

GEOTOURISM PRODUCTS IN BATU KURAU AS AN ICONIC DESTINATION LOCATION IN PERAK, MALAYSIA: AN INITIAL EXPLORATION

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Citation0: Said, M. Z., Halim, M. H. A., Shahidan, S., Talib, N. K., Rosnon, M. R., Azam, M. N. D., Samah, A. A., Ahmad, A., Saidin, M., & Asyaari, M. (2026). Geotourism products in Batu Kurau as an iconic destination location in Perak, Malaysia: An initial exploration. *Geojournal of Tourism and Geosites*, 68(4), 2827–2838. <https://doi.org/10.30892/gtg.68418-1899>

Abstract: Batu Kurau in the Larut Matang district, Perak, is one of the areas rich in geological heritage but still receives less attention in the context of geotourism development compared to other areas such as Langkawi, Kinabalu, and Lenggong Geopark. This study aims to identify and characterize geotourism products in Batu Kurau as an iconic location destination in Perak through comprehensive initial exploration, as well as assess the potential of this area to be developed as a geopark in the future. The methodology of this study involves detailed field surveys and systematic site mapping throughout the Batu Kurau area and its surroundings. Primary data collection was carried out through direct observation, photographic documentation, GPS coordinate measurement, and analysis of the geological characteristics of each site. Digital mapping methods were used to produce user-friendly tourism maps, while the development of tourism packages was designed based on an analysis of the potential of the site and tourist needs. The study results successfully identified 25 geoheritage sites that have significant geological, biological, and cultural values in the Batu Kurau area. The Gunung Kurau Limestone Complex, which is of Triassic Period age, is considered a geosite of very high value due to its uniqueness from the perspective of scientific records and special features. The interpretation of the study results indicates that Batu Kurau has the potential to be comparable to other Global Geopark sites in Malaysia that can be developed as an international-class geotourism destination. For this area to develop in a way that is good for the environment, the local community must be actively involved in protecting and promoting its geological heritage. This is because their participation is essential to making sure that the area's unique geological features are preserved and enjoyed by both locals and tourists. This study is the first systematic exploration of Batu Kurau, which provides an important foundation for future geotourism development and nomination as a UNESCO Global Geopark in the future.

Keywords: Batu Kurau, geotourism, survey, mapping, sustainability, Perak, Malaysia

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INTRODUCTION

Geotourism is the discipline of conserving a location with proven geological features that can be developed and exploited without destroying it (UNESCO, 2015). According to Komoo & Mohamed (1997) and Ismail et al. (2000), geotourism is a specialized discipline in the field of geological sciences that is directly involved in sustainable tourism activities. In addition, geotourism is also often associated with ecotourism because it has the same direction and activities related to natural resources (Ismail et al., 2000). The concept of geological landscape refers to the perspective of natural landscape represented by the origin of rocks, the impact of endogenous and exogenous processes, time evolution, and the presence of intriguing and prominent features from geological and geomorphological aspects (Unjah et al., 2002).

The term highlights the uniqueness of the geotourism location, which enables tourism based on natural resources to attract visitors to the area (Ismail et al., 2000). Additionally, every geopark is different, making it the pride of the neighborhood and allowing for extensive development as a profitable tourism product (Said et al., 2021). This is because

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information on a place's diversity and geological features must be assessed, particularly in terms of its scientific worth, before it can be considered for inclusion in the geotourism idea. The scientific value being discussed is evaluated from a geological perspective, which categorizes it as either unique or singular, assigns high scientific value for education and learning, and designates low scientific value with only modest importance for public awareness and tourism (Table 1) (Brilha, 2016). According to previous studies (Unjah et al., 2018), the importance of each site refers to the following criteria:

- i. A record of Earth's history;
- ii. The presence of one's own presence;
- iii. A unique and distinctive feature of the distribution and presence;
- iv. Has a special ecological function

The results of the survey and mapping conducted in the Batu Kurau area clearly indicate that the geosites are of high value, suggesting that steps should be taken towards their conservation and the development of the area as a geotourism location. This is because in Malaysia, many geosite locations have been turned into sustainable tourism spots, like those in Kedah, Perlis, Negeri Sembilan, Perak, Johor, Selangor, and Sarawak, which can serve as examples for developing Batu Kurau into a successful heritage tourism site. So to achieve these goals, cooperation with stakeholders (Mior Shariffuddin et al., 2020) and the local community (Azwar et al., 2023) is crucial and should be given priority so that the tourism development program formulated can be achieved. Furthermore, the geosites' location in the Batu Kurau area is a newly recorded tourism area and is planned to be developed as one of the geotourism locations in Malaysia, requiring close cooperation with stakeholders and the local community. This aligns with the development of geosite locations in other areas, which also prioritize issues related to the empowerment of tourist development (Azman et al., 2011; Misni et al., 2022), such as enhancing local community involvement and ensuring sustainable practices that benefit both the environment and the economy.

