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Article

Wildlife Tourism Governance in UNESCO Global Geoparks: Sea Turtle Conservation Challenges in the Belitong UNESCO Global Geopark, Indonesia

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Abstract

The balance between the development of tourism and the conservation of biodiversity is an issue of great concern to those nature-based places, such as the UNESCO Global Geoparks, among them. The study examines governance concerns associated with protecting sea turtles at the Belitong UNESCO Global Geopark, Indonesia, in the context of wildlife tourism. The qualitative part of the research has been informed by a policy analysis, site visits, literature review, and secondary data from tourism activities and conservation management on Belitung Island. The analysis is underpinned by a socio-ecological systems perspective that promotes the understanding of the interplay between ecological resources, human practices, and governance systems in a complex system. Moreover, while some wildlife tourism practices seem to contribute positively to the economic development in tourism (for instance, the release of sea turtle hatchlings for tourists to participate), these practices, when not closely supervised by scientific bodies, can be ecologically hazardous. Moreover, without unified and integrated administrative governance of tourism, conservation, and regional development, opportunities may be missed for governance voids that can contradict conservation imperatives. The findings are especially relevant for geopark governance and scientific conservation practice, as they address both the coordination of institutions and practices of science-based management of geopark governance. It would be anticipated that the improved levels of community participation and responsible wildlife tourism protocols make it more likely that tourism development in the Belitong UNESCO Global Geopark supports not only biodiversity conservation, but also regional sustainable development.

Keywords: Belitong UGGp; Indonesia; sea turtle conservation; sustainable tourism; UNESCO Global Geopark; wildlife tourism governance.

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I. Introduction

Over the last 20 years, with growing public interest in environmental conservation and natural experiences, nature-based tourism has rapidly evolved to become one of the fastest-growing sectors of the global tourism industry (Buckley, 2012; Newsome et al., 2005). One of these diversified forms, wildlife tourism—tourism activities related to seeing and/or interacting with wild animals in their natural conditions—has emerged as a significant building block of the development (Higginbottom, 2004; Newsome et al., 2005). Wildlife tourism can become profitable, offer funding for conservation work, and offer alternative means of livelihood if handled well (Tisdell & Wilson, 2005). Tourism earnings could be used for protected area management, environmental education, and community-based conservation activities (Marion & Reid, 2007).

Despite these advantages, the rapid growth of wildlife tourism has raised serious concerns about biodiversity conservation, ecosystem stability, and animal welfare. Poorly controlled tourism may result in disturbances in ecosystems, behavioural differences, and development of ecological pressures, which can interfere with long-term conservation (Geffroy et al., 2015; Higginbottom, 2004). As such, scholars highlight that systems of governance that can adequately reconcile tourism development and biodiversity conservation are of consequence to the development of the latter (Newsome et al., 2005; Buckley, 2012).

Indonesia has massive potential for nature-based tourism in the future; Indonesia is one of the most biodiverse countries in the world, with abundant marine ecosystems, tropical forests, and endemic species (Bappenas, 2025). In contemporary times, the government has recommended the development to be sustainable tourism as part of its strategies of national development in the direction of increasing variety in the regional economies, as well as for the reduction in dependence on the extraction sector (Government of the Republic of Indonesia, 2019). Within this model, geoparks (one part of a larger plan) are increasingly being described as integrated models connecting geological conservation, environmental education, and sustainable tourism development.

One prominent example is the island of Belitung in the Bangka Belitung Islands Province. The island is known for its granite rock formations, white sandy beaches, and rich marine ecosystems (United Nations in Indonesia, 2021; Bappenas, 2025). Tourism boom following the release of Indonesian film Laskar Pelangi in 2008 significantly increased both the national and international focus on the island landscapes and cultural identity (Wijaya & Rosikha, 2020; Wiratama & Pasaribu, 2022). This is typical of film-fueled tourism, whereby cinematic imagery plays a role in destination attractiveness (Kusumastuti, 2019).

