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Tourism and wildlife habituation: Reduced population fitness or cessation of impact?

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ABSTRACT

Habituation typically is viewed as a negative consequence of human interactions with wildlife (Higginbottom, 2004; Newsome, Dowling, & Moore, 2005; Shackley, 1996). While animal habituation commonly is used in the laboratory and field-based zoology studies, attempts to consider deliberate habituation specifically in a tourism management context (Shelton, Higham, & Seddon, 2004) has been received unsympathetically by biological scientists and wildlife managers on the grounds that habituation, by definition, is undesirable. This paper puts forward the case that the global and stable behavioural descriptor, *habituation*, is not the most useful way to formulate most observed lack-of-wildlife-response to visitor approach and observation. It presents an applied behaviour analysis of wildlife habituation that is situated within learning theory. This analysis differentiates between avoidance/approach behaviours, tolerance, habituation and sensitisation. This provides a formulative framework for human–wildlife interactions, that is then considered specifically in terms of tourism businesses seeking to provide sustainable visitor interactions with wild animals. A tourism management model derived from this critique of habituation is presented and discussed.

1. Introduction

The concept of wildlife habituation traditionally has been treated uncritically within the field of nature-based tourism (Edington & Edington, 1986; Shelton & Higham, 2007). Typically the concept of habituation is accepted as a unitary phenomenon that is a negative possible consequence of tourist interactions with animals in the wild (Higginbottom, 2004; Newsome et al., 2005; Shackley, 1996). This global and stable behavioural descriptor, *habituation*, is an unhelpful way to formulate most observed lack-of-wildlife-response to human interactions. A more fine-grained behavioural and temporal approach to understanding wildlife habituation may be of considerable relevance to the optimal management of tourist interactions with wild animals.

This paper attempts two points of departure from established discourses on wildlife habituation. The first challenges the contrast between the use of habituation in zoological studies (e.g. to mitigate researcher impacts), and the treatment of habituation in tourism management as entirely undesirable (Seddon, Ellenberg, & van Heezik, in press). Second, it asks if in some instances habituation may be deployed as a deliberate tourism management strategy in pursuit of cessation of visitor impacts upon focal animals (Nisbet, 2000). These discussions draw upon three sources; thousands of unstructured personal observations on the part of the authors derived from employment as wildlife tour guides in New Zealand; extensive *in situ* personal observations of human–wildlife encounters in New Zealand including New Zealand's sub-Antarctic Islands, and Ross Sea Dependency (Antarctica); and key empirical literature (e.g. Bejder, Samuels, Whitehead, Finn, & Allen, 2009; Ellenberg, Mattern, Seddon, & Jorquera, 2006; Johns, 1996; Knight, 2009; Romero & Wikelsi, 2002). The discussions that follow draw upon person observations unless indicated otherwise through reference citation.

2. Ecotourism and wildlife encounters

Wildlife viewing, once the domain of dedicated enthusiasts, or 'specialists' (Duffus & Dearden, 1990), has moved into the mainstream of commercial tourism (Knight, 2009). With this has come a proliferation and diversification of opportunities to encounter wildlife (Higham, Lusseau, & Hendry, 2008). This course of development has occurred despite an inescapable tension. Knight (2009: p. 167) identifies a fundamental contradiction in wildlife viewing in that "wild animals are generally human-averse; they avoid humans

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and respond to human encounters by fleeing and retreating to cover". A gradual reduction of such avoidance commonly is labelled *habituation*. However human–wildlife encounters represent a complexity of interaction stimuli that render the unitary term habituation problematic (Bejder et al., 2009). With this point in mind, it is surprising that wildlife habituation continues to be treated uncritically within the context of nature-based tourism and sustainable tourism management.

Successful commercial wildlife viewing requires that visitors are concentrated in well-defined locations where interactions with wild animals are predictable and constant (Whittaker, 1997). Usually, viewing wildlife takes place where sightings are most consistent, focal animals can be viewed in abundance or, where spectacular behaviours may be predictably observed and experienced (e.g. courtship and socialising behaviours). The critical nature of these sites, in terms of site ecology and wildlife behaviours, raises two important points; (1) That the behavioural state of wild animals varies significantly over time (e.g. across times of day, through different stages of the breeding cycle and across life course) and (2) that animal responses to external stimuli (e.g. the presence of tourists) is likely to vary over time, as influenced by these temporal determinants.

These points raise the challenge of understanding and responding to the potential adverse impacts of human–wildlife interactions, not only for the sake of the focal animals, but also from an experiential standpoint with the aim of (1) reducing avoidance, flight or retreat responses and (2) mitigating adverse impacts on animals that may otherwise discontinue critical, site-specific behaviours e.g. by instigating site abandonment. Furthermore, increasingly tourists seek to be assured that their mere presence at wildlife viewing sites (and their associated behaviours) are not to the detriment of the animals that they seek to experience first hand, either in terms of the welfare of individual animals or wider population fitness (Higham & Lusseau, 2004; Muloin, 1998).

