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Tourism and Biodiversity: A Paradoxical Relationship

By Peter Jones*

Biodiversity has a vital role to play in tourism and yet a paradox lies at the core of the relationship between tourism and biodiversity. On the one hand, biodiversity is at the heart of what drives the tourism industry, while on the other hand tourism activities contribute to the continuing loss of biodiversity. This commentary paper explores the relationships between tourism and biodiversity, and includes an outline of the basic characteristics of biodiversity, and of tourism, a short review of some of the project and policy reports and the academic literature on the relationship between tourism and biodiversity, a cameo case study of the recent United Nations World Tourism Organisation's (2020) 'One Planet Vision for a Responsible Recovery of the Tourism Sector', and some concluding reflections.

Keywords: tourism, biodiversity, tourism industry, sustainability, COVID-19 pandemic

Introduction

Tourism is beginning to show some important signs of recovery following the ravages of the COVID-19 pandemic, and looking to the future the focus is on building a more sustainable tourist economy. The 'One Planet Vision for a Responsible Recovery of the Tourism Sector' (United Nations World Tourism Organisation 2020a), which calls for a 'responsible recovery of the tourism sector from the COVID-19 crisis', is 'founded on sustainability', and emphasised the importance of a healthy environment and, more specifically, the role of 'biodiversity conservation', in the recovery process. That said, a paradox lies at the core of the relationship between tourism and biodiversity.

On the one hand, the Convention on Biological Diversity (2021), part of the United Nations Environment Programme, argued 'biodiversity is at the heart of what drives the tourism industry. Tourist destinations such as tropical forests, beaches, national parks and even urban areas depend on their natural beauty to attract visitors and enchant them during their stay.' On the other hand, there is an explicit recognition that 'this sector contributes to biodiversity loss through the clearing of land for tourism development and through physical disturbance to sensitive areas caused by tourism activities. For example, coral reefs are at high risk of damage from activities like scuba diving, if not properly managed. This can impact fisheries and undermine the livelihoods of communities dependent on fishing for food and income' (Convention on Biological Diversity 2021). This commentary paper explores the relationships between tourism and biodiversity, and includes an outline of the basic characteristics of biodiversity, and of tourism, a short review of some of the project and policy reports and the academic literature on the relationship between tourism and biodiversity, a cameo case study of the recent United Nations World Tourism Organisation's (2020) 'One Planet Vision for a Responsible Recovery of the Tourism Sector', and some concluding reflections.

Biodiversity and Tourism

Biodiversity, or more accurately, biological diversity, can be simply defined as the variety of plant and animal life in the world, or in a single habitat, and it is essential for the processes that support all life, including humans, on Earth. Without a wide range of animals, plants and microorganisms, we cannot have the healthy ecosystems that we rely on to provide us with the air we breathe and the food we eat. That said, the Earth's biodiversity has been in decline for many years and according to the Secretariat for the Convention on Biological Diversity (2020), 'biodiversity is declining at an unprecedented rate, and the pressures driving this decline are intensifying', and 'the COVID-19 pandemic has further highlighted the importance of the relationship between people and nature, and it reminds us all of the profound consequences to our own well-being and survival that can result from continued biodiversity loss and the degradation of ecosystems.'

Tourism can be defined 'a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which involve tourism expenditure' (United Nations World Tourism Organisation n.d.). Defining the tourism industry is not straightforward, in that it embraces many industries and activities including accommodation, transport, attractions, and travel companies. The tourism industry employs some 290 million people, and makes a major contribution to the overall economy of many countries. In 2019, prior to the COVID-19 pandemic, the market size of the global tourist industry was 1,868 billion US\$, and though this figure had fallen by 40% the following year, some recovery to 1,311 US\$ was forecast for 2021 (Statista 2022).