UNESCO assigned the Belitong UNESCO Global Geopark (UGGp) in 2021 due to its geological heritage and ecological significance (UNESCO, 2021). UNESCO Global Geoparks combine geological conservation with sustainable economic development by focusing on responsible tourism and local community involvement (Dowling & Newsome, 2018). The creation of Belitong UGGp takes on significance as part of the island's economic transformation process to move from

the mining-centered economy—especially that in tin mining—to those driven by tourism (Djemahir et al., 2024).

Tourism, on the other hand, is growing, and it brings out new environmental governance problems, particularly regarding marine ecosystems and wildlife. If tourism with animal interaction involves the wilds, then ecological disruption will occur and may be brought about without adequate scientific guidance or regulation of operations (Geffroy et al., 2015; Adisubroto & Pardede, 2024).

These issues were indicated through the revalidation of Belitong UGGp by UNESCO in 2024, a "yellow card" of the geopark, as there is a potential for improvements in various categories of the geopark regulation before the next revalidation process in 2026 (UNESCO, 2025c). Some of the issues identified in the assessment are wildlife tourism practices relating to the release of sea turtle hatchlings, which are touted as tourist attractions. Although such activities are designed to assist conservation awareness, they can compromise hatchling orientation and reduce survival rates due to inappropriate handling, artificial lighting effects, and relocations from their native nesting sites (Choi & Eckert, 2009).

Global context: Sea turtles are considered a vulnerable subject to pressures from coastal development, pollution, habitat degradation, illegal harvesting, and climate change (International Union for Conservation of Nature, 2023). These sea turtles are migratory marine species responsible for the maintenance of coral reefs and seagrass ecosystems. Effective governance is therefore vital to ensure that tourism activities involving wildlife do not undercut conservation objectives for biodiversity.

Analytically speaking, socio-ecological systems can offer an explanation as well. Environmental management is seen as a system that links ecological resources, human actions, and institutions of governance, where every environmental outcome is a product of social interactions with environmental factors (SES).

Within geopark contexts, tourism acts as a significant human driver for ecology and governance institutions oversee resource use, coordinate stakeholder relationships, and inter-relations with others. Governance must therefore strive to balance the development of tourism with conservation and community participation.

Although some previous research has discussed governance issues in the areas of geopark governance and sustainable tourism development (Dowling & Newsome, 2018; Rahmawati & Hidayat, 2023), there is still less research that deals with governance issues to be solved when wildlife tourism operates in geopark settings. This space is especially pertinent for Belitong UGGp, where tourism growth directly combines with marine biodiversity conservation. It evaluates governance issues related to sea turtle preservation in the Belitong UGGp.

The research, specifically, seeks to:

1. Study the tourism development dynamics on Belitung Island.
2. Evaluate the geopark governance structure and institutional coordination problems.
3. Assess the impacts that wildlife tourism has on sea turtle conservation.

4. Suggest policy recommendations to enhance governance of sustainable wildlife tourism.

II. Methods

A qualitative case study is utilized to scrutinize the governance problems associated with sea turtle conservation in the Belitong UGGp, Indonesia. Qualitative approaches work for an analysis of complex socio-environmental issues characterized by multiple stakeholders, institutional arrangements, and policy elements (Yin, 2018). In the geopark management context, the theme of tourism development and biodiversity conservation forms a dual governance issue, which requires a nuanced consideration of both institutional interactions and environmental processes.

Case study design allows an examination of topical issues to be studied in real-world circumstances as the edges of social and ecological systems are connected (Yin, 2018). Belitong UGGp offers a case study where the geopark is of real interest as it is both a conservation site, tourist area, and a regional development project. The study makes extensive use of secondary data. Policy analysis is performed to investigate the regulatory framework of tourism development, protection of marine biodiversity, and management of geoparks.

This analysis encompasses the Indonesian national legislation and other regulations, along with the regional tourism policies and the UNESCO guidelines related to the management and revalidation process of the UNESCO Global Geoparks (UNESCO, 2025b).

Second, the study covers a review of studies of wildlife tourism, sustainable tourism governance, and protected area management. The literature provides an overview of both the ecological consequences of wildlife tourism and the institutional context in which tourism must be in line with conservation aims (Buckley, 2012; Higginbottom, 2004; Newsome et al., 2005). The research on the governance of geoparks demonstrates the necessity of combining conservation, education, and local economic development into the strategy of territorial management (Dowling & Newsome, 2018).

