# **Research Trends of Protected Areas and Nature-Based Tourism**

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Nature-based tourism (NBT) represents a significant sector within global tourism, which may represent approximately 20% of the global tourism market. In parallel, many natural areas and ecosystems are threatened by challenges related to climate change, biodiversity loss, and anthropogenic activities, calling into question their sustainability.

protected areas

nature-based tourism

sustainability

## 1. Introduction

Nature-based tourism (NBT) represents a significant sector within global tourism <sup>[1]</sup>, which may represent approximately 20% of the global tourism market <sup>[2]</sup>. In parallel, many natural areas and ecosystems are threatened by challenges related to climate change, biodiversity loss, and anthropogenic activities, calling into question their sustainability <sup>[1][3]</sup>.

The growing interest in visiting Protected Areas (PAs) makes them important and popular nature-based tourism destinations, attracting a large number of visitors every year <sup>[4][5][6]</sup>. PAs are estimated to receive 8 billion visits annually, generating an estimated economic impact of around USD 600 billion <sup>[Z]</sup>. However, the COVID-19 pandemic and the consequent travel-related restrictions that occurred between 2020 and 2021 presented challenging repercussions for PAs, causing significant negative impacts on the economy, tourism-related services, and wildlife-related crime-fighting <sup>[8][9]</sup>.

At the beginning of the pandemic, a drastic reduction in visitors was observed. However, with the evolution of the pandemic situation, several PAs experienced a demand boom due to domestic tourism <sup>[8]</sup>. The restrictions on international mobility, the need to escape lockdowns, and the deprivation of leisure and recreational activities in enclosed spaces imposed with social distancing were the motivation to visit intact ecosystems or ecosystems with few changes caused by anthropic action <sup>[8][9][10]</sup>. Before the pandemic period, PAs were already, in many cases, important tourism destinations that allowed visitors to enjoy physical and mental relaxation and promoted social well-being. These areas re-emerged with increased importance during lockdowns <sup>[11][12]</sup>. Considering this anomalous context, a re-emerging interest based on immersion in nature, active tourism, and adventure visits to rural habitats and natural landscapes <sup>[13]</sup> is expected in the next years.

#### 1.1. Protected Areas and Nature-Based Tourism: Antagonism of Interests

The International Union for Conservation of Nature (IUCN) defines PAs as "a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" <sup>[14]</sup> (p. 8). PAs can include maritime areas, lakes, rivers, or lands, which were identified as important for nature conservation and are managed for that purpose <sup>[15]</sup>.

In 2020, approximately 17% of the entire land area and approximately 8% of coastal and marine areas were under conservation measures related to the creation of PAs or other conservation measures <sup>[16]</sup>. Currently, PAs are created with more complex and transversal purposes than those in the past. Conservation of the landscape value of land and maritime PAs, as well as of habitats and biodiversity, continues to be essential. However, the current management goals for PAs include educational, scientific, and cultural purposes, as well as the availability of environmental services and the sustainable use of resources from natural ecosystems <sup>[17]</sup>. PAs are also promoters of many benefits in terms of physical health <sup>[18][19]</sup>, psychological health <sup>[19][20][21]</sup>, and countless sociocultural benefits <sup>[19][22]</sup>. Currently, the classification of these areas also plays an important role in different contexts and levels, namely, the quality of life for local populations (e.g., <sup>[23][24][25]</sup>), the creation of new economic dynamics with investment in tourism development (e.g., <sup>[26][27][28]</sup>), and the essential task of mitigating and adapting to climate change (e.g., <sup>[29][30][31]</sup>).

The antagonism of interests and the paradox between use and conservation continue to be strongly present. On the one hand, PAs were created to protect and conserve nature; on the other hand, they are attractive and promote visits and profit [32][33]. There are PAs that were created in inhabited environments where, currently, there is a union between human activities and the conservation of biodiversity and natural ecosystems. This type of PAs is more frequent in Europe, which offers accommodation, restaurants, and recreational activities inside PAs that are integrated into the rural environment. As a counterpoint, there are countries, such as the United States and Brazil, where PAs were created in natural habitats without human activity present in their interior. The management policy of these areas is dedicated to biodiversity conservation and the environmental education of the visitors. The relationship between tourism and PAs has always been based on an attempt to balance economic development and the protection and conservation of PAs, which makes it complex. The sustainability of these areas requires a trade-off between two objectives: protecting the essential values of environmental preservation and providing visitors with access to enjoy and appreciate those values [34]. These two objectives should not be seen only as conflicting elements but also as purposes that, when managed with balance, may result in mutual benefits and the support of stakeholders <sup>[26]</sup>. However, without full consideration of the environmental and social consequences, in many cases, conservation may effectively be replaced with economic development [35]. Still, tourism can promote an essential connection between visitors and the values of PAs, becoming a potentially positive strength for conservation <sup>[5]</sup>. The tourism sector takes on, in many cases, a significant role in the conservation and preservation of PAs including generating economic and social benefits, which are essential elements for the revenue generated from protected natural areas and for financing conservation and local livelihoods <sup>[5][36]</sup>. Several studies analysed this phenomenon in different countries, such as Portugal [37] [38] [39], Kenya [40] [41], Spain [17] [40] [41], China [42] [43] [44], and India [44][45].