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Tourism and biodiversity are intimately interlinked. On the one hand, biodiversity, as seen as the variety of life on earth, often underpins tourism and tourist destinations, such as tropical forests, coastal environments, and national parks depends, in large part, on their natural characteristics and beauty to attract tourists. On the other hand, tourism can have a damaging impact on biodiversity. Here, habitat destruction, pollution, increasing numbers of visitors, and the unchecked exploitation of natural resources for commercial gain, can all harm plants, animals and natural ecosystems, and reduce biodiversity. The use of natural resources in the provision of new tourist accommodation and facilities, and the development of associated infrastructure on coastal wetlands, for example, can be particularly damaging. More positively, tourism can play an important role in biodiversity conservation, but this requires careful and sensitive planning and management in order to avoid negative impacts on biodiversity, and such approaches may run directly counter to commercial tourism development pressures.

Project and Policy Reports and Academic Literature Review

The literature on the relationship between tourism and biodiversity includes both project and policy reports and academic research papers, and some examples drawn from this literature provide some illustration of the flavour of work in the field. While many of the project and policy reports are dated, they focus on a number of important elements in the relationship between tourism and biodiversity, that have stood the test of time. Some twenty years ago, 'Tourism and Biodiversity: Mapping Tourism's Global Footprint' (Christ et al. 2003) was published following a joint United Nations Environment Programme/Conservation International project which looked at the overlap between tourism development and biodiversity hotspots. The aim of the project was to highlight nature-related opportunities and threats for biodiversity conservation and improved human welfare, and it made a series of recommendations designed to enhance the contribution of tourism to biodiversity. The authors concluded that 'biodiversity is essential for the continued development of the tourism industry', but claimed that there was 'an apparent lack of awareness of the links-positive and negative- between tourism development and biodiversity conservation' (Christ et al. 2003).

In 'Tourism and Biodiversity', the United Nations World Tourism Organisation (2010a) examined the relationship between tourism and biodiversity, and looked to assess the way in which tourism can contribute to the protection of biodiversity, and enhance its role as a main resource for tourism destinations. This report clearly demonstrated 'the high value of biodiversity for tourism' but emphasised that biodiversity 'needs to be protected for the long-term success of tourism', and argued for the 'effective application of land use planning and development controls in destinations to influence new and existing tourism activities, and to prevent potentially harmful developments' (United Nations World Tourism Organisation 2010a). Recommendations by the United Nations World Tourism Organisation (2010a) included integrating biodiversity considerations into national and local sustainable tourism plans and in planning decisions on tourism development; promoting investment in ecological infrastructure that protects and supports tourism; and promoting sustainable tourism products and activities linked to the protection of biodiversity.

The 'Practical Guide for the Development of Biodiversity-based Tourism Products', published by the United Nations World Tourism Organisation (2010b) argued that the continued growth of the tourism industry was being accompanied by increasing consumer pressures for more environmentally friendly tourism destinations. This was, in turn, seen to be leading to the need to develop and manage sustainable and biodiversity-based tourism products, linking tourism with the sustainable use of natural resources and conservation management. However, the Guide suggested that in many potential tourism destinations there is insufficient local expertise to create tourism that not only benefits the local community, but also maintains local biodiversity. The Guide's aims were to 'raise awareness on the issue of biodiversity conservation with tourism operations and to give ideas on planning, management, marketing and monitoring of such biodiversity-based tourism products', and its two target groups were tour operators and their product developers and tourist agencies, and non-governmental organisations (United Nations World Tourism Organisation 2010b).

'Tourism Sector and Biodiversity Conservation' (European Commission 2010) looked, inter alia, to guide companies towards the most appropriate tools and methods for integrating biodiversity conservation into their business activities, and was designed for small and medium-sized enterprises, independent hotel owners, as well as senior executives and local managers in large international tourism companies. That said, the European Commission (2010) concluded that although small and medium-sized enterprises account for 80% of tourism companies, reaching them to provide guidance of integrating biodiversity into their activities was a cause for concern. However, the European Tourism Going Green 2030 project (European Commission 2021), which offered a 'review and analysis of policies, strategies and instruments for boosting sustainable tourism in Europe', recommended that capacity building, tailored to the demands of small and medium-sized enterprises, should address a range of topics, including biodiversity, and should focus on activities which could be easily applied and implemented in day-to-day business operations.