Thirdly, the case-based examination of tourism and conservation policies in Belitung Island is studied, particularly as regards wildlife tourism activities with sea turtle hatchling release projects. Information regarding these practices is based on conservation papers, tourism promotional literature, government publications, site visits, and media coverage of geopark management and wildlife protection.

In order to interpret these results, the study considers the Socio-Ecological Systems (SES) analysis (Ostrom, 2009) as its main tool. In the SES framework, environmental governance can be thought of as an interconnected system, binding ecosystems, human subjects, and institutional structures. The tourism activities are understood to be the main human drivers of environmental conditions, whilst the governance institutions that oversee the use of resources and the coordination of stakeholder interactions fall within this framework. The SES framework helps to contextualise Belitong UGGp as an integrated socio-ecological system, and its actors of tourism development, conservation efforts, and governance structures interact as mechanisms to control environmental effects.

III. Results and Case Analysis

3.1. Study Area: Belitong UNESCO Global Geopark

Belitung Island lies off the eastern coast of Sumatra and faces the Karimata Strait (Fig. 1), located in the Bangka Belitung Islands Province of Indonesia. Its area is around 4,800 sq km and the population is roughly 320,000 in several settlements along the coast and the interior (Badan Pusat Statistik, 2025).

Belitung has a long history as one of Indonesia's major tin mining regions. Mining activity has been central to the island's economic structure, patterns of settlement, and environmental landscape for many years. Yet the decline of the mining sector over the past few decades, coupled with growing environmental issues, has influenced local governments to encourage economic growth through alternative sectors, including tourism (Djemahir et al., 2024; Bappenas, 2025).

Belitung Island is defined by an idiosyncratic geological terrain dominated by large granite rock masses on both coastlines and offshore islands. These granite boulders render a sweeping coastline that has turned the island into one of the most widely recognized tourism destinations (United Nations in Indonesia, 2021). This specific geological feature forms the basis for geopark development and is considered a means for geological conservation, tourism promotion, and community involvement.

Figure 1. Location of Belitung Island (Centre)

Source: Google Maps, 2025

In 2021, due to its geological heritage, UNESCO designated Belitung as the Belitong UNESCO Global Geopark (UGGp) (UNESCO, 2021). UNESCO Global Geoparks are globally recognised regions that promote geological conservation (Zhang & Lohm, 2017) as well as sustainable regional development (Dowling & Newsome, 2018; UNESCO, 2025a). Currently, Belitong UGGp is one of 12 UGGps in Indonesia (Fig. 2).

Belitong UGGp is a region of highly diverse land masses distributed across the island and surrounding waters. In addition to its geological characteristics, the geopark also features cultural heritage aspects reflecting the influences from the island's diverse heritage, including Malay customs, Chinese people, and remnants from colonial-type tin mining structures. The blend of traditional, ecological, and cultural resources underlies the foundation of the geopark's tourism and educational activities.

Besides its geological importance, Belitung also has several coastal and marine ecosystems, such as coral reefs, seagrass lands, and mangrove forests. These are ecotourist environments, and they sustain abundant marine biodiversity and support numerous species (and sea turtles, fish, crustaceans, seabirds, etc.)

In Belitung waters, several species of sea turtles, including the hawksbill turtle (Eretmochelys imbricata) and green turtle (Chelonia mydas), are examples of marine species. They face imminent environmental threats from habitat destruction, illegal harvest, maritime contamination, and climate shifts, and both are internationally endangered species (IUCN, 2023).

Figure 2. Belitong UGGp and the 12 UNESCO Global Geoparks in Indonesia

Source: Ministry of National Development Planning/Bappenas, 2025

Being dependent on sandy beaches for nesting and reproduction, sea turtles rely on coastal environments for survival. Several beaches in Belitung serve as occasional nesting sites, although nesting activity is relatively limited compared with major turtle nesting areas elsewhere in Indonesia. Nonetheless, sea turtles can enhance the geopark's ecological importance and attract conservation-oriented tourism. As a result, protecting turtle habitats and nesting beaches has now become a paramount concern in the context of geopark conservation and sustainable tourism management.