Such concerns on the part of tourists (and site managers) are well founded. Knight (2009) critiques the dichotomy between wildlife viewing and wildlife hunting as non-consumptive and consumptive respectively, highlighting that viewing and hunting wildlife have some fundamental similarities. First, both engage in locating and identifying target wild animals, which are generally "wary of human presence and reluctant to expose themselves to human eyes" (Knight, 2009: p. 169). Such wariness may be expressed through anti-predatory adaptations, both physical (e.g. camouflage colouration) and behavioural (e.g. concealment) to avoid detection. The directed, intensive and sustained tourist gaze offers a second parallel with hunting (and predation more generally), which also is likely to trigger alarm and anti-predatory responses in individual animals or groups of animals.

Tourist satisfaction is commonly associated with close-up, unconstrained and prolonged interactions with wild animals, the experience of critical behaviours (e.g. hunting, feeding, socialising and courtship) and, in some cases, immediate proximity extending to touch (e.g. Muloin, 1998). Although there are some exceptions to this rule (Orams, 2000), the importance of managing 'human–wildlife viewing interactions' (as opposed to 'non-consumptive viewing' – given the consumptive nature of pursuit, intensive gaze and proximal interaction) is evident. Knight (2009: p. 173) proposes that "there appear to be three main ways in which wild animals can be made available for human viewing: capture and confinement; habituation and attraction."

The first, *capture and confinement*, brings with it behavioural diminution associated with wild animals being physically removed from their natural ecosystem. Also, in many cases, the capture and confinement of 'charismatic' wild animals is illegal. The last, *attraction*, through interventions such as provisioning (i.e. feeding) is equally unpalatable due to its association with manipulated wildlife distributions, compromised feeding (e.g. predator–prey) relationships, increased probability of aggressive behaviour (both towards animals and people) and consequential diminished behaviours (Orams, 1995). Attraction of animals through supplemental feeding, while affording close and enduring viewing opportunities, also compromises the notion of *wild*, creating indistinct dividing lines between animals that are wild and those that are confined, tamed or domesticated (Knight, 2009). Of the three approaches to making wild animals viewable, this leaves *habituation*.

Habituation has been defined as "a decrease in the strength of a response after repeated presentations of a stimulus that elicits that response" (Mazur, 2006). As such, habituation typically is viewed as a negative consequence of human interactions with wildlife due to the likely consequential reduction of population fitness arising from reduced danger flight response. However, habituation has been actively applied by zoological scientists in their field studies (i.e. in the wild), having been pioneered by primatologists such as Jane Goodall (Tanzania) working with chimpanzees (*Pan troglodytes*) and Dian Fossey (Rwanda) with gorillas (*Gorilla gorilla*) (Knight, 2009). Interestingly, Fossey's habituation of Gorillas made possible the development of Gorilla tourism as an alternative to Gorilla poaching (Shackley, 1995). Yet habituation has never been treated critically in the specific context of sustainable commercial wildlife viewing (Nisbet, 2000).

The relationship between tourists and wild animals is extremely complex (Bejder et al., 2009). Duffus and Dearden (1990) contend that this complexity arises from the interplay of three key components of the wildlife experience; site users, focal wildlife species (both individual animals and local animal populations) and the wider ecology of the viewing site. Given these components, considerations of habituation in ecotourism can be contemplated only in terms of site users (e.g. visitor management, guiding practice), the focal wildlife population (i.e. species-level variables and characteristics of individual animals) and the wider ecology of the focal species (e.g. spatio-temporal ecology) (Higham et al., 2008). Duffus and Dearden (1990) highlight also the temporal dimension in so far as tourist interactions with wildlife animals vary within diurnal, seasonal and life course timeframes, a point that has been inadequately addressed in academic discussions of habituation (Bejder et al., 2009). Following Duffus and Dearden (1990) then, some species of wild animals, and some individual animals, demonstrate a well-established response of inquisitiveness to humans or signs of human activity. Others are intensely private, remain concealed from onlookers, and flee readily from human interaction. In terms of inquisitiveness and active interaction, gulls are a ubiquitous example but rarely are gulls the focal species of interest to ecotourism operators and their visitors (Shelton & Higham, 2007). Useful approaches to the task of analysing the behaviour of species that are of tourist interest should, however, prove to be of considerable value.

Applied behaviour analysis, based on the notion of stimulus control and situated within learning theory, is well suited to provide a formulative framework for those human–wildlife interactions that are of interest to commercial tourism operators. In this respect, the term habituation has been described as any situation where wildlife come to tolerate the presence of humans without any obvious signs of physiological or behavioural response (Shackley, 1996). Under this definition, habituation may be considered a mitigation or cessation of impact. The use of the term habituation in tourism and recreation has been applied also when animals approach people, or scavenge for food (Newsome et al., 2005). Park managers in North America attempt to educate the public not to engage in behaviours that will merge habituation and approach-for-food, particularly in the case of deer (The National Park Service, 2006a, 2006b) and bears (Davis, Wellwood, & Ciarniello, 2002).