Table 1. Information related to the level of heritage value, explanation, and types of the geological site (Source: Unjah et al., 2018; 2021)

Stages of inheritance value	Explanation	Geological Site Type
Very Hight	Unique from the perspective of a scientific record, feature, or special appearance is the presence of a special, or combined, ecological function the qualities above. The designation has received approval from an advisory committee	Geotop
Hight	Rarely found from the perspective of scientific records, features, or special appearance, presence, and ecological function, or a combination of the above	Geosite
Medium-Low	Contains scientific record information, suitable for sites' education and research, or contains scientific records useful for enriching knowledge and suitable for the purpose of research	Geological feature/geological site

STUDY AREA

Batu Kurau (Figure 1) is a sub-district of the Larut-Matang-Selama district, situated in the state of Perak, Malaysia. The district has 14 sub-districts, namely Asam Kumbang, Pengkalan Aor, Kamunting, Tupai, Batu Kurau, Jebong, Bukit Gantang, Sungai Tinggi, Simpang, Sungai Limau, and Terung (inside the Larut-Matang District), along with Selama, Hulu Selama, and Hulu Ijok (located in the Selama District). This area is also located approximately 25 km from Taiping City.

Batu Kurau sub-district covers an area of approximately 17,751 hectares, characterized by a landform that includes both lowland and hilly terrain. Oral studies conducted have also revealed that the name of Batu Kurau was obtained based on the name of a large stone on the riverbank in Kampung Batu 14, which resembles a kurau fish. As a result, this area later became known as Batu Kurau, and the stone area was also referred to as Sungai Kurau.

From a geological perspective, the Pondok marble and the sole instances of limestone within the mapped region are located in the southeastern corner of the triangular alluvial depression near Batu Kurau, which is referred to as Batu Kurau limestone. Similar to Gunung Pondok, this hill ascends sharply from the flat alluvial plain to an elevation of around 275 m (Foo, 1990). It possesses a pear-shaped contour, with a tapered end oriented towards the north. From a distance, the hill appears rounded and cloaked in dense vegetation; yet, a closer examination uncovers precipitous cliff sides visible via openings in the foliage.



Figure 1. Batu Kurau locations (Source: The authors)

Numerous shallow caves are present along the periphery at the base and flanks of the hill; stalactites extend above the openings of these cavities. In the deeper caves that shelter numerous bats, guano extraction was formerly a profitable endeavor for locals (Foo, 1990), providing them with a source of income and contributing to the local economy.

Measurements obtained from the northwest corner of the hill, omitting any possible lateral subsurface limestone, indicate that the sedimentary rocks forming the Batu Kurau limestone hills are a minimum of 600 meters in thickness and span an area of less than 0.65 km² (Foo, 1990). Aerial photo analysis indicates that the limestone of Batu Kurau appears to underlie the Semanggol formation in adjacent regions. Kurai stone limestone exhibits variations in texture and possesses a greater concentration of carbonaceous material relative to Hut marble, which is regarded as belonging to the late Paleozoic era. The limestone of Batu Kurau may date to the Triassic Period (Foo, 1990).

Based on the facts, this project's primary goal was to identify a unique area suitable for inclusion in Perak's list of geotourism destinations. The tourism fun map will be created using data from field studies and will include details on geosites and geotrails to guide travelers visiting the Batu Kurau area. In addition to offering the tourist location's advantages, it also makes it possible to design and sell tour packages, which makes this geowarisan product more powerful in the travel industry than geosite locations elsewhere in the world by providing unique experiences that highlight the geological and cultural significance of the area.

MATERIALS AND METHODS

This research employs an initial exploratory field study methodology to explore and evaluate the potential of geotourism in the Batu Kurau region (Figure 2). This study's design was selected for its capacity to facilitate the acquisition of primary data directly from the field, a crucial element in geological and geotourism research.

