

People believe naturalistic enclosures make animals happier

Does perception of bonobo happiness relate to zoo enclosure design?

Zoo enclosure designers should aim to offer behavioural opportunities that allow animals to enhance their quality of life. This can be achieved through a “behavioural engineering approach” in which artificial devices can be used or through the “naturalistic approach” in which the wild environment is mimicked maximally. We hypothesized that the visitors perception of the animals’ happiness is influenced by enclosure design.

Material and methods:

In an online query via social media, we offered pictures of natural versus unnatural looking enclosures for bonobos. Respondents were asked to score happiness on a 7-point scale.

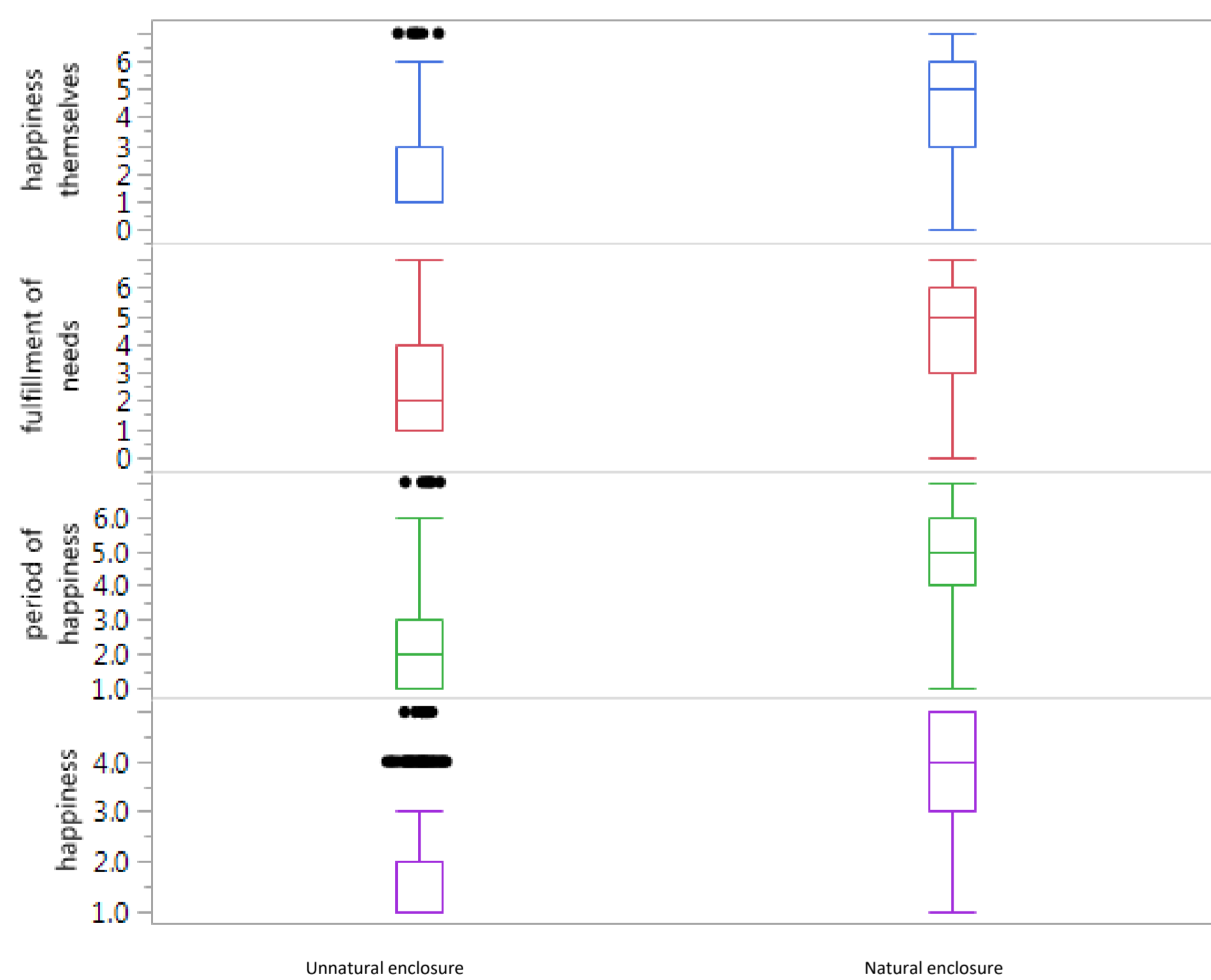
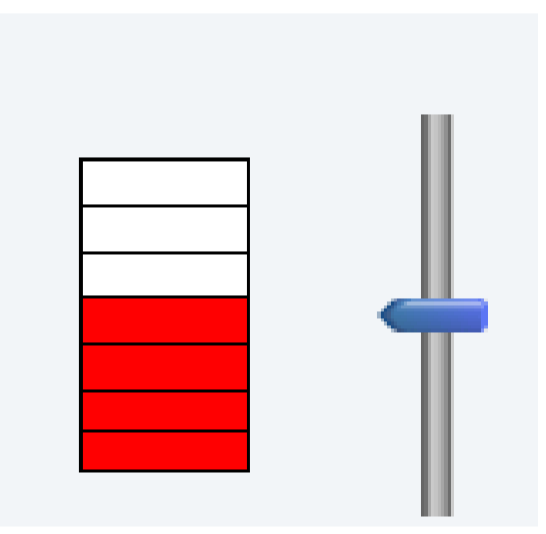
A linear mixed model was applied with individual score as response value, respondent ID as random effect and enclosure type (natural or unnatural) as fixed effect. For the overall comparison of natural versus unnatural enclosure the significance level was set at 0.05 (implying that significance was reached when $p < 0.05$). For the nine pairwise comparisons a Bonferroni correction was applied and significance was reached if $p < 0,00556$.



