

Wildlife and tourism

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ABSTRACT

The experiencing of wildlife by tourists has become the business of wildlife tourism (WT). Essentially, this is about increasing the probability of positive encounters with wildlife for visitors whilst protecting the wildlife resource. There is a wide range of species, habitats, methods of observing, tricks for improving the encounters, and levels of interpretation involved. Some of these are more desirable than others, both from the observer's and/or animal's point of view.

This is a genuinely multi-disciplinary area which fulfils real human needs and can be made to both build support of conservation and provide funding for it. Both biologists and social scientists need to be involved in order to achieve research which will improve the quality of the experience from both the animals' and visitors' points of view.

Introduction

High quality wildlife experiences are arguably at the pinnacle of the experience of the natural world. Many professional biologists and keen naturalists spend large amounts of time in the bush. When in the bush, they occasionally witness wonderful vignettes of natural history. Every biologist has their favourite personal encounters with wildlife, intimate occasions when a person often merely happens to be in the right place at the right time, but has an experience they remember with pleasure for the rest of their lives.

One of RWB's was with a female Long-nosed Bandicoot *Perameles nasuta* in rainforest at Mt. Glorious in southern Queensland. It was in the late afternoon and a storm was coming. As he climbed a hill, he encountered a bandicoot which did not flee on his approach, but moved a couple of metres and stopped. RWB was puzzled and waited and watched. Soon two juvenile bandicoots began heading for their mother who was obviously waiting to retrieve them before moving on. As the two converged on the waiting mother, a Rough-scaled Snake *Tropidechis carinatus* stirred in the leaf litter and began converging on the bandicoots. The mother retrieved one but the combination of the presence of myself and snake was obviously too much, and she abandoned the second. RWB chased the snake off, but when he returned later

the mother had not retrieved the second young. He took it home and called it Rupert, but it died shortly afterwards.

Now this is not an earth-shattering story, but for RWB it was a truly wonderful experience. It was at the extreme end of nature experiences, up close and personal. This is what wildlife tourism should be about. Essentially, wildlife tourism is about increasing the probability of marvelous encounters with wildlife for visitors whilst protecting the wildlife resource. While wildlife is generally defined as native plants and animals, wildlife tourism tends to have a narrower focus on vertebrates but including non-native species. It tends to be mainly about free-living vertebrate animals which humans can develop an easy empathy for. There is a wide range of species, habitats, methods of observing, tricks for improving the encounters, and levels of interpretation involved. Some of these are more desirable than others, both from the observer's and/or animal's point of view. We need to consider these issues carefully as they offer the opportunity of both capturing people's commitment to conservation and obtaining much necessary funding for conservation.

This manuscript is about the important role biologists might play in working with social scientists to produce better quality wildlife-based experiences for tourists and good outcomes for conservation.

Tourism and nature

Ewart and Shutis (1997) estimate that nature-based tourism might account for somewhere between 10% and 50% of all tourism, depending on whether direct or more indirect criteria are applied. This would indicate a contribution of between US \$600 billion and US \$3 trillion in 1996 (Weaver *et al* 1999).

Critics believe that nature tourists spend little, contribute little to the local economy, are young and on low incomes. Recent surveys in Caribbean countries on the importance attached by visitors to parks and protected areas show that when people were classified for their main reason for visiting, as very important, important or not important, total expenditure per head was \$US 2,588, 1638 and 1531 respectively. The average lengths of stay were 13.0, 13.8, and 14.7 days (World Wildlife Fund 1988). Nature-based tourism is very important economically and is continuing to grow. Tourism based upon wildlife has become the leading foreign exchange earner in several countries. Lindberg and Hawkins (1994) report that between 40% to 60% of international tourists were nature tourists, and that 20% to 40% were wildlife-related tourists. The report further suggests that in 1994 there were between 106 million and 211 million wildlife related tourists worldwide. The report does not clearly define wildlife-based tourism, nor does it suggest how much of tourists' activity time was related to wildlife.

