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ARCHAEOLOGICAL EVIDENCE OF GUA PELANGI, JELEBU, NEGERI SEMBILAN, MALAYSIA: ITS POTENTIAL AS A HERITAGE TOURISM SITE

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Abstract: Archaeological studies conducted in Gua Pelangi, Negeri Sembilan have been able to find an early civilization aged between 14,000 to 9,000 thousand years ago which was used as a shelter from hot rain and wild animals, in addition to making stone tools and food preparation. The interpretation was based on the findings of 299 lithic artifacts, 52,929 faunal remains and evidence of burning such as ash, charcoal and burning sediments that are still in situ have been recorded. This site is also used as a workshop for the manufacture of stone tools with the presence of hammer stone, cores, anvil, flake, chopper and debitage. Analysis of the fauna remains found clearly shows that this community hunts and collects terrestrial, arboreal/semi-arboreal and aquatic/semi-aquatic vertebrate animals and mollusk shells. Based on the scientific evidence, ecotourism activities involving cave exploration, pioneering and jungle trekking, camping, limestone hill climbing, cooking demonstrations in the forest and visits to local community villages have been carried out. This shows that efforts to develop Gua Pelangi into a tourism product have begun and this is able to develop the economy of the local community in the area.

Key words: Gua Pelangi, excavation, lithic tools, tour packages, ecotourism

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INTRODUCTION

Prior to 2015, national archaeological data relating to paleolithic sites in the southern part of the Peninsula Malaysia had not been clearly recorded. Previous archaeological studies involving evidence of the prehistoric sites are more concentrated in the Lenggong Valley (Isa, 2007; Saidin, 2011 and Bakry, 2017), Bukit Keplu, Kodiang, Gua Tok Sik, Gua Berhala (Omar et al., 2016) and Tingkayu, Sabah (Jalil et al., 2017). The discovery of stone tools (Figure 1) especially on the coast of Tanjung Bunga, Johor (Tweedie, 1953) and the discovery of flake tools in river sediments at Batu 19¼ Jalan Seremban-Kuala Klawang (William, 1951) have opened a new chapter in the possibility of prehistoric evidence being obtained the results of archaeological studies in this area. Based on the stone tool findings obtained in the southern part of the Peninsula Malaysia, a series of archaeological studies involving surveys and mapping were conducted, especially in cave sites. The results of the survey and mapping enable the potential of the Gua Pelangi site to be recorded and archaeological studies conducted in a more systematic manner.

Site Study

Gua Pelangi (Figure 2) is located at coordinates 3°3'7.6782" N and 102°19'40.7334" E at an altitude of 135 meters above sea level and is located in the Semantan Formation (Geological Map of Durian Tipus Shift 96, 1993). It is located in Compartment 81, Pasoh Forest Reserve, Jelebu district, Negeri Sembilan (Muhammad, 2020). According to Muhammad (2020) the Gua Pelangi site can only be accessed through the entrance from the village of Felda Pasoh 4 which is about 4 kilometers south of the site. Based on the topographic map (Syit 96) and geological map (Syit 96) Durian Tipus shows that the Gua Pelangi is located on a steep slope and surrounded by several hills (Geological Map of Durian Tipus Syit 96, 1973; Topographic Map of Durian Tipus Syif 96, 1973). In this area, there is also a record of river flow in the northern part (Lakai River) and the southern part of the cave (Marong River) which are each within a distance of about 200 meters from Gua Pelangi (Muhammad, 2020). The two rivers are connected to Pertang River which is about six kilometers west of Gua Pelangi. Currently, only the river in the northern part of Gua Pelangi is still

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actively flowing. Near this site, about two kilometers from the northwest, there is a village of the Temuan indigenous people who live around this area. This clearly shows that the environment of Gua Pelangi is still less exposed to the community which allows the archaeological study conducted to be used as an ecotourism product.

Research Objective

Archaeological studies at the Gua Pelangi site generally have several main purposes to complete. Among the purpose of the study at the Pelangi Cave site include:

a) Determine the function and contribution of the Gua Pelangi in the culture of the early society,

b) Identify lithic technology and nutritional diet adapted by the community living in Gua Pelangi and

c) Combine primary data obtained through archaeological studies into a nationally and worldly recognized natural heritage tourism package.