#### 1.2. Ambiguity in NBT Terminology

NBT has been a popular topic in the literature in the last decades <sup>[46][47]</sup>. The concept of NBT is comprehensive and often related to other terms present in the literature. For example, several authors use the terms NBT and ecotourism as synonyms <sup>[48]</sup>. Others use the term NBT as a synonym for rural, sustainable, responsible, or adventure tourism <sup>[49][50]</sup>. However, the appropriate distinctions should be made. NBT is traditionally defined using characteristics of the product or the context in which it is integrated, while terminologies such as "responsible tourism", "ecotourism", or "sustainable tourism", are defined using characteristics that include positive impacts on the social and/or environmental levels <sup>[51]</sup>. On the other hand, since NBT has a wide range, any tourism activity performed by a person, outside its usual framework, in underdeveloped or less modified natural areas or natural landscapes may be considered NBT <sup>[52]</sup>. Therefore, NBT covers every type of tourism includes trips close to or inside parks, forests, lakes, the sea, or rural areas to participate in activities using resources that are compatible with the natural quality of those places <sup>[55]</sup>. These activities include: enjoying landscapes, natural scenarios, and fauna and flora; outdoor recreation and adventure (e.g., rafting, backpacking, and cycling); hunting and fishing; nature conservation volunteer tourism; and ecotourism <sup>[52][56]</sup>.

In addition, the International Ecotourism Society (TIES) defines the concept of ecotourism that is narrower than the concept of NBT <sup>[57]</sup>. As an NBT segment, ecotourism may be defined as responsible travel to natural areas that conserves and preserves the environment, sustains the well-being of the local people, and involves interpretation, education, and inclusion <sup>[57]</sup>. Donohoe & Needham <sup>[58]</sup> prepared a review of several definitions for ecotourism present in the literature and reached a consensus necessary to operationalise the concept. The authors came to the conclusion that the concept of ecotourism should integrate six core characteristics: (1) nature-based; (2) preservation and conservation; (3) education; (4) sustainability; (5) distribution of benefits; and (6) ethics/responsibility/awareness <sup>[58]</sup>. Therefore, the concept may be seen as a normative subcategory of NBT <sup>[59]</sup>. Since ecotourism is a strong component of environmental preservation and protection, ecotourism activities are especially connected to promoting the preservation of natural resources using the education and awareness of local communities, tourists, and other stakeholders <sup>[48][57][60][61]</sup>. Within this framework, assuming that all tourism that takes place outdoors and that involves nature is "ecotourism" is particularly problematic <sup>[32]</sup>.

Another frequent term in the literature is related to rural tourism. The World Tourism Organization (UNWTO) defines the concept as "a type of tourism activity in which the visitor's experience is related to a wide range of products generally linked to nature-based activities, agriculture, rural lifestyle/culture, angling and sightseeing" <sup>[57]</sup>. Although there is a major relationship between rural tourism and NBT, rural tourism products revolve specifically around the resources that include cultural and rural lifestyle elements, such as agriculture, historical sites, living heritage, rural customs, folklore, and traditions <sup>[57][62]</sup>.

### 2. Sustainable Tourism

Sustainability and sustainable development are essential elements of the United Nations 2030 Agenda <sup>[63]</sup>. For several years, tourism has been recognised as an essential tool to reach those goals <sup>[64][65]</sup>. Although nature-based tourism can be important to support biodiversity and environmental conservation, excess tourism may have

damaging effects on the natural and social environment of territories <sup>[64][66]</sup> and a negative impact on the management of Pas <sup>[67]</sup>. Consequently, now more than ever, it is important to develop sustainable tourism practices as a way to increase the resilience of ecological systems and local communities <sup>[68]</sup>, as well as to promote economic growth, environmental protection, social inclusion, and good governance <sup>[69]</sup>. Within this framework, the Sustainable Development Goals became focal points for the study of tourism contributions regarding sustainable development <sup>[69][70]</sup>. The context of PAs should continue to receive great attention from the scientific community, characterised by a large coverage of themes and applications.

### 3. Climate Change

The effects of weather and climate conditions on tourism, regarding tourism destinations, include two aspects: the direct impact on tourists (e.g., comfort and weather conditions, which are appropriate for certain activities) and the context effects (e.g., species present, quality, and ecosystem and general environment conditions) <sup>[71]</sup>. The connection between climate and tourism is multifaceted and highly complex, and both are intrinsically connected <sup>[72]</sup>. Additionally, atypical weather conditions can affect the focus of the tourist attraction (e.g., snow conditions, wildlife biodiversity and productivity, and level and quality of water) <sup>[29][73][74][75][76][77]</sup>. The environmental conditions that can dissuade tourists are largely influenced by climate and its variability, which can frequently be translated into droughts, wildfires, and high temperatures, as well as the proliferation of infectious diseases, plagues transmitted by insects or water, and different extreme events <sup>[72][77]</sup>. Recent studies focus on understanding the impacts of tourism and climate change on PAs (e.g., <sup>[78]</sup>) and the impacts of climate change on NBT (e.g., <sup>[79]</sup>).