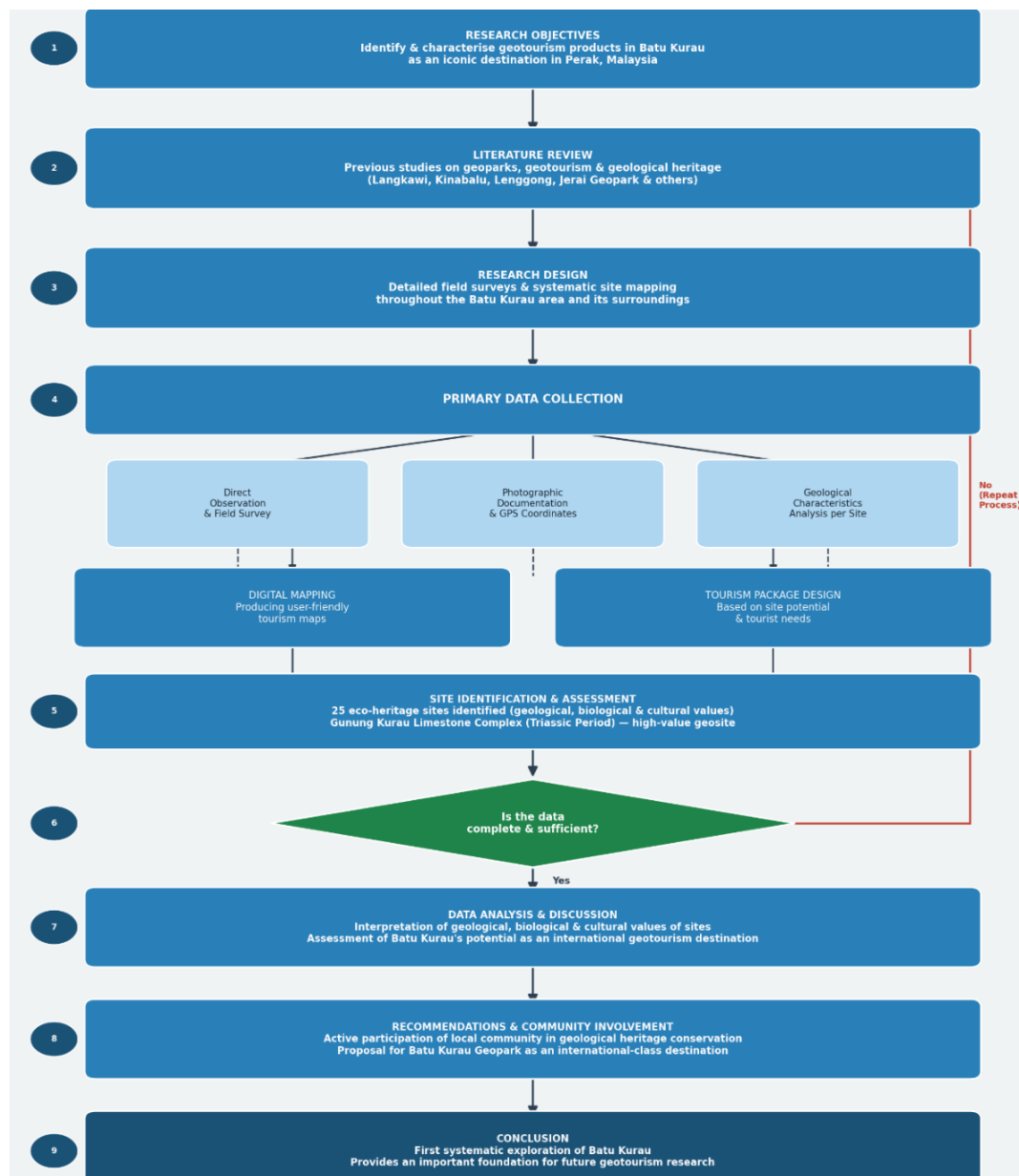


Figure 2. Flowchart methodology for the initial exploration study of the geosite in Batu Kurau (Source: The authors)

This field study methodology entails rigorous surveying and mapping to identify locations with significant geological, ecological, cultural, and historical heritage resources. This study employs a blend of qualitative and quantitative methods to provide a comprehensive and impartial analysis of the collected data. The qualitative approach outlines the physical characteristics, uniqueness, and aesthetic importance of each identified site, while the quantitative approach involves measuring geographic coordinates using the Global Positioning System (GPS), the site's physical dimensions, and an evaluation based on recognized heritage value criteria. This investigation can yield comprehensive and precise data due to the utilization of both methodologies. This preliminary exploratory study primarily aims to uncover several places with potential for development as geotourism goods. The survey and mapping techniques employed are grounded in scientific principles of geology and geography, while also considering practical factors such as accessibility, safety, and developmental potential.

The study design incorporates the necessity of engaging local stakeholders, such as community members, authorities, and tourism operators, to guarantee that geotourism growth in Batu Kurau is sustainable and advantageous for all involved parties. This participatory approach aligns with the concepts of geopark development highlighted by UNESCO (2015), which underscores the significance of community engagement in the preservation and advancement of geological heritage.

Field Survey and Mapping Methods

This study is fundamentally based on field survey and mapping techniques, employing a methodical and organized approach to identify and comprehensively document all relevant sites. The field survey technique commenced with a preliminary examination of topographic maps, geology maps, and aerial pictures of the Batu Kurau area to pinpoint sites of possible high heritage significance. This preliminary investigation enabled the researchers to devise an effective survey route and guarantee that no significant sites were neglected.

The utilization of a Global Positioning System (GPS) device was crucial for accurately recording the geographical coordinates of each recognized site throughout the field survey. The GPS coordinates were documented in latitude and longitude format, facilitating precise mapping and future revisitation of the sites. Moreover, the utilization of GPS has streamlined the creation of digital maps and engaging maps intended for promotional and tourism guidance. Every recognized site was assigned a distinct identification code to enhance reference and data management.

Photographic documentation constituted a significant element of this field survey methodology. Each site was meticulously documented through extensive photography from various viewpoints to depict its physical characteristics, geological distinctiveness, contemporary state, and environmental surroundings. This picture functions as a significant visual record and is utilized for investigation, assessment, and promotional purposes. High-quality photography is crucial for enticing tourists and conveying the significance and distinctiveness of each location prior to their arrival.

Researchers proficient in geology and geotourism mostly employ direct observation to evaluate the physical characteristics, distinctiveness, and scientific significance of each location. This observation entails the analysis of rock types, geological formations, geomorphological processes, vegetation states, and cultural and historical attributes related to the location. Researchers additionally document information regarding accessible issues, current facilities, potential site risks, and proposals for growth and conservation. The site identification process continued during the field survey, with each identified site being initially evaluated to determine its eligibility for inclusion in the Batu Kurau list of geoheritage sites.