3.2. Tourism Development in Belitung Island

Over the past ten years, tourism on Belitung Island has been rapidly increasing, propelled by natural attractions, improved accessibility, and national tourism promotion plans. This growth is largely due to one factor. The Indonesian film Laskar Pelangi was released in 2008. Belitung's distinctive landscapes and cultural identity were presented on the screen in the film, and these greatly boosted the arrivals of both domestic and foreign tourists here (Wijaya & Rosikha, 2020; Wiratama & Pasaribu, 2022).

In the face of growing tourism demand, the Indonesian government has been investing in infrastructure development, including the expansion of H.A.S. Hanandjoeddin International Airport and upgrades of road networks and tourism facilities. Such efforts have greatly improved accessibility to the island (Coordinating Ministry for Economic Affairs, 2025).

Specialist tourism promotion campaigns showcase Belitung's unique combination of geological landscapes, marine biodiversity, and cultural heritage. Indeed, tourism operators have devised product offerings such as island-hopping, snorkeling, cycling, and access to coastal geosites (Fig. 3). These economic opportunities have also led to environmental and socio-economic problems as tourism expands. Increasing visitor numbers can also put pressure on fragile coastal ecosystems and may result in disruption of habitats, generation of waste, and overuse of resources in an over-exploitation of tourism (Buckley, 2012).

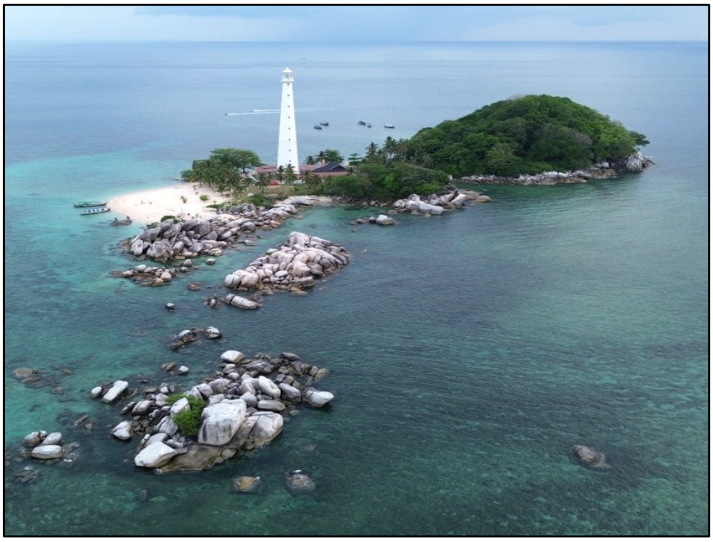

Figure 3. View of Lengkuas Island in Belitung

Source: Author, 2023

In addition, the economic benefits of tourism are far from distributed universally to local communities. Tourism has opened up new prospects for hotel and tour services, transportation, and tourism activities, to which not every resident has benefited the same way. In the coastal and rural areas, where many have traditional livelihoods (small-scale fishing, resource extraction, or illegal mining, among others), these practices are still common. So the gap is significant that it has implications for inclusive tourism development

strategies, which must give voice to and benefit from broader community involvement in the development of the tourism-centered economy.

3.3. Wildlife Tourism and Sea Turtle Conservation

Wildlife tourism is increasingly an integral part of tourism in Belitung. Opportunities to see marine ecosystems, catch sight of charismatic sea turtles, and other wildlife are a big draw for visitors. In Belitung, tourism firms have been promoting the release of sea turtle hatchlings as part of tourism attractions in a few places (Fig. 4). These hatchling release events are often promoted as conservation activities where visitors contribute to environmental safeguarding. Nevertheless, conservationists have expressed concern about the ecological consequences of the activities in the absence of scientific oversight (Choi & Eckert, 2009; Adisubroto & Pardede, 2021, 2024).