### 4. Geotourism and Rural Tourism

The singularity of certain geological formations and geomorphological landscapes are real tourist attractions in several PAs. In parallel, geotourism is one of the most recent concepts of tourism and one of the largest growing areas in terms of popularity <sup>[81]</sup>. Some recent articles on geotourism in PAs include themes such as tourism development and local sustainable development (e.g., <sup>[82][83][84]</sup>), environmental impact assessment (e.g., <sup>[85]</sup>), geotourist profile (e.g., <sup>[86]</sup>), visitors' perspective on geotourism and geotours (e.g., <sup>[87]</sup>), and geotrail prospection (e.g., <sup>[88]</sup>). Unlike geotourism, rural tourism is not a new concept in the literature. Some themes addressed in the last years were related to sustainable development (e.g., <sup>[89]</sup>), sustainable tourism planning and development (e.g., <sup>[90]</sup>), attitudes towards rural tourism (e.g., <sup>[91]</sup>), tourists' perceptions (e.g., <sup>[92]</sup>), and the relationship between parks and communities (e.g., <sup>[92]</sup>).

#### 5. Ecosystem Services and Cultural Ecosystem Services

The concept of ecosystem services (ESs) can be understood as the benefits generated by ecosystems and obtained and used by human beings <sup>[93]</sup>. Within this framework, cultural ecosystem services (CESs) are a subsector of ESs with the particularity of being non-material services, which include physical, intellectual, and

spiritual interactions between people and nature <sup>[94]</sup>. Consequently, CESs can be seen as the interactions between environmental spaces and cultural and recreational practices and the connections established in those spaces <sup>[95]</sup>.

Recently, some studies on tourism and ESs in PAs focused on the analysis of different locations and on the identification of different services related to different types of tourism, namely NBT and cultural tourism (e.g., <sup>[95]</sup>). Other studies combined scientific knowledge with community knowledge to evaluate and identify the ecosystem services in a certain territory (e.g., <sup>[97]</sup>) and promote a more sustainable management of PAs (e.g., <sup>[98]</sup>). The literature regarding ecosystem services has been growing exponentially and has infinite potential and applications. For example, there is a noticeable increased interest in the spatial and temporal characterisation of ecosystem services using the analysis of social network data (e.g., <sup>[99]</sup>), which allows the evaluation of nature tourist satisfaction or the attractiveness of tourist sites (e.g., <sup>[100]</sup>). It also allows quantifying and/or mapping the perceived and aesthetic value of landscapes (e.g., <sup>[101]</sup>), finding spatial and temporal patterns based on visits and the mapping of interest points in PAs (e.g., <sup>[96]</sup>), and valuing abiotic elements as ecosystem service providers, with their distinction as geosystem services having also been suggested.

### 6. Visitor Studies

The themes regarding motivations, satisfaction and segmentation of tourists and visitors are often explored in the tourism literature, in general, and in PAs and NBT, in particular. These studies allow a prediction of visit patterns, travel behaviour, and management effects and represent an essential aspect of PA sustainability <sup>[103][104][105]</sup>. Recent studies explored several perspectives, namely satisfaction in terms of ecotourism experiences (e.g., <sup>[106]</sup>), satisfaction and over-tourism (e.g., <sup>[107]</sup>), impacts of the perceived value of services on satisfaction (e.g., <sup>[108]</sup>), quality perceptions and performance attributes (e.g., <sup>[108]</sup>), implementation of management measures and effects on satisfaction (e.g., <sup>[108]</sup>), among others. Regarding tourist and visitor segmentation studies, the majority of the recent studies focused on segmentation based on the motivation of tourists, including the motivation of domestic visitors (e.g., <sup>[109]</sup>) and international tourists (e.g., <sup>[110]</sup>) and motivations regarding ecotourism (e.g., <sup>[111][112]</sup>). There is also research that addressed segmentation according to tourists' climate sensitivity and climate change perceptions (e.g., <sup>[113]</sup>) and visitors' place attachment (e.g., <sup>[114]</sup>).

#### 7. Wildlife Tourism

The increasing desire to observe and interact with wildlife is reflected in a substantial increase in visits to PAs from all over the world. The World Travel & Tourism Council <sup>[115]</sup> estimates that, globally, 21,8 million jobs are supported by wildlife tourism, and one-third of the GDP generated by tourism in Africa is directly connected to wildlife. In this context, as an NBT subcategory, wildlife tourism in the context of PAs received some attention over the last few years. In recent years, the theme has been frequently centred on the analysis of tourism contributions to the local economy and animal conservation (e.g., <sup>[116]</sup>), the improvement in managing and minimising negative impacts

(e.g., [117][118]), the assessment of cultural ecosystem services (e.g., [118]), analyses focused on tourists (e.g., [119]), and the impacts and changes fostered by the COVID-19 pandemic (e.g., [119][120][121]).

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