

Influencing human behaviour: an underutilised tool for biodiversity management

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SUMMARY

Human behaviour is the key driver of all major threats to biodiversity. Habitat loss, climate change, invasive species and overharvesting are, in general, consequences of the lifestyle of billions of humans. In order to move from documenting losses and identifying causes for decline to tackling the underlying drivers and implementing solutions, we need to recognize that conservation is not only about animals and plants but equally about people and their behaviour.

Despite the growing emphasis that has been placed in areas such as environmental education or community-based conservation in recent decades, there is as yet little literature on the subject of influencing human behaviour and biodiversity conservation. One factor that has undoubtedly contributed to this trend is the lack of incentives given to conservation practitioners working on education or community-based conservation to publish their research. This has left a large proportion of conservation work either unreported or buried in inaccessible, grey literature, a concern that is common to many research fields. Another specific issue, which is perhaps more critical, is that despite biodiversity conservation being overwhelmingly about humans and their behaviour, the training of conservation professionals is still largely focused on biological sciences. Consequently, conservation professionals are often ill equipped to understand and influence human behaviour and, therefore, less willing to address it as a research subject. This lack of preparation explains, for example, the common use of changes in awareness, knowledge or attitudes as indicators of behaviour change. Such reasoning assumes that because changes in all of these indicators commonly precede behaviour change, there is a direct link between them and behaviour. Unfortunately, this assumption is generally wrong (McKenzie-Mohr *et al.* 2011) as there are often social, economic or psychological barriers, amongst others, to behaviour change that do not allow changes in behaviour to occur. The evaluation of conservation interventions should therefore focus on behaviour as it is the only indicator that translates into real world impact.

These oversights are especially worrying at a time when conservation needs to move beyond anecdote, personal experience and conventional wisdom, and towards a systematic appraisal of evidence collected by all those tackling a given issue (Sutherland *et al.* 2004, Kareiva & Marvier 2012, Sutherland *et al.* 2012). This special issue of Conservation Evidence on behaviour change and biodiversity conservation hopes to contribute towards addressing these issues by showcasing work conducted by practitioners worldwide, across different subject areas and in different landscapes and human contexts.

The way forward

An emerging field that promises to deliver insight into how to change behaviour is social marketing. This is the application of marketing concepts and techniques to create, communicate

and deliver values to influence behaviour and benefit the target audience and society (Kotler & Lee 2011). Social marketing has been widely implemented in countries like the UK, especially in the health sector, with promising results in addressing issues such as obesity and smoking (French *et al.* 2009). More recently it is being used to tackle environmental issues (Jenks *et al.* 2010; Verissimo *et al.* 2011a, b). In terms of addressing the needs of conservation professionals, social marketing has several important features. One of them is its largely quantitative nature, which means that conservation professionals, the majority of whom have a background in biological sciences, are more willing to engage with it to address behaviour change. Another important trait is the strong emphasis social marketing places on metrics and evaluation, an inheritance of its past links with the commercial business sector (Smith *et al.* 2010). It is, thus, not surprising that social marketers have been at the forefront of applying frameworks such as social return-on-investment, a metric that compares the net benefits of a social intervention to the investment needed to generate them (Rotheroe & Richards 2007), and which could and should have wide applications in conservation. This focus on impact will become more critical as funding becomes ever more competitive, with conservation having to compete not only with other fields of science for government funds but also with other charitable organizations for members and donations. However, conservation interventions targeting behaviour change often lack any form of meaningful evaluation. A common example is the reporting of 'inputs' such as numbers of leaflets distributed or the number of schools visited as a measure of project 'outputs'. Although the former are important, because they document the processes used by conservation interventions (Ferraro & Pattanayak 2006), they are simply a methodological description and so cannot be used as evidence of a project's impact. This would equate to using the number of transects conducted to evaluate the results of an ecological study. We therefore need to focus on 'outputs' such as behaviour change and how they translate into biodiversity 'outcomes' (e.g. reduction of a threat to a habitat or increase in population of a species) if we want to understand the true impact of conservation interventions that deal with human behaviour (Ferraro & Pattanayak 2006). Only then, can conservation move towards evidence-based practice by learning from past errors and building on previous success.

One area where behaviour change strategies can have an important impact is that of payments for ecosystem services (PES), an increasingly popular type of economic incentive to conserve biodiversity. In this context, behaviour change campaigns can increase social recognition and visibility of those involved, therefore increasing participation and adoption.

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This is showcased by Green *et al.* (2013) who mitigated the clearing of the Mexican tropical forest, by mobilizing landowners to join a network of private conservation areas, in exchange for ecosystem services payments. Similarly, Martinez *et al.* (2013) used a behaviour change campaign and PES to connect downstream water users to upstream farmers in the Peruvian Andes, and thus drive the latter to set aside riparian forest areas for conservation.

Behaviour change can also be crucial to improve the management of natural resources by local communities. This is evidenced by DeWan *et al.* (2013) who promoted the use of fuel efficient stoves to reduce wood consumption and therefore mitigate the pressure on the habitat of the Sichuan Golden Snub-nosed Monkey (*Rhinopithecus roxellana*), a threatened Chinese primate. Similarly, Vaughan *et al.* (2013) address issues around the contamination of local drinking water supplies in Ecuador by increasing local buy-in for improved solid waste management practices, such as recycling old batteries.

Lastly, behaviour change can offer vital support to improving law enforcement, through increasing both detection probability and the social disincentives of rule breaking. The former is demonstrated by Saypanya *et al.* (2013) who focused on illegal hunting/harvesting of tigers (*Panthera tigris*) and their prey, in Lao PDR, through a campaign that included the establishment of a telephone hotline for reporting illegal wildlife-related activities. Focusing on the latter, Andriamalala *et al.* (2013) encouraged the improvement of fisheries management in southwest Madagascar, by increasing compliance with local law and consequently diminishing the use of destructive fishing methods, such as poison fishing.

These six case studies, across six countries in three continents, demonstrate that focusing on and achieving behaviour change is not only possible but relevant to a range of conservation issues. Therefore, the challenge is, therefore, to mainstream these principles and techniques amongst conservation professionals, which would undoubtedly help make research around the human dimensions of biodiversity management a more evidence-based endeavour.

Where next?

Influencing and understanding the drivers of human behaviour remains a major challenge but also an objective shared with other fields of research, such as the recently emerged disciplines of environmental economics and conservation psychology (Balmford & Cowling 2006; Saunders *et al.* 2006). However, to progress from the natural-sciences based 'conservation biology' to a multidisciplinary 'conservation science' we will need to integrate more effectively the social sciences and the humanities in our training of conservation professionals (Kareiva & Marvier 2012).

Influencing human behaviour is one of the hardest challenges faced by conservationists today. Tackling it will require not only the willingness to learn from other research fields but also a push towards evidence-based practice and the emergence of a culture of strong commitment to evaluation and therefore, the embracing of failure. This is no small task. However, realising that without the ability to influence human behaviour, the conservationists' role will be limited to that of describing biodiversity loss should hopefully drive them to embrace human behaviour as a fundamental pillar of biodiversity conservation.

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