Sea turtle hatchlings use light gradients and geomagnetic orientation to move from their nesting beaches towards the ocean. If hatchlings are removed from their natural nesting sites or overexerted by humans, these processes of orientation may fail, and survival rates may decline (Choi & Eckert, 2009). In consequence, tourism aimed to promote conservation activities can add to existing ecological pressures for a susceptible sea turtle population.

Figure 4. A Hawksbill Turtle (left) and a Green Turtle (right)

Source: Author, 2023

IV. Result and Discussion

The situation of Belitong UGGp gives insights into the complex interrelationships between tourism development and biodiversity conservation in nature-based tourism destinations. While tourism is touted as a development tool that contributes to sustainable development, the environmental impacts of tourism are ultimately contingent on the efficiency of political systems of governance regulating tourism activities (Buckley, 2012).

This study highlights the fragmentation of institutions engaged in geopark management as one of the key governance challenges. Belitong UGGp works on the basis

of a multi-level bureaucracy of national ministries, provincial authorities, local governments, tourism agencies, and conservation organizations. That institutional complexity can lead to coordination problems and policy incoherence-building challenges at the institutional level. Cross-reaching responsibilities among the agencies engaged in the planning, tourism development, marine conservation, and coastal management of the tourism sector could lead to gaps in policies and monitoring (Rahmawati and Hidayat, 2023).

The challenges of governance within the Socio-Ecological Systems (SES) framework highlight the difficulty linking these social institutions with ecological processes (Ostrom, 2009). Tourism activities are an important determinant of ecological conditions, and governance institutions, in turn, must promote human behaviour to ensure ecological sustainability.

Another important part of tourism governance is the role of local communities in terms of tourism regulation. Although tourism development has established new economic opportunities, access to these opportunities is quite different. Some communities are still relying on traditional sources of subsistence, including fishing or small-scale mining (Sastrayuda, 2021).

In the absence of all-inclusive development, conservation programmes will likely encounter little local backing. This also means that making sure that communities prosper are served through tourism is crucial if long-term conservation is to be enhanced.

V. Policy Implications and Recommendations

Strengthening wildlife tourism governance is also necessary to enhance the management of sea turtle conservation in the Belitong UNESCO Global Geopark. The implications for policy relating to institutional coordination, conservation standards, capacity development, and environmental education have several implications.

First, it is necessary that there be greater institutional coordination between critical organizations. Conservation of sea turtles and wildlife tourism requires various authorities, and there are planning, marine conservation, and tourism administrations with responsibilities. It will also facilitate the alignment of conservation goals with sustainable tourism (e.g., the Ministry of National Development Planning (Bappenas), the Ministry of Marine Affairs and Fisheries, the Ministry of Tourism and Creative Economy). Since Bappenas is also currently the interim chair of the Indonesia National Geopark Committee, its function is crucial to coordinating the preparation of UNESCO revalidation documents, as well as the consolidation of the policies. Cooperation with the Provincial Marine and Fisheries Office of the Bangka Belitung Islands, as well as fisheries agencies in Belitung and East Belitung Regencies, is paramount to ensure such on-site preservation programs are conducted accurately at the regional level.

Second, there is a need to form and enforce scientifically-grounded conservation guidelines for controlling wildlife-based tourism, including sea turtles. There should be established protocols for hatchling handling, release sites, visitor involvement, and monitoring procedures. With such guidelines, ecological risks related to mass hatchling release events can be minimized, and tourism activities can be aligned with biodiversity preservation.

Third, comparative learning and capacity building can help local conservation management. A valuable reference is the sea turtle conservation program at Pangumbahan Turtle Park in the Ciletuh–Palabuhanratu UNESCO Global Geopark in West Java (Waworuntu & Herlambang, 2020; Adisubroto & Pardede, 2024), which has since been acknowledged as a successful conservation method. Study visits and transfer of knowledge with this geopark can assist Belitong to further standardize conservation practices. Supplementary training to local government, tourism operators, conservation, and community networks can also build skills regarding marine biodiversity management and sustainable tourism.

Last, the sustainability of the strategy requires environmental education and formal stakeholder involvement. School, university, and community education programs could raise awareness of responsible wildlife tourism and help ensure that local people manage sea turtle habitats. Another crucial step is to create formal agreements—through Memoranda of Understanding (MoUs)—between government agencies, tourism companies, and conservation efforts that provide definitions for ethical standards, tracking systems, and accountability for both parties.