1: natural 2: unnatural 3: natural 4: natural 5: unnatural 6: unnatural

Questions:

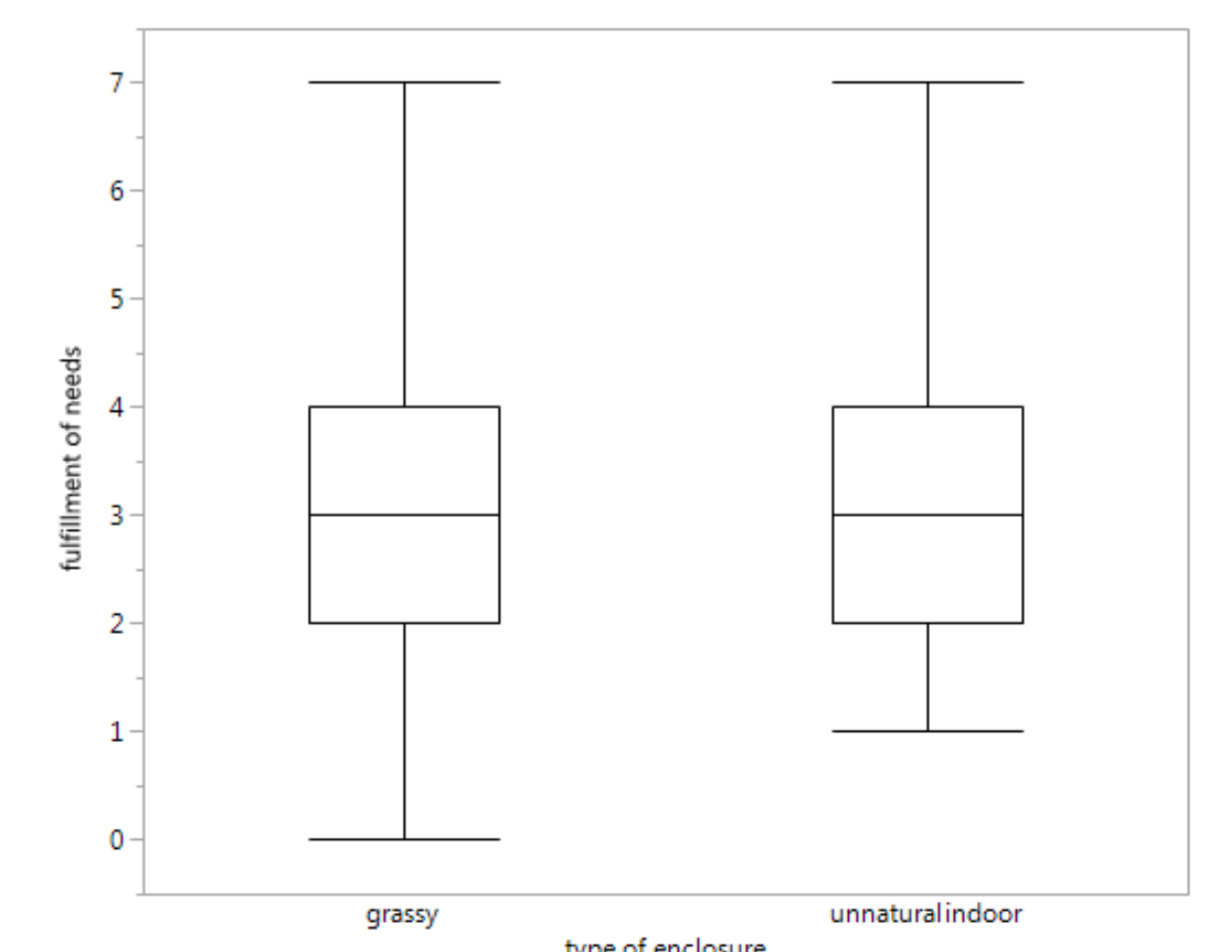
- Degree of happiness: How happy would you score the animals, assuming an equal size of all these enclosures?
- Duration of happiness: Estimate the time the apes would be happy or satisfied, have fun or are in a positive mood. Assume that in the remaining time the animals are unhappy, bored, fearful or in a negative mood.
- Estimate the degree at which the apes are effective or succesful in acquiring their goals or desires. Goals may be a desired place, device or material in the enclosure.
- Imagine how happy you would be if you were this ape during one week. You would behave exactly like this ape, you would perceive the world in a similar manner, and you would feel the same emotions as this ape.