Data Collection Instruments

The data collection instruments employed in this study were meticulously chosen to guarantee that the acquired data were comprehensive, precise, and dependable. The site record form served as the principal tool for documenting comprehensive information regarding each identified site. This form was meticulously crafted for this study and included sections to document information such as site name, GPS coordinates, type of heritage (geological, biological, cultural, historical, or agrotourism), physical characteristics, uniqueness, scientific value, current condition, accessibility, available facilities, potential for tourism activities, identified threats, and recommendations for development and conservation. The implementation of a standardized form guaranteed uniformity in data gathering and streamlined the analytical process.

A premium digital camera was employed for the photographic documenting of each location. The camera employed possessed high resolution to guarantee that the resulting photographs were clear and suitable for many applications, including analysis, assessment, promotional material development, and scholarly publishing. Each location was captured from multiple perspectives and distances to furnish a thorough depiction of its physical attributes and environmental context. Photographic metadata, including date, time, and location, was documented for record-keeping purposes.

The utilized GPS device is a model characterized by excellent precision and effective performance in environments with restricted satellite coverage, such as forests or hilly terrains. This GPS device accurately logs the geographic coordinates of each location and the path of the field survey. The acquired GPS data is subsequently transmitted to a computer and analyzed with Geographic Information System (GIS) software to generate precise digital maps.

This study utilized topographical and geological maps of the Batu Kurau region, produced by the Malaysian Mapping Department and the Malaysian Minerals and Geoscience Department, as primary references. These maps offer critical information regarding topography, hydrology, lithology, geological structures, and other geographical attributes that facilitate site identification and evaluation.

Site Evaluation Criteria (Heritage Value)

This study's site assessment utilizes the heritage value framework established by Unjah et al. (2018; 2021), categorizing geological sites into three primary classifications according to their heritage significance. This assessment approach is

extensively utilized in geotourism research in Malaysia and offers explicit direction for evaluating the scientific importance and tourism viability of each location. Table 1 presents data concerning the heritage value classification, descriptions, and nomenclature of geological site categories utilized in this study. The scientific worth of each site was evaluated using the framework established by Brilha (2016), which classifies geological sites based on their scientific importance.

Brilha (2016) asserts that places of considerable scientific significance are distinctive, hold substantial educational worth, and enhance comprehension of geological history and processes. Sites of intermediate scientific significance are appropriate for public awareness and tourism, whereas sites of low scientific significance may possess only minimal relevance for research or educational purposes. Within the framework of this study, the evaluation of heritage value is crucial for identifying which sites warrant prioritization for protection and development as geotourism assets. Geotopes, recognized for their exceptional heritage value, necessitate stringent conservation protocols and meticulous development to preserve their intrinsic worth.

Geosites, recognized for their significant heritage value, necessitate effective maintenance yet can be utilized more adaptively for tourism, such as through guided tours, educational programs, and interactive exhibits that enhance visitor engagement while ensuring conservation. Concurrently, locations designated as Geological Features/Sites (moderate-low heritage value) may be utilized for educational and research initiatives, in addition to serving as ancillary sites within broader tourism offerings. This systematic evaluation method guarantees that geotourism development in Batu Kurau adheres to scientific and sustainable principles, consistent with the UNESCO Global Geoparks criteria (UNESCO, 2015).

Fun Map and Tourism Package Development Process

The engaging map construction process is a significant outcome of this study, designed to offer an appealing and comprehensible visual guide for travelers intending to explore the Batu Kurau region. The engaging map was created from field survey data, which encompassed GPS coordinates for each location, details regarding the site's distinctive characteristics, photographs, and information pertaining to accessibility and amenities. The map construction process encompassed multiple steps, commencing with the integration of GPS data into Geographic Information System (GIS) software to generate a precise digital map. After the initial digital map was created, the graphic design phase was executed to convert the map into an appealing and user-friendly fun map. The design of this engaging map considered elements such as appealing colors, comprehensible icons representing diverse site categories (geology, biology, culture, history, and agrotourism), details regarding distances and travel durations between locations, and supplementary information including public amenities, dining options, and lodging. This engaging map features appealing photographs of each location, along with concise descriptions of its distinctiveness and cultural significance. Its distinctiveness and cultural significance. The primary objective of this engaging map is to facilitate travelers in organizing their visit and to enrich their tourism experience in Batu Kurau.

The establishment of geotrails is a crucial element in the advancement of geotourism products in Batu Kurau. Geotrails are meticulously curated pathways that guide travelers to significant geological and eco-heritage locations in a coherent and engaging order. This study suggests various geotrails focused on diverse themes, including geological heritage, biological heritage, cultural and historical heritage, and agrotourism. Each geotrail is intended to last from several hours to a whole day, contingent upon the number of locations visited and the distance separating them. The creation of this geotrail considers practical factors such as road conditions, safety, public amenities, and the physical requirements of tourists.