These collaborative frameworks assure that wildlife tourism will contribute not only to economic development but also to biodiversity conservation and community well-being. In their own time, these interventions will help strengthen governance mechanisms, aid in the revalidation process with UNESCO, and further establish a more equal relationship of conservation and tourism development to both urban and wildlife management in terms of tourism and marine habitats in Belitong UGGp.

VI. Conclusion

The experience of the Belitong UNESCO Global Geopark illustrates the broader challenge faced by nature-based tourism destinations in reconciling economic growth with biodiversity conservation. Tourism has played a pivotal role in the island's economic development and in enhancing its global visibility, driven by its exceptional natural landscapes and rich marine biodiversity. However, the rapid expansion of tourism activities—particularly wildlife tourism involving the release of sea turtle hatchlings—has exposed significant governance shortcomings. When conducted without adequate scientific guidance and effective oversight, such practices risk undermining conservation objectives and degrading marine ecosystems.

The "yellow card" warning issued by UNESCO during the 2024 revalidation process underscores these governance deficiencies. It signals the need for substantial improvements in wildlife tourism management and marine conservation practices within the geopark. In particular, the release of sea turtle hatchlings—despite its popularity among tourists—must be subject to stricter regulation, grounded in scientific evidence, and implemented through standardized and well-monitored procedures to ensure alignment with conservation goals.

The findings of this study indicate that several structural factors have contributed to the current situation. These include weak coordination among key stakeholders, limited scientific oversight of conservation activities, and insufficient understanding of sustainable tourism principles. Moreover, tourism development has outpaced community readiness, as well as education and outreach efforts. If left unaddressed, these imbalances may pose long-

term risks to marine biodiversity and could undermine Belitong's standing as a globally recognized geopark destination.

Nevertheless, these challenges also present an opportunity for institutional strengthening. Greater government commitment, enhanced community engagement, and more active participation from tourism stakeholders—supported by improved access to information—can significantly reinforce conservation governance. Strengthening inter-agency coordination, promoting science-based wildlife tourism practices, and expanding public education and capacity-building initiatives are critical steps toward improving the geopark's management performance.

If effectively implemented, these reforms will not only enhance Belitong's preparedness for the 2026 revalidation process but also position it as a model of responsible wildlife tourism governance. In doing so, Belitong UNESCO Global Geopark could emerge as a leading example at both the national and regional levels, demonstrating how conservation and tourism development can be aligned in a sustainable and scientifically informed manner.

References

Adisubroto, U. (2026). *Assessment and strategic recommendations for sea turtle conservation in the Belitong UNESCO Global Geopark* (Unpublished term paper). University of Glasgow.

Adisubroto, U., & Pardede, T. S. (2021). Whale shark in the development of the geopark and sustainable tourism in Gorontalo, Indonesia. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning, 5*(3), 363–371. https://doi.org/10.36574/jpp.v5i3.232

Adisubroto, U., & Pardede, T. S. (2024). Green turtle (*Chelonia mydas*) landings and hatchling rate at Pangumbahan Turtle Conservation Area, Sukabumi. *International Journal of Geotourism Science and Development, 4*(1).

Badan Pusat Statistik Kabupaten Belitung. (2025). *Kabupaten Belitung dalam angka 2025*. https://belitungkab.bps.go.id/id/publication/2025/02/28/b12707642039e777efea58dc/kabupaten-belitung-dalam-angka-2025.html

Badan Pusat Statistik Provinsi Kepulauan Bangka Belitung. (2025). *Provinsi Kepulauan Bangka Belitung dalam angka 2025*. https://babel.bps.go.id/id/publication/2025/02/28/552f2d09ab64e68fd538b737/provinsi-kepulauan-bangka-belitung-dalam-angka-2025.html

Bappenas. (2025). *Archipelago of wonders: The 12 UNESCO Global Geoparks of Indonesia*. Ministry of National Development Planning (Bappenas).

