

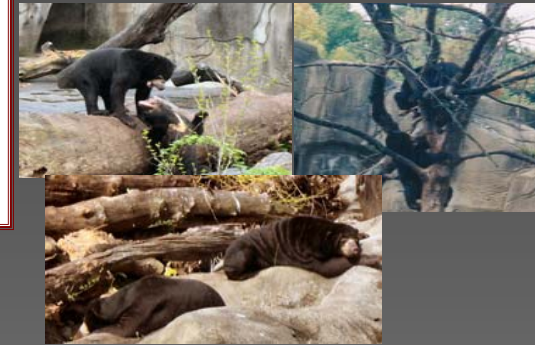
INTRODUCTION

Stereotypic behavior is a movement that is performed repeatedly in a fixed pattern (Mason, 1991). Stereotypic pacing in captive bears is well known however the basis or reason for the behavior is less understood. Studies and experience with bears support findings that environmental changes to reduce stereotypic behavior are most effective when they correspond to the motivational basis of the behavior (Kolter & Zander, 1995). Therefore, it is essential to understand the factors that underlie the behavior in order to develop a remedial strategy.

The purpose of the study was to identify the motivational factors underlying the stereotypic pacing of a female Malayan sun bear. The pacing female, Juwita, shared exhibit space with two adult sun bears, a second female Scruffy and a male, Blackie. Therefore, in addition to stereotypic pacing, activity patterns for each bear and social interactions were also recorded.

IDENTIFYING MOTIVATIONAL FACTORS UNDERLYING STEREOTYPIC PACING IN A FEMALE SUN BEAR (*Helarctos malayanus*)

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*Behaviors -
 Top Left: Play Top Right: Agonistic charge
 Bottom: Sleeping*

MATERIALS AND METHODS

Subjects

All three sun bears were wild born but confiscated by Malaysian wildlife officials from an illegal pet trade. The three came to Cleveland Metroparks Zoo from Borneo, Malaysia; Juwita and Blackie in 2000, and Scruffy in 1996.

Housing and Management

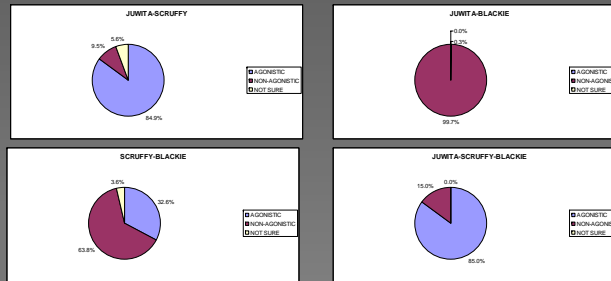
The exhibit housing the sun bears was an open moat design of gunite construction. The exhibit area was furnished with a number of features including a waterfall and pool, natural soil, live plants, numerous logs and a tree for climbing. Each bear had a separate overnight area indoors and would enter and exit the exhibit through two tunnels at the rear on the right and left sides. During the 2005 exhibit season, the three bears were placed on exhibit from 9 AM until 5 PM. This practice was altered in 2006 by separating the females and exhibiting Juwita and the male, Blackie together. While on exhibit, the two were given access to their overnight areas on most days.

Data Collection

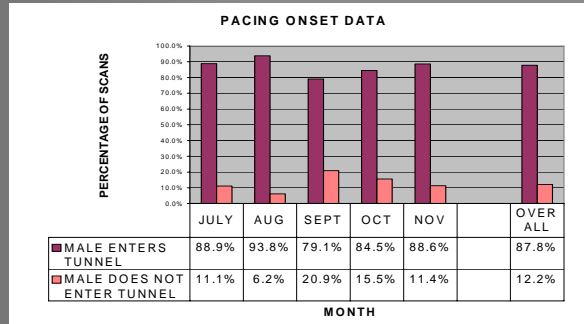
A total of 368 hours of data were collected between June and November 2005 and the months of April, June, and August of 2006. Two data collection methods were employed. Data were collected for stereotypic pacing and social interactions by continuous focal observations, whereas individual activities were recorded by instantaneous scan sampling at 10 min. interval over a period of 4-7 hours each observation day. In addition, hourly data on weather conditions, the crowd size and noise level near the exhibit area were collected for potential correlation purposes.

2005 Social Data

Social interactions varied among the bears; more agonistic between the two females whereas social interactions between Juwita and Blackie were primarily non-agonistic.



Data show a strong connection between the onset of a pacing bout and the male walking into the tunnel



PRELIMINARY CONCLUSIONS:

All observed pacing bouts occurred at the rear of the exhibit between the two tunnels.

The motivational factors for the pacing behavior appear linked to the social composition within the exhibit during 2005, the high frequency of pacing associated with the male's behavior and the high percentage of agonistic interactions between the females.

The favorable decline in stereotypic pacing during 2006 was the result of several housing changes which included separating the females and allowing Juwita and Blackie access to overnight areas when on exhibit.

Final conclusions forthcoming upon completion of data analysis



Juwita – Pacing Female
 Focus of study
 10 y.o.



Blackie – Male
 9 y.o.



Scruffy – Second Female
 20 y.o.

Juwita's pacing declined in 2006 after housing changes were made.

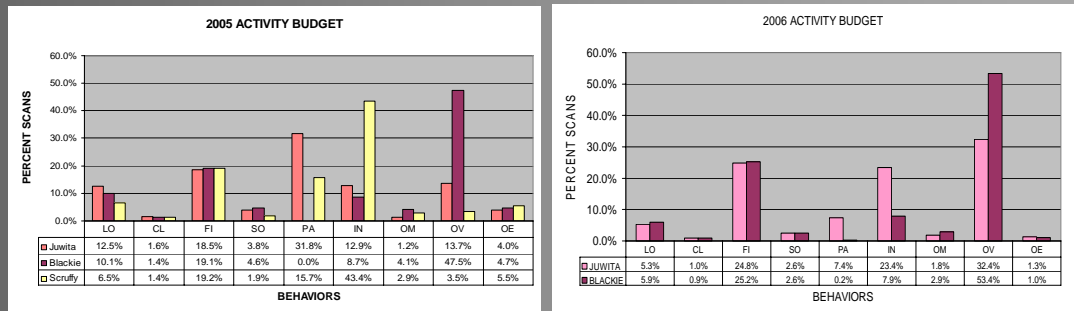


Figure 3 Represents a six month period (June - November) reference "SUN BEAR BEHAVIORS DEFINED"
 Figure 4 Represents a three month period (April, June, August)

JUWITA'S BEHAVIOR



TOP: BEFORE HOUSING CHANGES

BOTTOM: AFTER



REFERENCES

Kolter L, Zander R. 1995. Potential and limitations of environmental enrichment in managing behavioral problems of polar bears. In: Proceedings of the 2nd International Conference on Environmental Enrichment. Frederiksberg, Denmark, p 131-41.
 Mason G. J. 1991. Stereotypes: a critical review. Animal Behavior. 41:1015-1037.

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