclosure?	<input type="checkbox"/> Together <input type="checkbox"/> Separate <u>Please explain:</u>	<input type="checkbox"/> Together <input type="checkbox"/> Separate <u>Please explain:</u>	<input type="checkbox"/> Together <input type="checkbox"/> Separate <u>Please explain:</u>	<input type="checkbox"/> Together <input type="checkbox"/> Separate <u>Please explain:</u>

3. Are Animals Rotated Between Enclosures? Yes No

If yes, please describe rotation schedule: (please check all that apply)

- Daily between which enclosures: _____
- Weekly between which enclosures: _____
- Monthly between which enclosures: _____
- Other (please explain): _____

4. Do Any of the Enclosures Have Multiple Species?

Enclosures:	Enclosure 1	Enclosure 2	Enclosure 3	Enclosure 4
Mixed Species Exhibit?	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No	<input type="checkbox"/> Yes* <input type="checkbox"/> No

*If yes for any of the enclosures, please list:

Species Name	# individuals	Time Together (ave. hrs./day)
	___M ___F	
	___M ___F	
	___M ___F	

5. Major Structural Changes to Enclosures:

None Yes →

Date (year)	Description of Changes Made

Additional Comments (if any):

C. ENCLOSURE DESCRIPTION –

Please describe characteristics of all enclosures for this species, including outdoor yards, indoor enclosures, night quarters, and shift/off-exhibit areas. If there are multiple indoor or outdoor enclosures, please use additional forms to complete Section C. If the indoor quarters or outdoor holding pens have multiple stalls, please use the average stall size for the measurements.

1. Enclosure Dimensions: [Estimated Measured] Please give in English or Metric

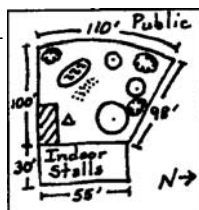
	Indoor	Outdoor
Type	<input type="checkbox"/> Indoor exhibit <input type="checkbox"/> Indoor night barn <input type="checkbox"/> Other _____	<input type="checkbox"/> Outdoor enclosure <input type="checkbox"/> Shift/off-exhibit <input type="checkbox"/> Other _____
Number of Stalls (if any)	# _____	# _____
Maximum Length (per stall / enclosure)	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.
Maximum Width (per stall / enclosure)	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.
Total Area (per stall / enclosure)	_____ <input type="checkbox"/> ft ² or <input type="checkbox"/> m ²	_____ <input type="checkbox"/> ft ² or <input type="checkbox"/> m ²
Public Viewing Perimeter	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.	_____ <input type="checkbox"/> ft. or <input type="checkbox"/> m.
Public Viewing	<input type="checkbox"/> Same level as animal <input type="checkbox"/> Above animal level <input type="checkbox"/> Below animal level	<input type="checkbox"/> Same level as animal <input type="checkbox"/> Above animal level <input type="checkbox"/> Below animal level
Percentage of enclosure perimeter with walls that animals cannot see past	<input type="checkbox"/> 0-25 % <input type="checkbox"/> 26-50 % <input type="checkbox"/> 51-75 % <input type="checkbox"/> 76-100 %	<input type="checkbox"/> 0-25 % <input type="checkbox"/> 26-50 % <input type="checkbox"/> 51-75 % <input type="checkbox"/> 76-100 %

2. Please sketch a diagram of the enclosures to indicate the shape of the enclosure and the location of various enclosure features. Please draw roughly to scale.

Key –

N	North direction
•	tree trunk
O	tree canopy (shade)
§	shrub
Δ	feeding area
▨	shelter
≈	pool
▤	mud wallow
	other exhibit feature (please explain)