Buckley, R. (2012). Sustainable tourism: Research and reality. *Annals of Tourism Research, 39*(2), 528–546. https://doi.org/10.1016/j.annals.2012.02.003

Choi, G., & Eckert, K. L. (2009). *Manual of best practices for safeguarding sea turtle nest beaches*. Wider Caribbean Sea Turtle Conservation Network (WIDECAST).

Coordinating Ministry for Economic Affairs of the Republic of Indonesia. (2025). *Tourism development strategy for priority destinations in Indonesia*. https://www.ekon.go.id

Djemahir, A., Rahman, F., & Suryanto, H. (2024). Post-mining economic transformation and tourism development in Belitung Island. *Indonesian Journal of Regional Development, 8*(1), 45–60.

Dowling, R., & Newsome, D. (2018). *Handbook of geotourism*. Edward Elgar Publishing.

Geffroy, B., Samia, D. S. M., Bessa, E., & Blumstein, D. T. (2015). How nature-based tourism might increase prey vulnerability to predators. *Trends in Ecology & Evolution, 30*(12), 755–765. https://doi.org/10.1016/j.tree.2015.09.010

Higginbottom, K. (Ed.). (2004). *Wildlife tourism: Impacts, management and planning*. Common Ground Publishing.

International Union for Conservation of Nature (IUCN). (2023). *The IUCN Red List of threatened species*. https://www.iucnredlist.org

Kusumastuti, R. D. (2019). Film-induced tourism and destination branding in Indonesia. *Journal of Tourism Studies, 14*(2), 45–58.

Marion, J. L., & Reid, S. E. (2007). Minimising visitor impacts to protected areas: The efficacy of low-impact education programmes. *Journal of Sustainable Tourism, 15*(1), 5–27.

Newsome, D., Dowling, R., & Moore, S. (2005). *Wildlife tourism*. Channel View Publications.

Ostrom, E. (2009). A general framework for analyzing the sustainability of social-ecological systems. *Science, 325*(5939), 419–422. https://doi.org/10.1126/science.1172133

Rahmawati, L., & Hidayat, R. (2023). Multi-level governance challenges in Indonesian geopark management. *Journal of Environmental Policy and Governance, 13*(2), 101–115.

Sastrayuda, G. (2021). Community participation and tourism governance in coastal regions of Indonesia. *Journal of Sustainable Tourism Development, 9*(1), 55–70.

Tisdell, C., & Wilson, C. (2005). Perceived impacts of ecotourism on environmental learning and conservation. *Journal of Environmental Management, 75*(3), 199–208.

United Nations in Indonesia. (2021). *Belitong UNESCO Global Geopark: Promoting sustainable development through geological heritage*. https://indonesia.un.org

UNESCO. (2021). *Belitong UNESCO Global Geopark*. https://www.unesco.org/en/global-geoparks/belitong

UNESCO. (2025a). *UNESCO global geoparks operational guidelines*. https://www.unesco.org/en/global-geoparks

UNESCO. (2025b). *UNESCO global geoparks revalidation guidelines*. https://www.unesco.org/en/global-geoparks

UNESCO. (2025c). *UNESCO Global Geopark revalidation reports and evaluation notes*. https://www.unesco.org

Waworuntu, S., & Herlambang, S. (2020). Penataan kawasan wisata Pantai Pangumbahan dengan konsep ekowisata. *Jurnal Sains, Teknologi, Urban, Perancangan, Arsitektur (STUPA), 1*(2), 2261–2272. https://doi.org/10.24912/stupa.v1i2.4600

Wijaya, M. I., & Rosikha, N. A. (2020). Movie-induced tourism as a powerful tourism branding media (Case study "Laskar Pelangi" the movie). *Airlangga Journal of Innovation Management, 1*(2), 153–162. https://doi.org/10.20473/ajim.v1i2.20392

Wiratama, I. B. F., & Pasaribu, E. (2022). Measuring the magnitude of film tourism as a catalyst of the Indonesian tourism sector: A case study of the *Laskar Pelangi* film in Belitung Island. *Journal of Indonesian Sustainable Development Planning, 3*(1). https://doi.org/10.46456/jisdep.v3i1.255

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.