Figure 1. The stone tools found during the excavation at the Tanjung Bunga site, Johor (Source: Tweedie, 1953 and illustrated by author, 2022)

Figure 2. Location of the archaeological site of Gua Pelangi (Source: Google Map, 2022; Field Documentation, 2022)

Research Methodology

Archaeological studies at the Gua Pelangi site were conducted based on survey, mapping and excavation approaches that eventually led to the introduction of archeotourism packages. Therefore, in general, this study has involved survey and mapping for the purpose of collecting raw data of the site. After that the actual excavation process is carried out which allows the interpretation of the whole study to be presented. Once the primary data is obtained comprehensively then the development plan of the natural heritage tourism package is designed and implemented in collaboration between the state government and AtoA Adventure Company. Therefore, the Gua Pelangi site can be developed as an ecotourism product based on the discovery of special artifacts and ecofacts based on the classification of Mulaj (2015).

Excavation Data of Gua Pelangi

The excavation process was carried out after preliminary data related to the potential of the site were recorded through a surface finding which found a Brotia episcopalis shells attached to the cave wall at a height of one meter in addition to bifas, flake, anvil, hammers stone, debitage, fragments of pottery and faunal remains (Muhammad and Saidin, 2015: 2017a, b; Muhammad et al., 2019). Therefore, the Gua Pelangi site has shown positive potential for archaeological research, so the contour mapping was carried out on 13 excavation trench (Figure 3) for the purpose of collecting field data. The contour mapping carried out clearly shows the surface of the sloping area recorded starting from the G8 trench towards the west of the Gua Pelangi site. The other part of the excavation trench that showed that it was on a flat land area inside the cave. Archaeological excavations carried out in Gua Pelangi (Figure 4) only allocated about 16% of the actual area of the cave (Muhammad, 2020) namely in trench A8, B7, B9,

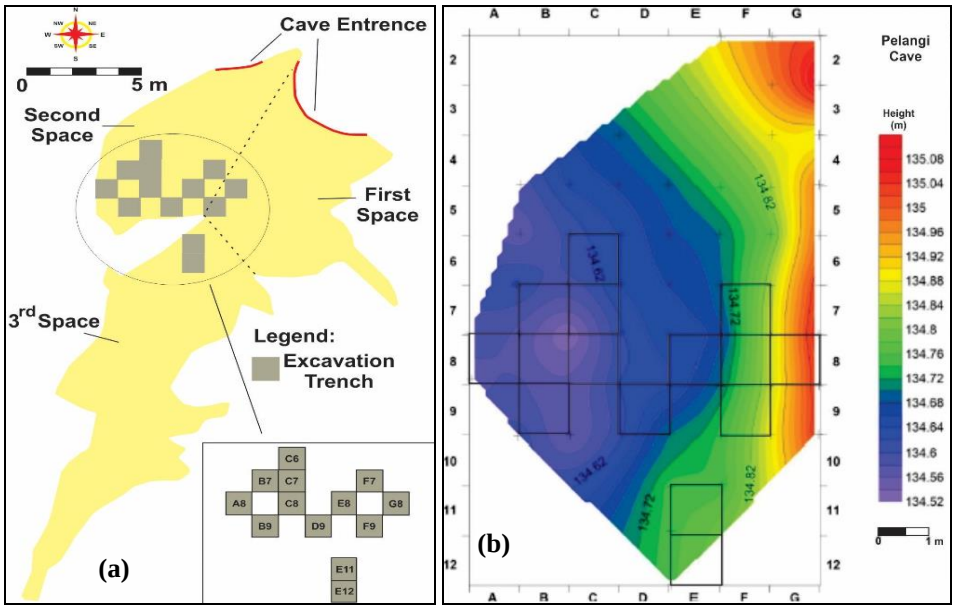

Figure 3. Floor Map plan of the Gua Pelangi site (a) and its contour mapping (b) (Source: Research data analysis, 2022)

C6, C7, C8, D9, E8, E11, E12, F7, F9 and G8. Generally, the archaeological study at the Gua Pelangi site involves two phases of research, Phase I starting on 11 April 2015 to 30 April 2015 while Phase II is on 28 May 2015 to 12 June 2015.

