Innovation Inquiry - Class Overview

This class was focused on working in multi-disciplinary teams to generate concepts and create prototypes for zoo animal enrichment. The team consisted of a mechanical engineer, a chemical engineer, and an industrial designer. We worked directly with a number of faculty members including two keepers, Aimee Owen and Kim Kisterman, as well as the enrichment coordinator David Ostern.

Behaviors & Enrichment

Overview

The rhinoceros hornbill, named for the horn-shaped casque on its beak, is a large arboreal bird found in forests in the Malay peninsula and Borneo. In captivity, the bird’s diet mainly consists of fruit and diked mixed vegetable, along with bugs and nutritional pellets. Hornbills mate for life and exhibit pair bonding. At the Cincinnati Zoo and Botanical Garden, the two sister hornbills on display have shown some pair bonding characteristics, such as feeding each other and working together to break up food.

Enrichment

Animal enrichment is the practice of providing environmental stimuli to create the optimal state of well-being in an animal, both physically and psychologically. Some of the more common forms of enrichment are:

Cognitive
Enrichment design to increase curiosity and engagement. Often times puzzle feeders are toys, are stuffed with food to encourage foraging behaviors and delay feeding.

Dietary
Animals are provided with a source of food that differ from their normal diet to provide variety and stimulus.

Physical Habitat
This form of enrichment takes the form of the features present in an animal’s environment. Often times these will mimic the naturally occurring features of an animals natural habitat such as running water or leafy plants.

The Device

Bird Shower

The shower enrichment device aims to increase the behavior of cleaning, which the hornbills rarely perform now due to the absence of moving water in their habitat. When the rope is pulled down, water from the main tank is released and falls down onto the bird. Additionally, the device aims to decrease the amount of time that the hornbills will be resting and increase their daily activity by allowing the birds to control the output of water. The rope that the hornbill pulls on will also serve as another way for the birds to clean their beaks.

Citations
2. https://www.asa.org/animal/rhinoceros-hornbill