

# Rethinking how we house chimpanzees in captivity: a naturalistic approach

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## Introduction

Chimpanzees are kept in captivity in a variety of contexts that range from zoo exhibits, to research facilities, and sanctuaries that rehabilitate and house retired chimpanzees. In the past chimpanzees were housed singly or in small groups. This type of arrangement was advantageous in that it increased human control over behaviour and nutrition, reduced the incidence of fighting and social tension and improved hygiene. It is now widely accepted that chimpanzees are extremely intelligent and that their impressive mental abilities have evolved partly, as with humans and other primates, to cope with complex group life. Psychological well-being is characterised by the presence of behaviours that typify the intelligence, curiosity and social interactions of the species, as well as the absence of abnormal, stereotypic behaviours. The aim of this work is to discuss ways in which the "psychological well-being" of captive chimpanzees can be improved.

## Discussion

There are two schools of thought that influence design and operation of animal care and exhibition facilities (Coe et al., 2001). The homocentric view holds that research and technology, properly applied, will meet all animals' needs. The biocentric view holds that because very little is known about animals' needs, we are better able to meet them if we recreate the social and environmental conditions in which the species evolved (Coe et al., 2001; Pruetz and McGrew, 2001). Currently the homocentric approach dominates both animal-care operations and facility design. By adopting a biocentric approach and designing enclosures that function naturalistically we can provide chimpanzees with more choice regarding their environment (Coe et al., 2001). There is increasing evidence to suggest that animals that exercise greater control over their environment suffer fewer stress-related syndromes than animals without such control (Bloomsith and Barker, 2001).

The provision of elevated sites for nesting (up to 10m off the ground) and the availability of nesting materials are extremely important given that chimpanzees in the wild spend more than half their time sleeping and resting. The security of sleeping in an elevated nest and the comfort of bedding material probably significantly contributes to the quality of sleep that captive chimpanzees experience (Pruetz and McGrew, 2001) (Coe et al., 2001).

In the wild, chimpanzees live in highly fluid "fission-fusion" societies made up of shifting associations among individuals within a relatively stable unit-group. Interactions among males differ significantly from those among females, with a higher frequency of multi-male groups and affiliations (Fritz and Howell, 2001). Facilities and groups should be arranged to allow mixed-age and mixed-sex social groups, with room for sub-grouping, isolation and cooperation among members (Coe et al., 2001). Compatibility of individuals is important to consider. Mother-offspring associations should be maintained for as long as possible (Pruetz and McGrew, 2001). In the wild, offspring stay with their mothers for over 5 years. The mother-offspring relationship is the most stable and enduring in chimpanzee society, yet is often cut short in captivity (Bloomsith and Barker, 2001).

The absence of the fluid fission-fusion social structure that is characteristic of chimpanzees in nature may underlie many behavioural abnormalities in captive chimpanzee behaviour. Some examples that may indicate problems with social group composition and stability include: reduced sexual activity, excessive levels and intensity of aggression, abnormal patterns of behaviour and long periods of inactivity (Bloomsith and Barker, 2001) (Coe et al., 2001) (Fritz and Howell, 2001).

Chimpanzee enclosures should be designed so that their size, proportion and vertical orientation of the space, together with their furnishings, elicit and support species-typical behaviour (Pruetz and McGrew, 2001). Two features of an environment that are most likely to promote psychological well-being are complexity and control. Since the well-being of wild chimpanzees is derived from their successful exploitation of complex habitats, the well-being of captive chimpanzees should be enhanced by providing multi-dimensional artificial habitats. Wild chimpanzees exercise some degree of control over their physical and social environments by choosing between potential actions and resources. While physical ability, knowledge, experience, and social status may limit these choices, the availability of choice in the first place is thought to be important for psychological well-being. Resting and nesting areas, shade, shelter, drinking water, foraging devices and access/egress areas must be provided in sufficient numbers and locations to minimise competition and ensure access for low ranking individuals (Coe et al., 2001; Bloomsmith and Barker, 2001).

Special behavioural enrichment features should be included in facility design as they are useful for stimulating the natural curiosity of chimpanzees. In the wild chimps spend about 30% of their time foraging. By giving many small meals per day, allowing processing opportunities (eg: fishing for termites using a stick) and increasing dietary variation, the time chimps spend looking for, processing and consuming food can be increased (Pruetz and McGrew, 2001). In a bibliography of 88 chimpanzee-related enrichment articles published from 1987-1992 only 11% referred specifically to feeding and eating, 29% could be classified as general enrichment articles, 24% referred to physical environment of captive chimpanzees and 17% referred to the social environment (Pruetz and McGrew, 2001). This indicates that foraging and eating have continuously been underrepresented, which is concerning given their importance to wild chimpanzees. Seeking, processing and ingesting food are clearly vital components of a chimpanzee's daily life; and so should be of foremost concern in captive management programs (Pruetz and McGrew, 2001).

Management practices have traditionally included the application of negative reinforcement. There is an inherent cost to chimpanzee welfare when an individual is forced to cooperate due to the threat of a negative experience. Examples of mild negative stimuli include: threat of a water hose, involuntary restraint from a moveable wall without the opportunity to comply voluntarily or temporary isolation in order to achieve compliance from animals. There is also a risk of having to escalate the level of negative reinforcement over time, for example using a BB gun or cattle prod (Laule and Whittaker, 2001). Positive reinforcement techniques are becoming increasingly recognised as opportunities for choice, contributing to the psychological well-being of chimpanzees (Laule and Whittaker, 2001). If properly applied, training techniques can aid carers and chimpanzees in many ways. Voluntary cooperation by animals in husbandry, veterinary and research procedures can be achieved. Manoeuvring animals can be easily accomplished, with much less stress, allowing better access to them, whilst abnormal behaviour can be eliminated and species-typical behaviour increased. Using positive reinforcement, the effectiveness of environmental enrichment activities and socialization with conspecifics can be enhanced and the prevalence of aggressive behaviour can be reduced or eradicated (Laule and Whittaker, 2001).

## Conclusion

To optimise welfare and care of captive chimpanzees, facility design and management need to be fully integrated (Coe et al., 2001). Facilities and management procedures should be designed to give more control and choice to chimpanzees with minimal confinement (Coe et al., 2001) (Pruetz and McGrew, 2001). The hope for genuine improvement lies in learning lessons from nature, from the apes themselves, and from their finely tuned relationship with their natural habitat.

## References

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