Figure 4. Archaeological excavations at Gua Pelangi (Source: Research data analysis, 2022)

Table 1. Classification of artifacts excavated in Gua Pelangi (Source: Research data analysis, 2022)

Trench	Lithic Tool			Fauna Fragment		Pottery	Sum	%
	Stone Tools	Tools	Debitage	Shells	Vertebrata Remains			
A8	2	1	10	351	288	0	652	1.14%
B7	1	1	15	6	0	1	24	0.04%
B9	5	18	18	1810	1239	4	3094	5.39%
C6	2	5	24	0	37	0	68	0.12%
C7	0	3	9	39	192	0	243	0.42%
C8	4	8	15	1952	2192	4	4175	7.28%
D9	7	13	44	9153	2349	3	11569	20.16%
E8	6	16	49	9654	1763	4	11492	20.03%
E11	0	1	11	134	1107	9	1262	2.20%
E12	0	0	0	43	13	17	73	0.13%
F7	1	11	21	3974	678	0	4685	8.17%
F9	1	8	7	7625	1050	1	8695	15.16%
G8	2	5	19	10463	851	0	11340	19.77%
SUM	34	90	242	45204	11759	43	57372	100%

A total of 57,372 units of artifacts (Table 1) were recorded during the excavation study conducted at this site. The artifacts consist of fauna remains, lithic artifacts and fragments of earthenware. Fauna remains were the dominant artifacts obtained during excavations with a percentage of 99.29% of the total finds as many as 79.36% are freshwater and terrestrial shells while 20.64% are vertebrate waste such as teeth and bone fragments (Muhammad, 2020). The fragment of pottery found was 43 pieces, which reached a percentage of 0.07%. The study conducted on the stratigraphic layer (Figure 5) also showed that the excavated trench were in-situ and the data could be used in interpreting the actual function of the Gua Pelangi site. The 1st layer (10YR, 3/4 dark yellow brown) of compartment A8 has revealed the findings of lithic tools and fauna remains. This layer is not in-situ as it has been interrupted by human activity nowadays. This non in-situ layer is up to 10 cm deep (Muhammad, 2020). The 2nd layer (10YR, 3/3 dark brown) was an in-situ layer that revealed the density of artifacts and ecofacts associated with burning ash at a depth of 11 cm. The thickness of this layer is 20 cm. The 3rd layer (10YR, 5/3 brown) revealed fewer artifact findings compared to the second layer. The soil in the third layer is mixed with burning ash as in compartments B9 and C8. This layer has a thickness between 30-40 cm. Charcoal samples on the layer at spit depth 9 (80-90 cm) were taken to obtain chronometric dating using radiocarbon method. The 4th layer (10YR, 4/6 light brown) is the last layer excavated before finding the base of the cave floor. No artifacts and fauna remains are recorded in this layer (Muhammad, 2020). Only the discovery of charcoal fragments was found and the findings were recorded.

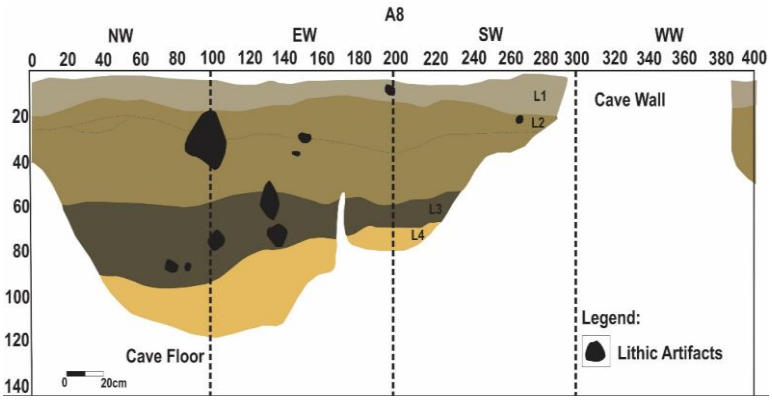

Figure 5. Stratigraphic research in trench A8 showing that it is still in-situ layer (Source: Research data analysis, 2022)

Table 2. Radiocarbon dating data of the Gua Pelangi site (Source: Research data analysis, 2022)

No.	TRENCH /SPIT	LOCATION SAMPLE	DATING	SAMPLE
1	E8/9	3rd Layer	9490±30BP	Shell
2	D9/5		9940±30BP	Charcoal
3	D9/5		10380±30BP	Shell
4	F9/6		10140±30BP	
5	C6/3		10580±30BP	Organic Sediment
6	B9/5		10660±30BP	Shell
7	F7/4		10740±30BP	
8	C7/4		13340±40BP	Charcoal
9	C8/15	1st Layer	12450±40BP	
10	E8/15		13260±40BP	
11	A8/9		13290±40BP	
12	D9/16		14130±50BP	