The United Nations Environment Programme and the Convention on Biological Diversity (2015) published 'Tourism Supporting Biodiversity', designed as a manual on 'Applying the Convention on Biological Diversity Guidelines on Biodiversity and Tourism Development.' The manual looked to provide 'information for planners, developers, managers and decision makers involved with tourism development and resource management in areas of sensitive biodiversity', its aim was 'to help them to mainstream biodiversity concerns and ecosystem services within sustainable tourism development', and its primary target audience was 'public authorities and other agencies in a position to influence tourism impacts, while also being relevant to potential developers of tourism projects' (United Nations Environment Programme and the Convention on Biological Diversity 2015).

On the academic side, work on the relationship between biodiversity and tourism can be traced back over two decades, and here again a number of themes endure. van der Duim and Caalders (2002), for example, argued that tourism occupies an important position in policies designed to encourage the conservation of biodiversity and provided a framework for intervention in the relationship between tourism and biodiversity. The authors looked to reconstruct some of the theoretical discussions about the relationships between tourism and the conservation of biodiversity and the possibility of measuring impacts. More specifically, the authors argued that measuring the impacts of tourism on biodiversity is both 'highly complex and costly', that 'setting priorities for interventions is not just a matter of knowledge on impacts', and that such priorities 'should also be based on considerations of legitimacy, feasibility, and effectiveness' (van der Duim and Caalders 2002). In their conclusion the authors argued that 'the legitimacy of many proposed interventions can also be questioned as they disproportionately represent the various interests and seem to benefit particularly large-scale international enterprises' (van der Duim and Caalders 2002).

Hall (2010) outlined some of the main themes in the relationship between biodiversity and tourism and while he suggested that tourism was increasingly recognised as 'a significant beneficiary of tourism', at the same time he also argued that 'the five principal pressures driving biodiversity loss – habitat change, overexploitation, pollution, invasive species and climate change – are all factors to which tourism is a significant contributor.' Perhaps more tellingly, Hall (2010) also claimed that the 'balancing act' between positive and negative contributions 'is often never fully accounted for in the assessment of the costs and benefits of tourism, particularly in relation to the supposed benefits of tourism as a means of pro-poor and sustainable development.' Hall (2010) concluded that while 'undoubtedly tourism can make a contribution to the conservation and maintenance of biodiversity, in reality success stories are few and far between and are generally isolated to individual species and relatively small areas of habitat rather than a comprehensive contribution to conservation.'

A number of studies had a specific area focus, albeit at different scales. Sinna and Bushell (2002), for example, explored the linkage between biodiversity conservation and tourism through a case study of a village-based tourism venture at a remote location on Vanua, the second largest island in Fiji. The case study revealed that 'the ecological systems upon which the villagers depend for subsistence are the very same resources that support tourism', and the authors suggested that 'understanding the linkage between biodiversity and tourism could provide the basis for the promotion of biodiversity conservation and ecotourism' (Sinna and Bushell 2002). Worku (2021) looked to assess the role of forest biodiversity conservation for tourism development in Tara Gedam monastery in Ethiopia, and the results demonstrated that 'biodiversity contributes to sustainable tourism development on the grounds that it has less impact on the environment than other industries, based on an enjoyment of the natural and cultural environment.'

Echeverri et al. (2022) acknowledged that nature-based tourism has the potential to sustain biodiversity and economic development, yet the degree to which biodiversity drives tourism patterns, especially relative to infrastructure, is poorly understood. In an attempt to explore this relationship, the authors looked to examine the relationships between different types of biodiversity and different types of tourism and infrastructure in Costa Rica, and their results revealed more biodiverse places tend to attract more tourists, especially where there is infrastructure that makes these places more accessible. Nunes et al. (2020) examined the main impacts of the development of coastal tourism on the natural environment in the Algarve in southern Portugal and presented a set of mitigation and restorative measures designed to emphasise the protection of biodiversity and the recovery of ecosystems.