This study primarily produces a design for a two-day, one-night tour package. This trip package aims to offer guests an extensive experience of the diverse geological, biological, cultural, and historical heritage of Batu Kurau. This package encompasses excursions to significant heritage sites and engaging activities, including climbing, nature observation, exploration of historical locations, and agrotourism experiences. This package encompasses lodging at a local homestay or resort, genuine local cuisine, and the expertise of a skilled tour guide. This tour package design considers the interests and preferences of several tourist categories, including families, educational travelers, and those interested in nature and culture.

Data Analysis

This study employed a thorough descriptive analysis to delineate the attributes of each identified site and evaluate its potential for geotourism growth. This analytical assessment entailed the processing of data acquired via site record forms, photographs, GPS coordinates, and field observations to generate a comprehensive profile for each site. This site description encompasses details regarding location, physical attributes, geological or biological distinctiveness, scientific significance, aesthetic merit, present status, accessibility, existing amenities, potential tourism opportunities, and recognized risks.

The documentation and categorization of locations is a crucial phase in data analysis. Each identified site was categorized into one of five principal classifications: i) geological heritage, encompassing sites with distinctive geological characteristics such as rock formations, geological structures, and geomorphological processes; ii) biological heritage, comprising sites with significant biodiversity, endemic species, or unique ecosystems; iii) cultural heritage, including sites of cultural significance such as archaeological locations, historic edifices, or traditional cultural practices; iv) historical heritage, pertaining to sites of historical relevance such as locations of historical events or monuments; and v) agrotourism, involving sites associated with agricultural endeavors such as farms, orchards, or agricultural processing facilities. This classification aids in the development of geotrails and thematic, appealing tourism packages.

An accessibility assessment is a crucial component of data analysis, as it evaluates whether a place is suitable for tourism development or necessitates more infrastructure enhancement. An accessibility assessment entails evaluating the state of the access road to the site, proximity to the main road, condition of footpaths, specific vehicle requirements (such as four-wheel-drive vehicles), and physical impediments that may restrict access, including rivers, steep inclines, or

hazardous zones. Locations with optimal accessibility are prioritized for initial development, whereas locations with restricted accessibility may necessitate infrastructure investment prior to being accessible to tourists. The evaluation of associated activities entails determining appropriate tourism options for each location, considering its physical attributes, historical significance, and present state. The identified activities encompass geological observation, nature photography, hiking, cave investigation, avian and wildlife observation, cultural and historical excursions, agrotourism endeavors such as fruit harvesting or farm visits, and recreational pursuits including picnicking or camping. Identifying appropriate activities is crucial for creating attractive and varied tourism packages, while also safeguarding the site's heritage assets from any damage.

This extensive data analysis establishes a robust basis for the creation of sustainable and competitive geotourism in Batu Kurau, aligning with the study's purpose to position Batu Kurau as a prominent geotourism destination in Perak, Malaysia.

RESULTS

BATU KURAU GEOHERITAGE TOURISM PRODUCTS

There are several unique geological, historical, cultural, and ecological sites in the Batu Kurau area that can be exploited as sustainable tourist products, according to surveys and mapping conducted there (Figure 3).



Figure 3. The primary information regarding the location of eco and geo-heritage tourism in Batu Kurau is derived from survey results and mapping (Source: The authors)

Table 2 also provides information on the locations, accessibility, and potential activities for tourists visiting this area. The information was determined to be crucial to create a more comprehensive and methodical development plan for Batu Kurau's tourism packages. Additionally, it is expected that the ease with which almost any type of vehicle may reach all tourist spots would serve as a driving force behind the expansion of Batu Kurau's eco-heritage tourism sector.

Batu Kurau's uniqueness in the development of the nation's geo-natural heritage tourism is further explained by the survey results, which unequivocally show that the area has a tourist site location that includes the remains of the historical house, British fort, traditional food and craft market, durian collecting center, campsites, and riverfall. Actually, some of them have been the subject of scholarly studies, such as the distinctiveness of durians (Anonymous, 1906) and the rafflesia flower (Pauzi, 2014), which are both positive additions to the tourism destination and must be seen when visiting the Batu Kurau region.

Table 2. General information on survey and mapping of heritage eco and geo-tourism sites in Batu Kurau (Source: The Authors)