Seventy-five percent of inbound tourists said they hoped to see a Koala (*Phascolarctos cinereus*) when making the decision to come to Australia, and 70% of departing tourists reported that they had actually seen one (Hundloe and Hamilton 1997). In fact, 11% said they would not come to Australia but for the unique wildlife. On this basis, Hundloe and Hamilton (*loc.cit.*) estimate that contribution to the Australian tourism industry might be as high as \$Aus 1.8 billion. They also estimated the amounts spent on viewing Koalas and buying "koalabilia" to obtain a lower bound on the estimate of the economic contribution of Koalas of \$Aus 336 million per annum. Arguably, while most of the money is tied up in the accommodation, transport and restaurant sectors of the industry, Koalas and other wildlife is a key foundation of the whole Australian tourism industry. It is the reason the visitors come (Braithwaite 2001).

Generally attitude surveys show there is most environmental concern about pollution issues which affect everyday quality of life (Mac-

naghten and Urry 1998). At a local level, people are concerned about pieces of bushland. Obviously campaigns to save the Tiger (*Felis tigris*) and other high profile species also attract strong support. The origin of national parks lay in the recognition of the importance to people of encounters with nature (Sax 1980). Philosophers tell us that what is actually valued is not wilderness, but the experiences it produces: feelings of awe, experiences of beauty (Routley and Routley 1975). The issue is complex (Braithwaite 2001).

The term Wildlife Tourism (WT) has come into common usage to better deal with the issues peculiar to wildlife that are obscured in the more broadly based discussion of Nature-based Tourism or the more tightly defined ecotourism (which includes requirements for education, conservation, and respect of other cultures). These in turn overlap with consumptive uses of wildlife, such as hunting and fishing, some of which is in a tourism context. Rural tourism is concerned with broader issues of regional development in a farmed landscape which may have substantial natural areas. There is also a large body of research about human relations with animals. The issues include the role of pets as therapy, animal rights, animal husbandry and aspects of wildlife management. All of this literature has some relevance to wildlife tourism. Thus WT may be defined as an area of overlap between nature-based tourism, ecotourism, consumptive use of wildlife, rural tourism and human relations with animals. Thus it inherits traditions which include aspects of ecology, psychology, physiology, ethics and other aspects of social science research, including tourism (Reynolds and Braithwaite 2001).

In the past, consumptive use of nature for recreation, such as hunting and fishing, were more important than they are now. A report for Alberta Tourism (HLA, GAIA and Cottonwood Consultants 1990) suggested that people involved in consumptive wildlife use were mainly male (90%) and few held degrees (5.6%), while in non-consumptive users the genders were evenly balanced and 60% held degrees. Decreasing revenues from traditional sources such as hunting license sales are causing wildlife management and national parks agencies to seek methods of raising revenue from non-consumptive users. Further, survey research has shown that bird watchers' economic contributions increased with birding experience as did their likely involvement in conservation activities (McFarlane and Boxall 1996).

The WT Product

Reynolds and Braithwaite (2001) summarise brochures about a wide range of WT products and suggest that most can be placed in one of seven categories.

Nature-based tourism with wildlife component. Many nature-based tours show wildlife as a key but incidental part of the product.

Locations with good wildlife opportunities. Some accommodation establishments are located in close proximity to wildlife-rich habitat. They may even contrive to attract wildlife through provision of food or other enticement.

Artificial attractions based on wildlife. Some species are amenable to forming the basis of a man-made attraction where the species are kept in captivity, and may even be trained. Some of these attractions may have detrimental effects on the animals.

Specialist animal watching. Such tours cater for specialist interests in a species or group of species. Bird watching is a good example.

Habitat specific tours. Such tours are based on a habitat rich in wildlife and usually amenable to being accessed by a specialised vehicle or vessel.

Thrill-offering tours. The basis of these is the exhibition of a dangerous or large species enticed to engage in spectacular behaviour in the wild by the operator.

Hunting/fishing tours. This consumptive use of wildlife may be in natural habitat, semi-captive or farmed conditions. This may involve killing the animal or catching and releasing with an often-frequent high rate of mortality.