Results:

In more natural enclosures, people (n=201) thought the apes were significantly happier ($df=1$, $p < 0.0001$), they thought animals would experience positive emotions during a longer period ($df=1$; $p < 0.0001$), they gave a higher score to the degree in which they estimated the animals to be successful at fulfilling their needs ($df=1$, $p < 0.0001$), and they thought they themselves would be happier in that enclosure ($df=1$, $p < 0.0001$). For each of the four questions, all nine pairwise comparisons of natural versus unnatural enclosures were tested and the differences were significant ($df=200$, $p < 0.00001$) for happiness score, duration of happiness and happiness if they would be the animal.

All pairwise comparisons differed significantly for ‘efficiency to fulfil their needs’, except for the comparison of the pictures of a natural but relatively empty grassy area and an unnatural indoor enclosure with climbing structures (picture 4 and 5) ($df=200$, $p < 0.351$), possibly indicating a rough understanding of higher needs for climbing opportunities.



Welfare considerations: People believe that naturalistic looking enclosures make bonobos happier. On top of that they seem to have an idea of behavioural needs. Whether all the animals’ behavioural and psychological needs are sufficiently met in naturalistic enclosures needs to be carefully assessed. A welfare friendly interpretation would be to offer natural looking enclosures with additional well-studied behavioural-engineering-devices aimed at fulfilling species-specific needs and at offering positive welfare to the animals.

Odisee University College

Agro- and Biotechnology, Ethology and Animal Welfare,
Hospitaalstraat 21, 9100 Sint-Niklaas, Belgium
Questions? Mail: hilde.vervaecke@odisee.be

Acknowledgements and references:

This project was initiated by Jeroen Stevens who was inspired by: Ross SR, Vreeman VM, Lonsdorf EV (2011) Specific Image Characteristics Influence Attitudes about Chimpanzee Conservation and Use as Pets. PLoS ONE 6(7): e22050. doi:10.1371/journal.pone.0022050; Weiss A., Inoue-Murayama M., Hong KW, Inoue E, Udono T, Ochiai T, Matsuzawa T, Hirata S, King JE. 2009. Assessing chimpanzee personality and subjective well-being in Japan. American journal of primatology 71 (4), 283-292.