

# Is ecotourism an effective conservation tool?

May 24 2016, by Jennifer Grigg

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Sleeping snow leopard, Credit: Matt Hance

Nature is in trouble. Across the globe, [degradation and loss of habitat, over-exploitation of natural resources, and human-induced changes in climate](#) are causing species to decline at an unprecedented speed. As [the rate of global biodiversity loss is increasing](#), there are a growing number of species that need investment in conservation programs. However, the amount of available funding falls well below what is required to halt the global conservation crisis. With restrictions in financial support limiting the action that can be taken to prevent biodiversity loss, [ecotourism](#) is becoming an increasingly important source of revenue for conservation efforts.

## Ecotourism as a source of conservation funding

Ecotourism is defined by the International Ecotourism Society (TIES) as, "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education." It is now the fastest growing sector of tourism, generating an estimated annual revenue of [more than \\$28 billion](#) for developing countries. A vast number of 'eco'-tour operators offer a wide range of ecotourism experiences, which can range from [exploring the rainforests of Borneo](#) to scuba diving tours in Sri Lanka, that operate with the intention of reducing the impact of tourism on the local environment and culture. For example, eco-tour operator [Responsible Travel](#) markets a holiday tracking [snow leopards \(Panthera uncia\)](#) in the Himalayas by emphasizing its comprehensive positive social impact. Responsible Travel claims their tour package will enhance the local community by providing jobs and good salaries for local workers, and financial benefits for snow leopard conservation through national parks fees. Also, profits from accommodations will fund local community projects. They also employ a zoologist to lead tour groups in order to minimize habitat disturbance, and lastly they reduce the environmental impact of the trip by donating to the [Carbon Trust](#) to offset the carbon footprint.

A [2012 study published in PLOS ONE](#) estimated that 84% of funding for national parks agencies around the world is brought in through ecotourism. This revenue can be used to protect key habitats for [threatened species](#), to support translocation of threatened animals to new locations, develop breeding programs, and create anti-poaching programs, to name just a few of the benefits. However, people are beginning to question whether all the contributions to conservation from ecotourism are positive.

While habitats can be improved by establishing private reserves, which offer protection for threatened species, animal habitats may also be degraded by development efforts for the tourism industry. In some cases,

[native species may be displaced or disturbed at breeding sites from human disturbance](#), and where ecotourism leads to close contact with tourists, animal species may also be at risk of becoming habituated to humans. A tragic example of human disruption played out at Yellowstone National Park last week, when a bison calf was [euthanized](#) after it had become habituated to humans and rejected by its herd. Also, in Morocco, [increases in the illegal poaching of juvenile Barbary macaques \(\*Macaca sylvanus\*\), were thought to be caused by macaques becoming less scared of humans after being fed by tourists](#).

It is undeniable that ecotourism has become a vital source of revenue for many conservation initiatives. As ecotourism is increasingly used as a tool to generate revenue for conservation projects, it is important to assess the net ecological impacts of ecotourism and the overall consequences for the conservation of threatened species.

## **Using ecological models to assess effects of ecotourism on species survival**

In a recent [study published in PLOS ONE](#), Buckley and colleagues aimed to quantify the impacts of ecotourism on the survival of a threatened species using ecological models to assess trends in modeled (or predicted) populations under different levels of ecotourism. While previous studies have focused primarily on small scale, local impacts of ecotourism, Buckley et al. investigated the net consequences of ecotourism on species survival by assessing its effects on a diverse range of threatened species. As well as considering the ecological impacts of ecotourism, Buckley et al. also researched the effect of anthropogenic threats such as commercial fishing to gain an understanding of the impacts of ecotourism where species population decline is driven by different mechanisms.

In total, nine species were considered, including the [New Zealand sea lion \(\*Phocarcos hookeri\*\)](#), orangutan (*Pongo*) and [cheetah \(\*Acinonyx jubatus\*\)](#). For most species, ecotourism had a positive impact. However, Buckley et al. highlighted the importance of assessing each species individually, as what works for one may not work for all. Ecotourism often has drastically different consequences in species where the population decline is driven by different mechanisms. In species where industries that exploit natural resources, such as fishing and logging, threaten survival, Buckley et al. showed that tourism can only be effective when these industries are halted. This principle applies to the orangutan, for which logging is the primary driver of population decline. In Buckley's study, the conservation benefits of ecotourism for the orangutan could be exceptional, as when the modeled level of ecotourism was high, it was enough to offset the effects of logging and drastically increase species survival. However, in the case of the New Zealand sea lion, when modeled levels of ecotourism increased, this resulted in the population declining to extinction.

The study also highlighted the importance of considering how ecotourism can have varying conservation consequences in different subpopulations of the same species. In the modeled populations of the cheetah, ecotourism had a positive effect in all populations, but there was variation in the degree ecotourism contributed to preventing population decline and increasing survival within different reserves in each subpopulation. Overall, where species are well-represented, but exist in poorly funded reserves, ecotourism can result in an overall increase in species survival over time if tourism is managed correctly.

## **Conclusions on ecotourism for conservation**

Ecotourism is increasingly being used as a conservation tool worldwide and [is effective in preserving threatened biodiversity](#). But, as the findings in PLOS ONE demonstrated, the consequences of ecotourism

can vary greatly, depending on the mechanisms that drive the species decline and other ecological and anthropogenic factors.

In light of this conclusion, it is increasingly important to carry out assessments of the impact of ecotourism for other threatened species that can benefit from ecotourism. Ecological modeling techniques can be used to quantify the effects of ecotourism on the survival of threatened [species](#) more widely. For now though, the question of exactly what role ecotourism can play in the fight against the global conservation crisis remains.

**More information:** Ralf C. Buckley et al. A Population Accounting Approach to Assess Tourism Contributions to Conservation of IUCN-Redlisted Mammal Species, *PLoS ONE* (2012). [DOI: 10.1371/journal.pone.0044134](https://doi.org/10.1371/journal.pone.0044134)

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N. Ménard et al. How tourism and pastoralism influence population demographic changes in a threatened large mammal species, *Animal Conservation* (2014). [DOI: 10.1111/acv.12063](https://doi.org/10.1111/acv.12063)

Ralf C. Buckley et al. Net Effects of Ecotourism on Threatened Species Survival, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0147988](https://doi.org/10.1371/journal.pone.0147988)

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