The list above illustrates the wide and diverse range of interactions which are available under the banner of WT.

Categories of impact on wildlife

There are many classifications of impacts on wildlife by recreational and tourism activities. For example, Knight and Cole (1995) list four broad causes of impacts; harvest, habitat modification, pollution, disturbance. They then specify a hierarchy of immediate responses, long-term effects on individual animals, species populations and animal communities. Reynolds and Braithwaite (2001) have produced the following expanded set of categories.

Harvest/death. Activities like hunting and fishing cause the immediate death of some animals. Death may also be caused by collision with a vehicle or similar. Tourists may remove souvenir rocks, plants or animals.

Clearing of habitat. This is the first of four habitat modification factors. Fairly obviously, it deals with complete or near-complete removal of the native ecosystem. This may involve removal of shelter rocks and ground debris.

Changed plant composition. This is usually a mixture of loss of native plant species and the invasion by some exotic plant species. The net result is usually a loss of resources used by the native wildlife. New food resources attractive to exotic fauna may also occur.

Reduced plant production. This impact is a form of reduced resource availability. The production of new growth, the level of flowering and fruiting may be diminished. Trampling for example may change localised hydrology through compaction of the soil. Wave action from boats is another example. It may cause salt intrusion which impacts on non-salt-tolerant communities.

Changed plant structure. Thinning of trees, mowing, changing fire regimes, are all intentional or unintentional management actions which can change the structure of the plant communities and thereby alters its attractiveness to native wildlife.

Pollution. The introduction of harmful concentrations of chemicals into animal habitat can be a by-product of tourism and recreation which may cause death or reduce the health of the animal.

Animal emigration. This and following animal disturbance factors are commonly the result of direct disturbance of the animals, but it should be noted that the same effect can be produced by habitat modification or pollution. Basically animals can leave an area for many reasons. Sometimes emigration is a prelude to mortality in that they do not find somewhere else suitable.

Reduced animal production and reproduction. Animals generally only dedicate resources to breeding when they are in good condition. If tourism activities decrease the feeding time and/or increase the energy expenditure due to

disturbance from perceived danger, the condition of animals may deteriorate, causing a decline in reproductive success.

Habituation. This is an animal learning not to respond to stimuli. It increases the ease of observation of animals by making them unnaturally tame to approach by humans and may be encouraged by WT managers. The learning process is, however, also a stress in that feeding time is lost and energy expended in fleeing.

Animal dietary distortion. The feeding of animals by visitors may produce an imbalanced diet with vitamin and mineral deficiencies decreasing the vitality of animals.

Stereotyped behaviour. Animals in captivity can develop neurotic behaviour such as pacing. Presumably under less extreme situations, there are more subtle forms of modified behaviour.

Aberrant social behaviour. If the frequency of encounter between animals is increased by interaction with humans, this can have negative effects. When animals are attracted to an artificial food source, for example, the rate of agonistic behaviour can increase to artificially high levels with consequent loss of condition.

Increased predation. Disturbance of breeding animals can increase the risk of discovery of young by predators. For example, this is often seen at bird rookeries.

Modification of activity patterns. The activity patterns of animals are generally a compromise between the need for feeding and avoiding predation. It is well known that hunting pressure can cause animals to become more nocturnal, so presumably excessive human contacts can do the same thing.

Altered community structure. If species leave an area or die out, then inevitably the species composition changes. This may have impacts on the remaining species. It may facilitate or allow exotic animal species to establish.

These impact categories are the legitimate subject of study by ecologists, but in the recreation and tourism area, understanding the behaviour and satisfaction factors of people are also important and are the legitimate role of social scientists.

Motivations of participants

From the wide range of types of wildlife tourism product available it is evident that there is a wide range of participants, in age, socio-economic background and motivation. It is clear that participants in wildlife tourism approach interactions from a variety of life backgrounds and motivations. Any examination of the components of WT must take customer motivations and attitudes into account (Reynolds and Braithwaite 2001).

Kellert (1980) has suggested a typology which reflects fundamental differences in values. An individual may encompass more than one category. That is, the same person may express the characteristics of different categories at different times and under different circumstances.