No.	Name of Eco-Heritage Site	Latitude / Longitude	Accessibility	Related activities
1	Mansion 1918, Kampung Batu 20	Lat: 5° 1'44.16"N Long: 100°47'30.81"E	All means of Transportation	Visiting for research and educational purposes, relaxing activities
2	Malayan Emergency Fort 1948, Kampung Jelai	Lat: 5° 0'37.29"N Long: 100°48'43.43"E	All means of transportation	Visiting for research and educational purposes
3	DinDun Sacha Inchi, Kampung Jelai	Lat: 5° 0'23.10"N Long: 100°48'44.88"E	All means of transportation	Production of Sacha Inchi nutraceutical oil & Research purposes
4	Chalet Latip D'Ayer Itam, Kampung Jelai	Lat: 5° 0'55.20"N Long: 100°49'56.47"E	All means of transportation	For best and standard accomodation
5	Lata Ayer Hitam, Kampung Jelai	Lat: 5° 0'49.90"N Long: 5° 0'49.90"N	All means of transportation	Water activities and camping
6	SJKC Kwong Man, Batu Kurau	Lat: 4°58'32.61"N Long: 100°47'49.82"E	All means of transportation	Visiting for research and educational purposes
7	Origin monument of Malay School, Sg. Akar	Lat: 4°58'30.23"N Long: 4°58'30.23"N	All means of transportation	Visiting for research and educational purposes
8	Selasa Town, Batu Kurau	Lat: 4°58'26.79"N Long: 4°58'26.79"N	All means of transportation	Traditional food and craft sale products center
9	Horned cattle of Trogulus Farm & Research, Kampung Titi Kasai	Lat: 4°57'32.75"N Long: 100°48'29.26"E	All means of transportation	Relaxing activities
10	Mat Puzi farm produce collection center	Lat: 4°56'37.73"N Long: 100°46'46.36"E	All means of transportation	Relaxing activities
11	Kelalai Bertam, Kampung Anak Kurau	Lat: 4°56'21.79"N Long: 100°46'31.26"E	All means of transportation	Relaxing activities, see and buy traditional matting products
12	Pakngah Jungle Sacha Inchi, Kampung Anak Kurau	Lat: 4°56'41.43"N Long: 100°46'47.34"E	All means of transportation	Cultivation and production of Sacha Inchi nutraceutical oil & research purposes
13	Equestrian Archery Club, Kampung Anak Kurau	Lat: 4°56'15.42"N Long: 100°47'33.27"E	All means of transportation	Relaxing activities such as equestrian activities
14	Pekasam Seri Cempaka, Kampung Jelai	Lat: 4°56'50.24"N Long: 100°48'35.64"E	All means of transportation	Relaxing activities
15	Lata telaga Tujuh, Kampung Repoh	Lat: 4°57'1.79"N Long: 100°49'58.62"E	Four wheel drives, walking	Water activities and trekking.
16	Pak Yas Kain Pelikat farm produce collection center, Kampung Perak	Lat: 4°55'59.82"N Long: 100°48'56.76"E	All means of Transportation	Relaxing activities, eating durians
17	Kurau Mount Limestones Complexes	Lat: 4°55'37.89"N Long: 100°48'57.70"E	All means of transportation	Visiting for research and educational purposes
18	Silat Gayong Fatani, Kampung Sempeneh Cempaka	Lat: 4°55'30.18"N Long: 100°49'31.79"E	All means of transportation	Relaxing activities, see the process of making machetes
19	Kelulut Ikhwan Agro, Kampung Sempeneh Cempaka	Lat: 4°55'25.02"N Long: 100°49'41.38"E	All means of transportation	Relaxing activities
20	Chalet Sri Cempaka, Kampung Sempeneh Cempaka	Lat: 4°55'12.71"N Long: 100°49'49.03"E	All means of transportation	For best accomodation
21	Lata Sempeneh, Kampung Sempeneh Cempaka	Lat: 4°55'11.30"N Long: 100°49'50.40"E	All means of transportation, Four wheel drives, walking	Water activities and trekking.
22	Chalet Sempeneh Riverfront, Kampung Sempeneh Cempaka	Lat: 4°55'1.01"N Long: 100°49'59.76"E	All means of Transportation,	For best accomodation
23	Uzeer Puteh Campsite	Lat: 4°54'56.39"N Long: 100°49'57.64"E	All means of transportation, Four wheel drives, walking	Variety of leisure activities including visiting, camping
24	7 Beret Campsite	Lat: 4°54'43.25"N Long: 100°50'3.75"E	All means of transportation, Four wheel drives, walking	Variety of leisure activities including visiting, camping, eats fruits
25	Rafflesia Batu Kurau, Kampung Sempeneh Cempaka	Lat: 4°53'27.69"N Long: 100°50'52.11"E	Four wheel drives, walking	Variety of leisure activities and trekking

To boost heritage tourism activities in Batu Kurau, tour packages began to be formulated in this area, involving two-day and one-night tours. Currently, tourists can choose from a variety of designed travel packages such as:

Day 1 (Morning-Noon): Breakfast at the “Warung Tepi Gunung”, hiking at the Mount Kurau Limestone Complex, visiting the “Selasa Town”, lunch & refreshment at the Sempeneh Riverfront waterfall.

Afternoon: Eco & Heritage trail of Batu Kurau + river fish fermentation/ Bertam weaving/Sacha Inci Oil processing

Night: Visiting Night market, silat gayung Fatani court

Day 2: Morning-Noon: 4x4 ride to Rafflesia Batu Kurau enjoying the scenery and waterfall, lunch in a “Village Style” at Teratak Tiga Puteri

Fun Map Tourism Location Products

The creation of the fun map for the site (Figure 4) is also regarded as a constructive move made by Batu Kurau's stakeholders to guarantee that this tourism destination can draw visitors. Creating this entertaining map is regarded as a positive example that is comparable to tourist destinations in Langkawi Global Geopark (Anonymous, 2025), Kinabalu Global Geopark (Anonymous, 2026), Lenggong Geopark (Mat Stafa et al., 2018), Jerai Geopark (Saidin, 2022; 2023), and other heritage tourism sites that have been proven to be highly effective at drawing visitors.

