



The visitor effect in petting zoo-housed animals: Aversive or enriching?



Alexandra Farrand^a, Geoff Hosey^b, Hannah M. Buchanan-Smith^{a,*}

^a Psychology, School of Natural Sciences, University of Stirling, Stirling FK9 4LA, Scotland, United Kingdom

^b Biology, University of Bolton, Deane Road, BL3 5AB, Bolton, United Kingdom

ARTICLE INFO

Article history:

Accepted 27 November 2013

Available online 4 December 2013

Keywords:

Visitor effect

Petting zoo

Ungulate

Animal welfare

Enrichment

Human–animal interaction

ABSTRACT

Two studies were carried out on the effect of visitors on mixed-breed goats, llama, and Vietnamese pot-bellied pigs housed in a petting zoo display within a safari park. In the first study we investigated the effect of the presence and density of visitors on the animals' behaviour and in the second, the effect of animal grooming by the visitors. We hypothesised that the animals' behaviour would be negatively affected by presence of visitors compared to periods of their absence, but this hypothesis was not fully supported by the data. Goat and llama behaviour was unaffected by the presence of the public, while the pigs showed decreased inactivity and social behaviour, both affiliative and aggressive, when visitors were present.

All three study species exhibited increased levels of non-aggressive interaction with the public when visitor density was higher but the level of avoidance or aggression towards visitors was not dependent on density. The goats were less often in physical contact with other goats and less likely to be within proximity of a non-conspecific when visitor numbers were high, whereas the pigs showed decreased feeding, a behaviour that constituted a majority of their activity budget. Species differences were observed in the proportion of samples the study groups interacted in a non-aggressive manner with visitors, goats being most likely and llama the least likely to engage in this behaviour. In the second study visitors were provided with a grooming tool and asked to groom the animals, but no significant behavioural change was observed in either goats or pigs as a result. Visitors groomed goats, but not pigs, more than they interacted with them in non-grooming interactions, and goats, but not pigs, responded less to grooming as visitor density increased.

Although significant behavioural changes in all three study species were associated with either visitor presence or density, the low levels of avoidance of visitors, visitor-directed aggression, or animal-directed aggression, suggest the welfare of the study animals was not profoundly impacted by visitor-related stimuli. Furthermore, there was no evidence that grooming by the public was enriching for the animals. The species differences reported here do suggest, however, that Vietnamese pot-bellied pigs and llama are more sensitive to visitor pressure than goats and particular attention to their welfare may be necessary when they are housed in petting zoo displays.

© 2013 Elsevier B.V. All rights reserved.

1. Introduction

The petting zoo is usually an exhibit or collection of exhibits where a selection of domesticated or semi-domesticated species are allowed to come into close proximity with humans, often with direct physical contact

* Corresponding author. Tel.: +44 1786 467674; fax: +44 1786 467641.

E-mail addresses: gh2@bolton.ac.uk (G. Hosey),

h.m.buchanan-smith@stir.ac.uk (H.M. Buchanan-Smith).

and sanctioned feeding. Such close contact and interactions have the potential to influence the behaviour and welfare of the animals housed in this type of zoo exhibit. Although petting zoos are popular as stand-alone attractions or within zoos/wildlife parks, they have received little study. An exception is research which suggests visitors negatively influence the behaviour of goats and sheep in a petting zoo (Anderson et al., 2002, 2004). In an agricultural context, however, human contact and handling appear to be beneficial to these animals, resulting in less fearful behaviour and positive physiological changes (Jackson and Hackett, 2007; Markowitz et al., 1998; Rushen et al., 1999), and the possibility exists that similar changes could be brought about in petting zoos, which often contain domesticated farm animals.

Zoo visitors have been associated with behavioural change in captive animals, most notably primates (Hosey, 2000). While visitors can hypothetically be a negative, neutral, or positive influence on zoo animals (Hosey, 2000), the most common behavioural changes reported are generally interpreted as negative in terms of animal welfare. These include decreased social behaviour (Chamove et al., 1988; Glatston et al., 1984; Mallapur et al., 2005; Wood, 1998), increased abnormal behaviour (Blaney and Wells, 2004; Chamove et al., 1988; Mallapur and Chellam, 2002; Mallapur et al., 2005; Skyner et al., 2004; Wells, 2005) and increased aggression (Blaney and Wells, 2004; Chamove et al., 1988; Glatston et al., 1984; Kuhar, 2008; Mitchell et al., 1991; Wells, 2005). More recently, physiological changes indicative of decreased welfare have been reported in relationship to visitor-related variables in spider monkeys (*Ateles geoffroyii rufiventris*; Davis et al., 2005) and black rhinoceros (*Dicornis bicornis*; Carlstead and Brown, 2005).