Naturalistic: Primary interest and affection for wildlife and outdoors.

Ecologicistic: Primary concern for environment as a wildlife-habitat system.

Humanistic: Primary interest and strong affection for individual animals, mainly pets.

Moralistic: Primary concern for the right and wrong treatment of animals, especially cruelty.

Scientistic: Primary interest in physical attributes and biological functioning of animals.

Aesthetic: Primary interest in artistic and symbolic characteristics of animals.

Utilitarian: Primary concern for practical and material value of animals or habitat.

Dominionistic: Primary interest in mastery and control of animals, typically in sporting situations.

Negativistic: Primarily active avoidance of animals due to indifference, dislike or fear.

Kellert (1980) further suggests that members of the general public tend to be humanistic and moralistic, and that wildlife managers tend to be ecologicistic, scientistic and utilitarian.

Great wildlife experiences

At the 1998 Australasian Wildlife Management Society meeting, we surveyed 96 participants, professional biologists and wildlife managers and policy makers, about their best wildlife experience. In a sense, this is benchmarking. This says something about what it is we should be

aiming for with wildlife tourism. It is not about replicating the chance in a lifetime but it tells us about the attributes which are important in making a great wildlife experience. In addition to impacts of tourism on the wildlife and interpretation of the wildlife activity and context, the ecologist has a role to play in developing the highest quality of wildlife experience.

Participants were given a few minutes to select their favourite wildlife experience and write a brief paragraph describing their experience. They were then asked to do a self-assessment of the experience by rating their experience against the following criteria:

Species status (on a ten point score between common and rare);

The uniqueness of the experience (How unusual was the experience to you ? 0-10 common to rare);

Exhilaration (How excited were you by the experience ? Low to high);

Involvement (How closely and directly were you involved ? Detached vicarious to strong personal interaction);

Authenticity (Was it a natural situation ? Highly contrived to natural);

Duration (How long? Less than 1minute to greater than 30 minutes);

Environmental ethicality (Were you happy that the wellbeing of the animal(s)/habitat was not compromised? Inhumane high impact to humane low impact);

Interpretation (How much of your understanding was provided by others ? Self to interpreter);

Information content of experience (Did you understand what you were seeing ? Low to high).

The participants generally chose larger animals, and generally mammals. The top species choices were: whales (8), wallabies (6), dolphins (6), snakes (5), crocodiles (4), eagles (3), and importantly 52 other species. So the variety of choices was very large.

In Fig. 1, the self-ratings are graphed. They are graphed for four groups: large mammals (>5kg), medium mammals, birds, and reptiles. However, the differences between the four were generally minor and non-significant. The highest scoring attributes were uniqueness, exhilaration, environmental ethicality, and information content. Species status, involvement and duration were middle ranking scorers.