Finally, the survey results and the mapping of eco-heritage tourism products in the Batu Kurau area have resulted in a comprehensive set of data that can be used to create tourism products, geotrails, and fun maps. The data is a highly valuable set of information that tourists use as a reference in the tourism program specifically for the Batu Kurau area.



Figure 4. Fun map tourism location in Batu Kurau (Source: The authors)

DISCUSSION

Academic studies in Batu Kurau have facilitated the creation of a unique tour package in the area. This effort is found to be in line with sustainable development, especially in natural heritage tourism locations in Malaysia, which are actively mapping tourism products owned in the area, such as eco-friendly accommodations and guided nature tours that promote conservation and education. Such natural heritage tourism locations can consist of geological, biological, and geoarchaeological evidence, and so on (Saidin & Komoo, 2019), which are essential for attracting tourists and promoting conservation efforts in the region. At the UNESCO level, a special natural heritage site that has outstanding universal value (OUV) will be recognized as a UNESCO World Heritage Site in the category of World Heritage Site (WHS) (Shabani et al., 2020), UNESCO Global Geopark (UGGp) (Zourus, 2017), or Man & Biosphere (MAB) (Pool-Stanvliet, 2012) and restored.

This means that primary data from site surveys, especially in Batu Kurau, is the first step for a site to be preserved as a tourist location, like in other parts of the world. The step was first taken by Jerai Geopark, Kedah (Ali et al., 2021a, b, c: 2023; Saidin, 2022: 2023); Lenggong Geopark, Perak (Talib et al., 2022; Abd Halim et al., 2025a); Pelangi Cave, Negeri Sembilan (Abd Halim et al., 2022); Guar Kepah, Penang (Abd Halim et al., 2024b); Mersing Geopark, Johor (Said et al., 2021); Hulu Langat, Selangor (Unjah et al., 2021); and Sarawak Delta, Sarawak (Badang et al., 2016). Nowadays, the tourism site has been successfully developed as a natural heritage tourism product and is able to attract tourists to the area.

Creating a plan for marketing tourism products is essential to ensuring that tourist destinations, like Batu Kurau, can compete with similar tourist destinations in Malaysia. This is due to the fact that tourism destination marketing is a field of study that encompasses commercial disciplines that are aimed at drawing tourists to specific tourist destinations (Chron, 2019). According to Kulesar (2012), marketing tourist sites is a necessary procedure to satisfy the demands and specifications of the travel industry while also maximizing the earnings of businesses that offer tourism services.

According to Middleton & Clarke (2001) and McCarthy (1984), there are five key elements that must be included in the tourism destination offering movement: (i) attraction location; (ii) destination amenities and services; (iii) accessibility of the destination (including transportation); (iv) perception, image, and brand; and (v) cost to tourists. Consequently, according to Che Lah (2016), destination marketing is a concept that presents the locality particularly tourist areas as an entity with the purpose of diversifying its usage patterns. According to Jaafar et al. (2015) and Che Lah (2016), tourist destinations can be broadly categorized into a number of categories, including heritage tourism destinations, agrotourism, sports tourism, health tourism, religious tourism, and urban and rural tourism.

The main characteristics of a tourist destination to be marketed must be a transportation service system, accommodation, culinary options, internet coverage facilities, telephone lines, product diversity, and inventory and logistics records with a satisfactory level of service and management (Tajidin & Abd Rahman, 2021). The use of the latest technology (Abd Halim et al., 2024c) can also have a positive impact on the marketing process of tourist destinations. Digital marketing of tourist destinations involving analysis of primary data studies, marketing and promotion, strategic plans, and branding is the best step to take for a tourist site. Since the world is now at a level of technological sophistication that can create uniformity between each area, sophisticated and the latest tourism marketing is able to provide or highlight the differences in identity and uniqueness of an area to be a choice to visit (Berglund & Olsson, 2010).

Every heritage tourism destination that wants to succeed needs a tourism information center or one-stop center that is able to manage all tour package trips (Ludmila & Kristina, 2018) that are offered systematically. This is because heritage tourism is in dire need of providing packages that can combine iconic heritage and other byproducts, such as local cuisine, cultural experiences, and guided tours, to enhance the overall visitor experience. In this regard, the existence of a Tourism Information Center is an initial step to provide information related to tourist destinations directly to tourists so that the selection of tour packages becomes more effective. Since natural and cultural heritage tourism is a category of knowledge tourism, the industry needs a special tour guide (Rabotic, 2010), such as the initiative taken by Jerai Geopark, which provides certified tour guides among the local community (Abd Halim et al., 2025b). This requirement is because the tour guide needs to have knowledge of geology, biology, and other ancillary tourist sites in their narration. UNESCO (2026) states that local heritage has a direct link with the community, so it is important to emphasize the provision of certified tour guides from the local community.

Additionally, organized and successful marketing strategies are needed to guarantee that the tourist destination may be developed to its full potential. Travel agencies (Marzuki, 2010), exhibitions and festivals or tourism festivals (Abdul Rahman, 2018), professional contacts (Abd Halim & Choy, 2016), notes or press conferences (Ahmad et al., 2014), and, now with method (v), the internet (ALsSarayeh et al., 2011) are the five channels of promotion that are typically used nowadays, according to research. Promotion channels should be fully utilized and integrated, particularly for the recently identified Batu Kurau eco and geo-heritage locations that need more aggressive marketing strategies.