Visitor effect research has often lacked scientific rigour because of the difficulty controlling variables related to visitors, such as visitor presence, visitor density, visitor noise, and visitor behaviour. Despite methodological concerns, researchers have compared the behaviour of captive animals in the presence of visitors to periods in which visitors are absent, but achieving a condition in which there are no visitors present is difficult in many zoos. For example, twelve ungulate species were found to be more vigilant toward keepers when visitors were absent (Thompson, 1989), but this study included data collected after the zoo had closed to visitors for the day, which is not ideal as it introduces time of day confounds.

Visitor effect research has also been conducted at zoos that are not open every day of the week, allowing observations to be made on days with visitors present and days when visitors are absent; this methodology is acceptable when investigating the short-term visitor effect but is less useful when attempting to identify the chronic effect of zoo visitors (Mallapur et al., 2005). On days when visitors were not present, lion-tailed macaques (*Macaca silenus*) were observed to decrease self-directed behaviour, increase social and reproductive behaviour, and decrease use of the front of their enclosures (Mallapur et al., 2005), interpreted as signs of improved welfare. Decreased resting has been identified in Indian leopards (*Panthera pardus fusca*; Mallapur and Chellam, 2002), but increased resting

and affiliation and decreased feeding has been reported in green monkeys (*Cercopithecus aethiops sabaeus*; Fa, 1989) on days when the study zoos were closed to visitors, demonstrating some of the difficulty in interpreting behavioural measures of visitor impact. A more extended period of time (6 weeks) without visitors was achieved opportunistically during the outbreak of foot and mouth disease in the United Kingdom in 2001 and Davis et al. (2005) found that spider monkey urinary cortisol was lower in this period than when the zoo was open to the public, although one must consider that the possibility that institutional changes brought about by this outbreak, such as altered husbandry practices or a reduction of staff to only essential personnel, may have affected the results of this study.

Moving study animals from on-exhibit enclosures to off-exhibit enclosures has been employed to change the levels of visitor exposure, but environmental changes in housing conditions, aside from the presence of visitors, limit the usefulness of such data. Improvements in lion-tailed macaque welfare (decreased abnormal and stereotypic behaviour), were achieved moving on-display groups to off-display enclosures (Mallapur et al., 2005). However, not all studies have found positive effects; cotton-top tamarins (*Saguinus oedipus*) showed less social behaviour (breeding pairs less social with each other and with their offspring) and increased agonism following the cage change from on to off exhibit (Glatston et al., 1984).

In addition to the presence or absence of visitors, the number of visitors appears to have a measureable effect on the behaviour of captive primate species (Birke, 2002; Chamove et al., 1988; Cooke and Schillaci, 2007; Fa, 1989; Glatston et al., 1984; Hosey and Druck, 1987; Kuhar, 2008; Mitchell et al., 1991, 1992; Skyner et al., 2004; Todd et al., 2006; Wells, 2005; Wood, 1998) and this variable is the most frequently reported in the literature. It is less clear whether there is a visitor density effect on other mammals commonly housed in zoos, due in part to the relatively few visitor effect studies carried out on non-primates. Some felids, for example, appear to show little or no behavioural response to visitors (Margulis et al., 2003; O'Donovan et al., 1993), whereas other studies report a visitor density influence on the behaviour of zoo-housed cats (Mallapur and Chellam, 2002; Sellinger and Ha, 2005). Ungulates have not been widely studied in this context, but sika deer (*Cervus nippon*; Shen-Jin et al., 2010) and Soemmerring's gazelle (*Gazella soemmerringii*; Mansour et al., 2000) both show increased alertness as visitor density increases, and higher levels of aggression have been found in gaur (*Bos gaurus gaurus*; Sekar et al., 2008) and blackbuck (*Antilope cervicapra*; Rajagopal et al., 2011) when visitor pressure is high.

The behaviour of petting zoo animals in relation to zoo visitors has not been a common focus for visitor effect researchers but there are reports that the behaviour of ungulates housed in petting zoos can be affected by visitor density. African pygmy goats (*Capra hircus*) and Romanov sheep (*Ovis aries*) were significantly more likely to display "undesirable behaviour," such as head tossing, head butting, foot stamping, rearing, nose-blowing, and moving away, when the number of people within their enclosure was higher (Anderson et al., 2002), but this effect

Download English Version:

<https://daneshyari.com/en/article/4522626>

Download Persian Version:

<https://daneshyari.com/article/4522626>

[Daneshyari.com](https://daneshyari.com)