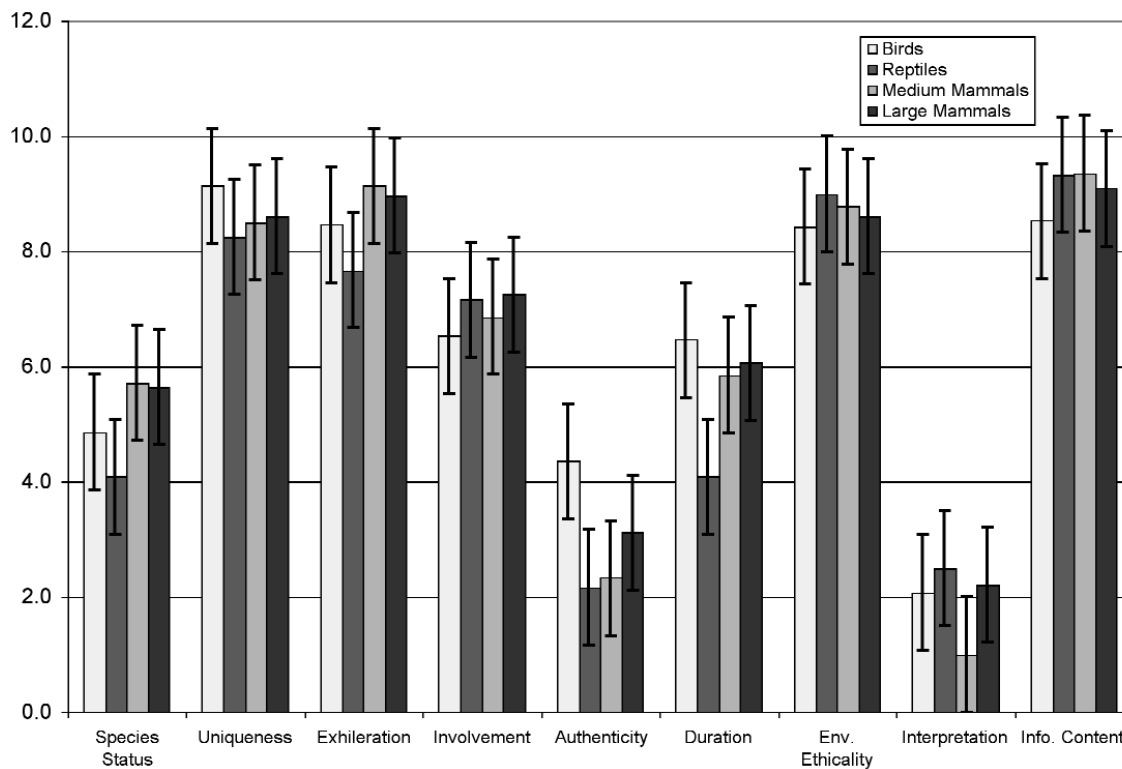


Figure 1. Self-assessment of best wildlife experiences by attendees at the 1998 Australasian Wildlife Management Society Conference at Lawes, Queensland. The bars represent mean values with one standard error shown (n=96).

Authenticity and interpretation rated lowest. With this group of people, interpretation was relatively unimportant, presumably because of their considerable personal knowledge of biology. It is more surprising that authenticity was not more important. With other groups of people, the relative importance of all these attributes may change and is part of an ongoing study aimed at understanding better what makes the best sort of wildlife tourism.

The wildlife tourism experience

Richness/intensity

Six quality factors are suggested to be intrinsic to the situation and capture the essence of quality and richness of the WT encounter for the person experiencing it. Four of these are general to all tourism experiences, and two are specific to WT (Reynolds and Braithwaite 2001).

Authenticity has been widely used as an estimate of the “honesty” of the attraction. The degree of natural behaviour exhibited by the fauna, and the environment which it is viewed in. Authenticity will be perceived not to be high if the experience is obviously contrived.

Intensity refers to the excitement generated by an experience. Other words that capture this concept are enthrallment, and for some the feeling may be an adrenalin rush.

Uniqueness of the experience is the sense of the experience being special and unusual and therefore the participant being privileged.

Duration refers to the length of exposure to the stimuli. Up to a certain point the experience is heightened. Beyond this point the visitor is saturated with the particular experience.

The following two attributes are specific to WT.

Species popularity is driven by a range of factors, which include physical attractiveness, its size, danger and drama associated with the species and the publicity that the species has enjoyed in the public media.

Species status refers to the rarity of the animal. Species on rare and endangered lists appear to hold a special attraction.

These quality factors have a series of modifiers which affect the strength of these variables.

There are also *context variables* which describe space and time factors including time of day and time of year. They are natural factors which still affect the quality of the transaction, such as temperature and humidity, but are generally out of the direct control of management.