On a larger scale, in their study in northern Fennoscandia, Tolvanen and Kangas (2016) reported that the direct impact of tourism on biodiversity was negative, on a range from the individual to the ecosystem level, and that as the most sensitive plants, birds and mammals decline, or disappear, from disturbed sites, so the species composition shifts from wild species to cultural and human associated species. Pickering and Hill (2007) reviewed research into the impact of tourism and recreation on plant biodiversity in Australia, and made a number of recommendations for future research agendas. These agendas included research into a range of visitor activities with a focus on levels of resistance and resilience, into indirect impacts of tourism and recreation, such as the spread of weeds and pathogens, and into the impact of tourism infrastructure, including comparison of the ecological costs and benefits of various types on infrastructure. The authors concluded there were 'many threats to vegetation in Australian protected areas from

tourism’, and ‘greater recognition needs to be given to this by protected area managers’ (Pickering and Hill 2007).

In reviewing ‘Current Trends and Issues in Research on Biodiversity Conservation and Tourism Sustainability’, Jurkus et al. (2022) identified seven ‘trending research themes on biodiversity conservation and tourism sustainability’, namely community-based tourism, national park management, sustainable tourist motivation, biodiversity conservation and ecotourism, landscape and land use changes, visitor satisfaction monitoring, and ecotourism modelling. More specifically, Jurkus et al. (2022) argued that ‘a current critical strand of research on biodiversity conservation and tourism sustainability deals with transformations of the strict top-down, prescriptive approach, particularly in countries with strong traditions of centralized planning.’ Further Jurkus et al. (2022) suggested that ‘in many countries with top-down biodiversity conservation, nature-based tourism is often developed by larger tourism companies’, and that such companies ‘are more advantageous regarding lobbying and bending the conservation restrictions but ignore local socio-economic conditions.’

Cameo Case Study: One Planet Vision for A Responsible Recovery of the Tourism Sector

The ‘One Planet Vision for A Responsible Recovery of the Tourism Sector’ (United Nations World Tourism Organisation 2020a) looked to build upon the ‘Global Guidelines to Restart Tourism’ (United Nations World Tourism Organisation 2020b) released in May 2020. These guidelines were designed to help the tourism sector to ‘emerge stronger and more sustainably from COVID- 19’, and they highlighted not only ‘the need to act decisively to restore confidence’, but also to ‘support governments and the private sector’, in order ‘to recover from an unparalleled crisis’ (United Nations World Tourism Organisation 2020b). The guidelines were seen as providing businesses and governments with a comprehensive set of measures to help the recovery of tourism in a safe and responsible manner.

The One Planet Vision recognises that tourism had been one of the sectors of the economy hardest hit by the COVID-19 pandemic, that there were ‘additional impacts, which are still difficult to quantify, such as pollution, or threats to the conservation of wildlife and biodiversity, all directly linked to tourism’ (United Nations World Tourism Organisation 2020a). Here, the One Planet Vision emphasised that the pandemic had highlighted the fragility of the natural environment and had brought the need to protect it into sharp focus. More specifically, One Planet Vision, argued that the pandemic had raised awareness of the importance that role sustainability had to play in both economic activities and everyday life, and stressed the need for ‘long term and holistic thinking with regard to the challenges to our world and thus connects with the need to transition to a more sustainable tourism based model based on social inclusion and the restoration and protection of the environment’ (United Nations World Tourism Organisation 2020a). At the same time, the One Planet Vision looked to support the development and the implementation of recovery plans which contribute to the achievement of the United Nations’ Sustainable Development Goals.

Three set elements of responsible recovery, namely for people, for the planet, and for prosperity, are central to the vision. Responsible recovery for people is seen to include public health and social inclusion, responsible recovery for prosperity is seen to embrace the circular economy and governance and finance, while that for the planet is focused on biodiversity conservation and climate action. In addressing biodiversity conservation, the One Planet Vision (United Nations World Tourism Organisation 2020a) emphasised that ‘a healthy environment is directly connected with the competitiveness of the tourism sector and that in many destinations conservation efforts largely depend on tourism revenue’, and that ‘supporting such conservation efforts can enable a greener recovery.’