Example –



Enclosure Diagram: please use additional pages if necessary

D. HUSBANDRY:

	Indoor	Outdoor																				
Ave. Time Animals are on Public Exhibit	_____ hours per day	_____ hours per day																				
Indoor and Outdoor Access during Favorable Weather (please check all that apply)	<input type="checkbox"/> Access to outdoors (day) <input type="checkbox"/> Access to outdoors (night) <input type="checkbox"/> Locked indoors (day) <input type="checkbox"/> Locked indoors (night) <input type="checkbox"/> Other _____	<input type="checkbox"/> Locked outdoors (day) <input type="checkbox"/> Locked outdoors (night) <input type="checkbox"/> Access to indoors (day) <input type="checkbox"/> Access to indoors (night) <input type="checkbox"/> Other _____																				
Time Indoors and Outdoors by Season (# weeks / 13 week period)	Jan.-Mar. _____ #weeks Apr.-Jun. _____ #weeks Jul.-Sept. _____ #weeks Oct.-Dec. _____ #weeks	Jan.-Mar. _____ #weeks Apr.-Jun. _____ #weeks Jul.-Sept. _____ #weeks Oct.-Dec. _____ #weeks																				
Heating	<input type="checkbox"/> no <input type="checkbox"/> yes _____°F																					
Are Showers Given?	<input type="checkbox"/> no <input type="checkbox"/> yes _____ times/wk.	<input type="checkbox"/> no <input type="checkbox"/> yes _____ times/wk.																				
Sanitation	<table border="0"> <thead> <tr> <th style="text-align: left;"><u>Technique</u></th> <th style="text-align: left;"><u>Freq.</u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Raked</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Hosed</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Disinfected</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td>_____</td> </tr> </tbody> </table>	<u>Technique</u>	<u>Freq.</u>	<input type="checkbox"/> Raked	_____ days/wk.	<input type="checkbox"/> Hosed	_____ days/wk.	<input type="checkbox"/> Disinfected	_____ days/wk.	<input type="checkbox"/> Other	_____	<table border="0"> <thead> <tr> <th style="text-align: left;"><u>Technique</u></th> <th style="text-align: left;"><u>Freq.</u></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> Raked</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Hosed</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Disinfected</td> <td>_____ days/wk.</td> </tr> <tr> <td><input type="checkbox"/> Other</td> <td>_____</td> </tr> </tbody> </table>	<u>Technique</u>	<u>Freq.</u>	<input type="checkbox"/> Raked	_____ days/wk.	<input type="checkbox"/> Hosed	_____ days/wk.	<input type="checkbox"/> Disinfected	_____ days/wk.	<input type="checkbox"/> Other	_____
<u>Technique</u>	<u>Freq.</u>																					
<input type="checkbox"/> Raked	_____ days/wk.																					
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<input type="checkbox"/> Disinfected	_____ days/wk.																					
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<input type="checkbox"/> Raked	_____ days/wk.																					
<input type="checkbox"/> Hosed	_____ days/wk.																					
<input type="checkbox"/> Disinfected	_____ days/wk.																					
<input type="checkbox"/> Other	_____																					
Diet	_____ % Alfalfa hay _____ % Mixed grass / legume hay _____ % Browse: _____ _____ % Fresh produce: _____ _____ % Commercial pellets (% protein: _____; Type: _____) _____ % Other _____ Comments: (supplements, etc.)																					
# Feedings per Day	<input type="checkbox"/> Once daily <input type="checkbox"/> Multiple feedings (# _____) <input type="checkbox"/> Continuous access <input type="checkbox"/> Other _____																					
Ave. # Keepers / Month	# _____																					
Ave. Time / Day Spent in Animal Area	_____ hours per day																					

E. REPRODUCTION / HEALTH / ENRICHMENT

<p>Reproduction (please check all that apply)</p>	<p><input type="checkbox"/> Continuous breeding opportunities (# ____ mo./yr. together) <input type="checkbox"/> Limited breeding opportunities (# ____ attempts per year) <input type="checkbox"/> Males / Females separated (# ____ months/yr. separated) <input type="checkbox"/> No breeding opportunities (date initiated: ____/____/____) <input type="checkbox"/> Other _____</p>
<p>Health (please check all that apply)</p> <p>C = Common – occurring multiple times for one animal or occurring in several animals R = Rare – occurring infrequently in any of the animals N = No occurrences for the animals in this enclosure</p>	<p>C R N (C = Common, R = Rare, N = None)</p> <p><input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Foot problems (ulcerations, infections, etc.) <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Eye problems (corneal cloudiness, etc.) <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Skin problems <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Dental/oral ailments <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Respiratory diseases (pneumonia, tuberculosis, etc.) <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Colic <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Chronic diarrhea and/or vomiting <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Hemolytic anemia <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Parasitic infections (leptospirosis, etc.) <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Rectal prolapse <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Vasculopathies / Encephalomyocarditis <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Stereotypic behavior <input type="checkbox"/><input type="checkbox"/><input type="checkbox"/> Other _____</p> <p>** If medical records are available on MedARKS, please attach summary for each individual. (Studbook #, Date, Medical Treatment)</p>
<p>Average # Medical Treatments per Year</p>	<p>Routine Exams # ____ per individual / year <input type="checkbox"/> Estimate Add. Treatments # ____ per individual / year <input type="checkbox"/> Count</p>
<p>Vaccinations</p>	<p><input type="checkbox"/> Tetanus <input type="checkbox"/> Leptospirosis <input type="checkbox"/> Rabies <input type="checkbox"/> West Nile Virus <input type="checkbox"/> Encephalitis <input type="checkbox"/> Other _____</p>
<p>Enrichment (please check all that apply)</p> <p><input type="checkbox"/> No Enrichment Used</p>	<p style="text-align: right;">Frequency</p> <p><input type="checkbox"/> Snacks / Treats # ____ / month <input type="checkbox"/> Scatter feeds / Feeding devices # ____ / month <input type="checkbox"/> Toys or other objects # ____ / month <input type="checkbox"/> Grooming # ____ / month <input type="checkbox"/> Auditory enrichment # ____ / month <input type="checkbox"/> Scents # ____ / month <input type="checkbox"/> Other _____ # ____ / month</p>

Thank you for your response!