In addition to the above there is a set of standard and manageable *service variables* that

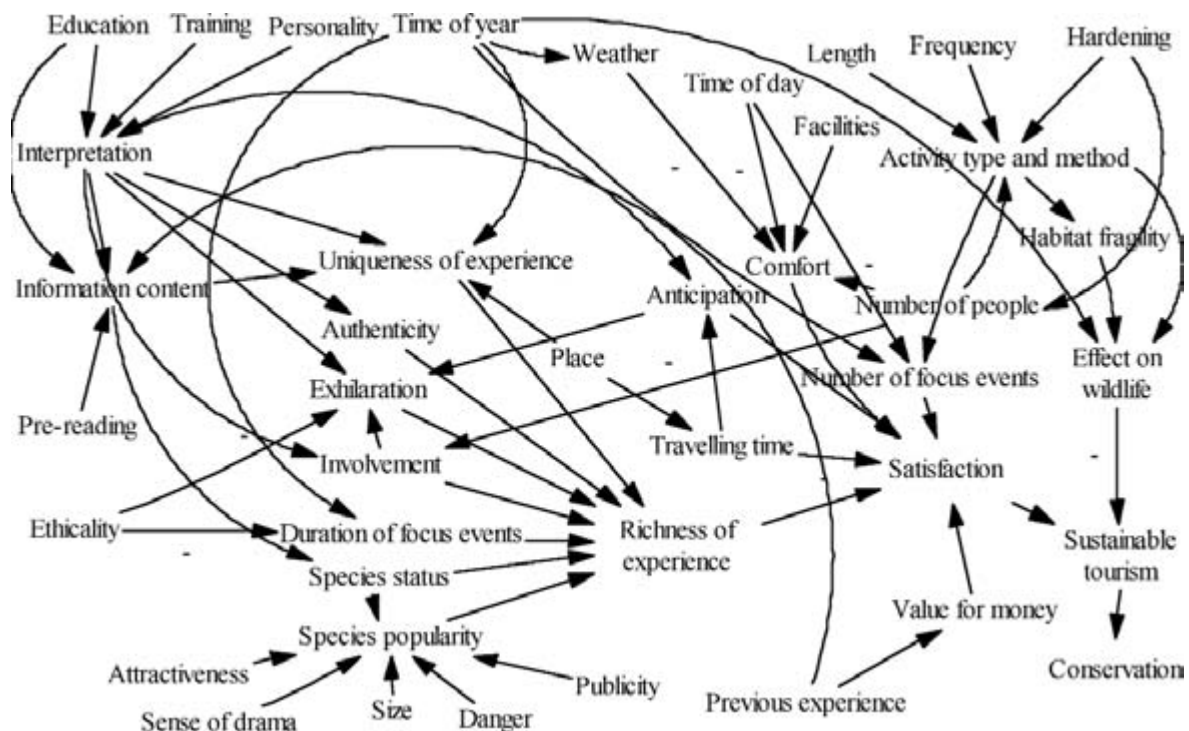


Figure 2. Influence diagram of factors affecting wildlife tourism (see text). Hyphens indicate negative relationships.

also affect customer perception of quality. Management potentially has control over the service, and therefore the impact on the end user (both human and animal). The variables might include the guide commentary (skill) and comfort and design of the facilities (Braithwaite, *et al.* 1996).

These variables combine when the customer is assessing value. The basis of any successful tourism venture is the delivery of a product which is perceived to be value for money. The price people are willing to pay is a complex judgement based on past relevant experiences. The judgement of satisfaction of the current transaction is based on a combination of all these variables (Duffus and Deardon 1993).

The relationships between these factors are shown in Fig. 2 and the issues are discussed in further detail in Reynolds and Braithwaite (2001).

Conclusions

As is clear from Fig. 2, both biological and social science are integrated in the one system in the framework proposed by Reynolds and Braithwaite (2001). Wildlife tourism is not the domain of either biologists or social scientists but both must collaborate in a genuinely multi-disciplinary way as the research needed demands the best talents of both. Reynolds and Braithwaite (2001) also argue in some detail that wildlife tourism is fundamentally a tradeoff between the richness of the experience and the level of impact. Those visitors who chose experiences of high impact should pay disproportionately highly relative to those who chose experiences of low impact. The additional money from high-impacting experiences should go to the conservation of the resources associated with that experience. The price of most wildlife experiences needs to increase substantially in order to both better fund conservation and employ more knowledgeable interpreters (tour guides).

Acknowledgements

We wish to thank Beverley Ekert for compiling the survey data used in this paper.

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