More specifically, the One Planet Vision (United Nations World Tourism Organisation 2020a) focused on three issues, namely the need to ‘capture the value of conservation through tourism’, the need to ‘support conservation efforts tourism’, and the need to ‘invest in nature-based solutions or sustainable tourism.’ The first of these goals highlighted the fact that there are many tourist destinations where the conservation of both marine and terrestrial ecosystems depends on tourism revenue and operators, and stressed the need for monitoring mechanisms that would capture the value of biodiversity conservation and the value of ecosystem services, which would, in turn, enable the tourism sector to capitalise on its conservation efforts.

Secondly, in many tourist destinations, the risks of poaching, encroachment, or overexploitation are increasing, which in turn threatens the natural assets which will be vitally important in facilitating and encouraging the recovery of the tourism industry. Here, it was argued not only that the role of tourism in sustaining conservation, and where necessary in looking to combat the illegal trade in wildlife, should be explicitly acknowledged in recovery plans and programmes, but also that it will be important for stakeholders in the tourism industry to contribute financially to such plans and programmes. Thirdly, investment in nature-based is seen to have the potential to drive innovation in tourism towards sustainable solutions. Such solutions could not only help to mitigate the environmental impacts of tourism activity, but could also result in the better management of a range of natural resources including water, coral reefs, wetlands, mangroves, and coastlines.

The following year, the United Nations World Tourism Organisation (2021) revisited the same three issues in 'Recommendations for the Transition to a Green Travel and Tourism Economy', which were seen to 'lay the foundations for more balanced, sustainable, and resilient models of tourism development.' Here, the aim, inter alia, was to showcase initiatives drawn from destinations, tourism businesses, and civil society, which were leading by example in integrating sustainability in their tourism recovery plans and strategies. On the issue of supporting conservation through tourism, for example, there was a brief report of a programme in Italy designed to raise public awareness about the introduction of alien species and to enlist the active participation of citizens to prevent the spread of such invasive species. In focusing on investing in nature-based solutions for more sustainable tourism, illustrative examples were offered of the Saudi Arabian Red Sea Project and centred on the role of coral reefs and beaches in a major new tourism development, and an Ibeostar strategy to offset its carbon footprint by protecting and restoring nature in resorts in Mexico, where the company are operating. In addition, the One Planet Network's Annual Programme Report for 2021 (One Planet 2022) highlighted some examples of good practice of biodiversity communication by the Pacific Asia Travel Association, Center Parcs and the TUI Group, and of the development of a guide to sustainable consumption for biodiversity and ecosystem services communication.

Concluding Reflections

There is a broad consensus of opinion that biodiversity has a vital role to play in the responsible recovery of tourism following the ravages of the COVID-19 pandemic, and more generally, in building a more sustainable tourism economy. A range of tourism organisations and policy makers have taken a positive stance in emphasising the importance of biodiversity, and biodiversity conservation, in the sustainable development of tourism. The cameo case study of the One Planet Vision for responsible recovery of tourism illustrates this positivity. At the same time, academic researchers have taken a more measured approach, stressing the need to explore the varied relationships between biodiversity and tourism development more fully, and more negatively suggesting that the direct impact of tourism on biodiversity can be damaging, and questioning the legitimacy of biodiversity conservation projects that were seen to favour the business interest of large tourism enterprises. In many ways, such contrasting positions can be seen to reflect the paradox at the core of the relationship between biodiversity and tourism. More generally, a number of wider sets of issues merit concluding reflection.

There are a set of issues surrounding the notion of sustainable tourism and here it is important to recognise that sustainability carries a range of meanings, and that it is a contested concept, which have implications for how sustainable tourism is understood. On the one hand, there are definitions that are essentially based in ecology, which would privilege biodiversity and natural capital, and there are broader definitions, which embrace economic and social, as well as, environmental, goals, which would embrace the income generation and the creation of employment opportunities tourism activity and development brings. At the same time, a conceptual distinction is often made between strong and weak sustainability, with the former giving priority to economic growth and the latter recognising the environmental limits to such growth. Here again this distinction can be seen to generate differing interpretations of sustainable tourism. This complicates, and arguably obfuscates, how sustainable tourism might be defined and how interpretations of the relationships between tourism and biodiversity are played out. Nevertheless, however sustainable tourism is defined, Peeters and Landre's (2012), claim that 'the current development of tourism is environmentally unsustainable', resonates.

