

Using front-end and formative evaluation to design and test persuasive bird feeding warning signs

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Abstract

Wildlife feeding is a wide-spread and controversial practice that can pose serious threats to the safety of both wildlife and visitors. The design and effectiveness of warning signs in recreational areas varies considerably and is rarely the product of theoretical models or scientific research. This study uses front-end and formative evaluation to design and test the perceived effectiveness of warning signs relating to bird feeding. Stage One examined visitors' beliefs, attitudes and bird feeding behaviour and found significant differences between feeders and non-feeders. Stage Two involved designing and evaluating three signs that built on the beliefs, knowledge and mis/conceptions identified in Stage One. Respondents thought the sign that focused on the birds' health and safety would be the most persuasive, however, elements of the other two signs were also positively evaluated. The article concludes with recommendations for the wording of future bird feeding warning signs.

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1. Introduction

Wildlife tourism provides visitors with the opportunity to observe and interact with species that may be endangered, threatened or rare, and is being offered in an increasing number of destinations world-wide (Orams, 2002; Shackley, 1996; Woods & Moscardo, 2003). This type of tourism includes interactions with animals in both natural and captive settings (Burns & Howard, 2003) and is often championed as an ideal method of enhancing the long-term conservation of wildlife and wildlife habitats (Reynolds and Braithwaite, 2001; Wilson & Tisdell, 2001). However, in some areas, the increase in visitors has led to habitat destruction and changes to the behaviour, feeding patterns and well-being of the very animals that visitors come to view (Ballantyne, Crabtree, Ham, Hughes, & Weiler, 2000; Chin, Moore, Wallington & Dowling, 2000; Glick, 1991;

Orams, 1994; Shah, 1995). For example, a number of studies indicate that the presence of humans can have detrimental effects upon birds' nesting behaviour, foraging patterns and reproductive success (Hammit & Cole, 1998). Such problems stem not only from the number of people visiting the area, but also from the actions of these visitors (Burns & Howard, 2003).

In many cases, interactions between humans and animals occur by accident. Sometimes, however, these interactions are deliberate, such as when visitors and/or wilderness tourism operators use food to lure animals to particular locations (Orams, 2002; Shackley, 1996). This practice has led to the habituation of species ranging from bears to baboons, dingoes, birds and dolphins. Indeed, habituation of wildlife in recreational areas is most commonly associated with wildlife feeding, whether this be deliberate (e.g., throwing wildlife picnic scraps) or unintentional (e.g., inadequate storage of food in campgrounds). In some cases, this habituation has led to increases in particular species and a consequent displacement of others. For instance, studies

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of birds in Yosemite National Park found that the number of birds increased around campsites, but that this increase was only amongst a few species (Hammit & Cole, 1998). Because habituation reduces wildlife's natural fear of humans, they tend to frequent areas where there is regular human activity (Orams, 2002) and often scavenge and harass people for food. This places both the animal and unwary visitors at serious risk (Albert & Bowyer, 1991; Orams, 2002), and in some cases can result in 'problem' animals being removed or destroyed. While this procedure deals with the immediate danger, it fails to tackle the root cause of the problem and can in itself create further problems such as disturbing the balance of various wildlife populations (McCool & Braithwaite, 1992).

Despite the growing evidence that feeding wildlife can have detrimental effects on animal feeding patterns and visitors' safety, using food to lure wildlife is still a widespread and controversial practice (Shackley, 1996; Green, 2003). The principle benefit of wildlife feeding is that it increases the likelihood and reliability of wildlife sightings, and thus helps to ensure the future viability of tourist operations based on wildlife encounters (Orams, 2002). However, while feeding and approaching wild animals rewards visitors with close wildlife encounters and excellent photographic opportunities, many visitors do not consider the long-term ramifications of their actions; do not regard such interactions as risky; and are largely unaware of the potential dangers associated with their behaviour.

The most common approach to preventing wildlife feeding in semi-captive and wild situations is to prohibit these practices. This direct approach has been found to be highly effective, provided the regulations are enforced through techniques such as having uniformed rangers patrol areas where the behaviour is likely to occur (Cole, 1995). However, in parks where picnic sites and visitor facilities are numerous, rostering sufficient rangers for these tasks may not be practical or possible. A less common, but possibly more effective, approach to managing visitor-wildlife interaction is to use indirect management techniques such as site-based interpretation and signage (Ham & Weiler, 2002; Orams, 1996b). It has been argued that education programs are particularly effective in wilderness areas for two reasons: firstly, wilderness experiences typically involve freedom from behavioural restrictions; and secondly, the presence of management is usually low (Hendee, Stankey, & Lucas, 1990 as cited by Cole, 1998). Furthermore, there is increasing evidence that interpretation enhances visitors' enjoyment, understanding and 'connection' to the wildlife tourism setting (Ham & Weiler, 2002), and that this form of communication has the potential to alter or replace undesirable and/or risky visitor behaviour (Beckmann, 2002; Porter & Howard, 2003). Thus, persuasive interventions can have a positive impact on

knowledge, attitudes and behavioural intentions in relation to rules and resource protection in park areas (Roggenbuck, 1992). To be effective, however, interpretation and intervention strategies must clearly identify the environmental threat as well as the human behaviour associated with, or contributing to, that threat (Ham & Krumpel, 1996). In other words, interpretation that aims to reduce animal habituation needs to identify which aspects of habituation are problematic (e.g., wildlife approaching humans for scraps) and specify the human behaviour that contributes to or perpetuates the problem (e.g., hand feeding wildlife in picnic areas).

The design and effectiveness of warning signs in recreational settings varies widely, and is rarely the product of theoretical models or rigorous scientific research. While managers of recreation generally agree that providing education and information is preferable to regulation and enforcement, there has been little research into ascertaining exactly how educational messages should be presented. For example, there is scant research examining how people perceive, evaluate and react to hazards in the natural environment, and very little known about how information influences behavioural responses in such situations (McCool & Braithwaite, 1992). According to Ham and Krumpel (1996, p.18),

“Resource managers often make the mistake of designing messages that contain only important *factual* information concerning the behaviour they desire people to change. What they fail to do is consult the intended recipients of the message (for example, visitors to a protected area or the local inhabitant) to identify which of *their* beliefs really influence how they behave in the particular situation”.

These authors suggest that the effectiveness of signage in influencing visitors' behaviour can be substantially improved by addressing specific beliefs that are pertinent and important to the target audience. Similar observations have been made by McCool and Braithwaite (1992) who state that we need to examine existing beliefs in order to increase the impact of safety messages. They claim that this process must involve identifying factually incorrect beliefs held by visitors and subsequently testing which message designs are most effective in countering these beliefs.

Most wilderness managers believe that problematic behaviours are predominantly caused by visitors' ignorance of the impacts and conflict their actions can create (Roggenbuck, 1992), therefore, management strategies tend to be based on the assumption that providing information educates visitors and this in turn will lead to behaviour change. In many cases, persuasive messages that explain the environmental impacts of

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