CONCLUSION

This study is the first systematic exploration of the geotourism potential of Batu Kurau in Larut Matang district, Perak, Malaysia. The main objective of the study was to identify and characterize the geotourism products in Batu Kurau as an iconic destination in Perak, as well as to assess the potential of this area to be developed as a geopark in the future. Through detailed field surveys, systematic mapping, photographic documentation, GPS coordinate measurements, and analysis of geological features, this study successfully identified 25 eco-heritage sites with significant geological, biological, and cultural values.

The main findings of the study indicated that the Triassic-aged Gunung Kurau Limestone Complex was identified as a very high-value geosite based on its uniqueness from the perspective of scientific records and special features it possesses. This limestone complex represents an important geological record that provides evidence of geological processes and

paleoenvironmental conditions. The study successfully developed a user-friendly digital tourism map and tourism packages based on the analysis of the site's potential. The comparative assessment showed that Batu Kurau has potential comparable to Langkawi, Kinabalu, and Lenggong Geoparks.

The importance of the Gunung Kurau Limestone Complex as a major geosite cannot be underestimated. This Triassic geological formation has high scientific value for understanding ancient geological processes and offers exceptional educational value for learning geoscience. Its distinctive landscape features make it an attractive visual attraction for tourists, while the potential for continued research promises long-term scientific contributions, including insights into the region's biodiversity and geological history. The scientific uniqueness of this limestone complex positions it as a valuable geological asset for Perak and Malaysia.

Batu Kurau's potential as an international-class geopark is very promising. With 25 systematically documented eco-heritage sites, a major geosite of very high value, and the integration of geological, biological, and cultural heritage, Batu Kurau meets the basic criteria for nomination as a UNESCO Global Geopark. This study provides important baseline data and places Batu Kurau in a competitive position compared to other geoparks in Malaysia. The development of Batu Kurau as a world-class geotourism destination will raise the profile of Perak and contribute to regional economic development.

This study emphasizes the critical success factor of local community involvement. Active participation of local communities is essential to preserve unique geological features, promote geological heritage, ensure long-term sustainability, and ensure economic benefits for local residents. An environmentally responsible, conservation-oriented, and long-term focused sustainable development approach is fundamental to the successful transformation of Batu Kurau. The contribution of this study as a first exploration is very significant. This study provides the first comprehensive inventory of geological heritage in the Batu Kurau area, establishes baseline data for future research and development, demonstrates an integrated methodology for geosite assessment, and develops a tourism product framework based on scientific assessment. This groundbreaking documentation addresses a research deficiency and establishes a robust framework for the sustainable development of geotourism.

Suggestions for future studies include detailed geological studies of individual sites, comprehensive biodiversity assessments, cultural heritage documentation, visitor impact studies, economic feasibility analyses, and development of conservation strategies. This further study will strengthen the foundation already built and accelerate the UNESCO Global Geopark nomination process. With effective management, active community involvement, and a commitment to environmental sustainability, Batu Kurau has the potential to become a world-class geotourism destination that contributes to the conservation of geological heritage and sustainable regional economic development.

LIMITATIONS OF THE STUDY

The Batu Kurau area's heritage tourism study does not prioritize the involvement of stakeholders, NGOs, and the local community as a tour guide in the implementation of heritage tourism. This needs to be carried out as a comprehensive study along with accurate data related to the success of its implementation to measure the success of heritage tourism promotion offered.

Author Contributions: Conceptualization, M.H.A.H., M.Z.S., N.K.T. & S.S.; methodology, M.Z.S., S.S. & A.M.; formal analysis, M.H.A.H., M.Z.S., M.R.R., A.M. & M.N.D.A.; investigation, M.H.A.H., M.Z.S., N.K.T., S.S., M.N.D.A., A.A.M., and A.A.; data curation, M.Z.S., S.S., M.N.D.A., A.A.S., A.A.; writing - original draft preparation, M.H.A.H., M.Z.S., S.S., A.A.S. & M.R.R.; writing - review and editing, M.H.A.H., M.Z.S.; supervision, M.Z.S.; project administration, M.Z.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received funding from Universiti Putra Malaysia under the Putra Grant – Putra Young Initiative (GP-IPM) (GP-IPM/2024/9785700)

Institutional Review Board Statement: “The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of the Universiti Putra Malaysia (JKEUPM-2025-651, November 10, 2025).

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: This work was funded by the Universiti Putra Malaysia under Geran Putra - Inisiatif Putra Muda (GP-IPM) (GP-IPM/2024/9785700). The research undertaken was made possible by the equal scientific involvement of all the authors concerned

Conflicts of Interest: The authors declare no conflict of interest.

Use of Generative AI: AI-assisted tools supported language refinement and structure; authors conducted all research, interpretation, and assume full responsibility for the manuscript.

Abbreviations: Global Positioning System – GPS; Geographic Information System - GIS; Man & Biosphere - MAB; Outstanding Universal Value - OUV; UNESCO Global Geopark - UGGp; United Nations Educational, Scientific and Cultural Organization - UNESCO; World Heritage Site - WHS.

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