Tourism organisations, supranational political bodies, and national governments have seen the development of what is often described as a more sustainable tourism economy, as providing the key to recovery in the wake of the COVID-19 pandemic. However, Ioannides and Gyimothy (2020) looked to turn such arguments on their head, seeing 'the COVID-19 crisis as an opportunity for escaping the unsustainable global tourism path', arguing that 'although policymakers seek to strengthen the resilience of post-pandemic tourism, their subsidies and other initiatives serve to maintain a fundamentally flawed market logic', and that 'COVID-19 offers public, private, and academic actors a unique opportunity to design and consolidate the transition towards a greener and more balanced tourism.'

Further, Ioannides and Gyimothy (2020) suggested that 'the crisis has, therefore, brought us to a fork in the road – giving us the perfect opportunity to select a new direction and move forward by adopting a more sustainable path. Specifically, COVID-19 offers public, private, and academic actors a unique opportunity to design and consolidate the transition towards a greener and more balanced tourism.' However, identifying the major features of such a more sustainable tourism economy, and the route towards it, may be much easier said than done. Ioannides and Gyimothy (2020), for example, shy away from sketching out what a greener and more balanced tourism economy might look like, preferring instead to simply suggest that 'as a beginning we must seriously think about redesigning our curricula and educational activities in order to train students to gain skills in complexity-thinking, knowledge of post-capitalist

economies and collaborative business models.’

More generally, the COVID-19 pandemic has exposed some of the fragilities at the boundary between people and nature, highlighted the environmental limits that ultimately proscribe not only tourism, but all human activities, and this raises the elusive spectre of sustainable consumption. Almost two decades ago, Cohen (2005) claimed that sustainable consumption posed the most difficult challenge to sustainable development agendas. That said, Cohen (2020) claimed that the COVID-19 crisis offered an important opportunity to step back from the pursuit of conspicuous consumption, and the increasing depletion of the earth’s finite resources, on which such patterns of consumption ultimately depend. Further Cohen (2020) emphasised the importance of looking to ensure that the pandemic informs and contributes to policies designed to promote a transition to more sustainable patterns of consumption. Any such transition would need to see the major players within the tourism industry making fundamental changes to their traditional business models, often built around the virtually unregulated use of natural resources and low-cost labour. However, while the United Nations World Tourism Organisation and the United Nations Environment Programme (2020) suggested that ‘unsustainable consumption and production practices represent one of the major barriers to sustainable development’, they argued that ‘the concept of sustainable consumption and production is not commonly used by tourism policy makers.’

The author realises that this paper has a number of limitations, not least that it draws exclusively on secondary internet source material and it that does not look to offer a comprehensive review of the relationships between biodiversity and tourism. However, as a commentary paper it provides a platform for future research, and a number of conceptual and empirical research issues merit attention. On the conceptual side, two sets of agendas suggest themselves. Firstly, work on how relationships between tourism and biodiversity, and more specifically between tourism development and biodiversity conservation, are played out within the tourism industry can contribute to how scholars conceptualise and analyse power in sustainability research. Secondly, the relationship between tourism and biodiversity also provides an important opportunity to examine if, and how, the interests of a range of stakeholders are accommodated in a range of situations and environments. More generally, work on both these sets of agendas can help to provide a more comprehensive theoretical approach to sustainable development.

At the empirical level, there are a wide range of research opportunities but some simple examples serve to illustrate the potential scope for work on the relationship between biodiversity and tourism. Primary investigations of planning for new tourism development in a variety of areas, including coastal, wetland, forests, and protected environments, and of how the tensions between tourism and biodiversity conservation are managed in such environments, offer fertile territory for future research. Research might be profitably directed to measurement and monitoring, for example in examining the impact of tourism on biodiversity over time, the long-term impact of biodiversity conservation initiatives, and the impact of increased visitor numbers in a range of tourism environments. Here digital technologies may have an important role to play in continuous monitoring programmes. Research into if, and how, tourism companies and organisations communicate information on biodiversity and biodiversity conservation to customers, and if, and how such communications influence patronage, also merits empirical investigation

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