

**To:** Adam Felts  
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**Title:** Monitoring behavior, stress and reproductive hormones in the black rhinoceros using non-invasive fecal assays

**Topic:** Black rhinoceros behavior, stress and reproductive hormones

**Medium:** Poster

**Abstract:** Measuring cortisol levels from fecal samples using enzyme immunoassay (EIA) protocols has been found to be a very useful tool for measuring stress in a variety of species. This study's objective is to monitor the behavior and changes in stress and reproductive hormones for two pairs of captive black rhinos located at different zoological institutions over an extended period of time (e.g. six month period). This time period will encompass potentially stressful events such as invasive training sessions (blood draws), irregular activity around the rhinos (exhibit work, severe weather, extremely high attendance) and the female's estrus cycles. The Potter Park Zoo and the Honolulu Zoo both had rhino pairs that participated in this study. The observational data collected in this study were in the form of daily behavioral checksheets and direct observation sessions. Zookeepers filled out a checksheet for each rhino every day and when possible direct observations were made on each rhino pair. Fecal samples from each rhino were collected daily. EIA protocols were then followed in the Brookfield Zoo endocrinology lab to determine the stress and reproductive hormones present in each sample. The behavioral data and the hormonal data are currently being compared and analyzed for each institution. The results and conclusions may provide new insight into the care and husbandry of black rhinos in captivity.

**Note:** Dr.Kathy Carlstead of the Honolulu Zoo is participating in this study.