Excavation at the Gua Pelangi site allowed 12 samples of charcoal, shells and organic sediments to be taken to undergo radiocarbon method to determine the absolute age of the site (Table 2). Based on the dating obtained has been able to determine the age of the Gua Pelangi site is around 14,140 BP to 9,490 BP (Muhammad, 2020). The layer that represents the Holocene culture and also represents the Epi-Paleolithic culture (10,740 ± 30 BP to 9,490 ± 30 BP) in the 3rd layer. This age was determined by shell samples that had given ages of approximately 9,490 ± 30 BP (compartment E8 spit 9), 10,380 ± 30 BP (compartment D9 spit 5), 10,140 ± 30 BP (compartment F9 spit 6), 10,660 ± 30 BP (compartment B9 spit 5) and 10,740 ± 30 BP (compartment F7 spit 4) (Muhammad, 2020).

The dating was supported by radiocarbon dating using charcoal samples especially in compartment D9 at depth 40-50 cm which also revealed an age of around 9,940 ± 30 BP. Even dating using organic sediment samples taken in compartment C7 in spt 3 also revealed an age of 10,580 ± 30 BP. This shows that dating samples from shells, charcoal and organic sediments have been able to determine the absolute dating of the site that took place since the Holocene.

The 2nd cultural layer could not be determined by its absolute date due to the lack of artifacts and ecofacts recorded in that layer. However, based on the dating of the first and third layers, it is suggested that the second layer also represents the Paleolithic/Epi-Paleolithic culture with an estimated age of around 12,000 BP to 10,000 BP (Muhammad, 2020). The 1st layer also did not take a sample of its dating as it was still disturbed. Based on the findings of stone tools that still retain Paleolithic and Epi-Paleolithic features it is suggested that the layer also represents the early-mid-Holocene age.

Classification of Lithic Tools and Fauna Remains

Archaeological excavations by Muhammad (2020) since 2015 have attempted to classify 299 lithic artifacts, 10,717 units of vertebrate remains and 42,212 units of mollusk shells. A total of three main groups of lithic tools have been classified as tools and debitage. A total of 299 units of lithic tools were able to be classification and of the total 26 (8.70%) were stone tools, 74 (24.75) tools and 199 (66.56%) debitage. Stone tools found during the excavation of Gua Pelangi were classified as pabel tools (Figure 6) of 18 units (69.23%), flake tools (Figure 7) of 6 units (23.08%), chuncks (Figure 8) of 2 units (7.69 %), 23 units of anvil (31.08%) (Figure 9) and 43 units of hammer stones (58.11%) (Figure 10).

Figure 6. Stone tools in the bifas category found in the Gua Pelangi (Source: Research data analysis, 2022)

Figure 7. Flake tools at Gua Pelangi (Source: Research data analysis, 2022)

Figure 8. Chuncks found at Gua Pelangi (Source: Research data analysis, 2022)

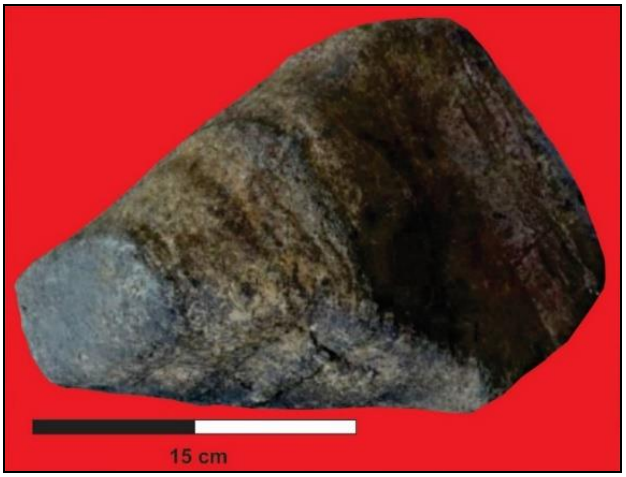

Figure 9. Anvil recorded during the excavation at Gua Pelangi (Source: Research data analysis, 2022)

Figure 10. Hammer stones found during the excavation at Gua Pelangi (Source: Research data analysis, 2022)

Taxonomic analysis of faunal remains findings has recorded the diversity of animal species (mammals, reptiles, aves (birds) and fish) as nutritional diets have been revealed through excavations. The mammal class represents animals of the order Artiodactyl, Carnivora, Primate, Chiroptera, Pholidota and Rodent while the reptile class is represented by the order Squamata and Testudines. The shell species found also show that they represent freshwater gastropod species, terrestrial gastropods and freshwater bibalvia (Muhammad, 2020). Findings of the primate species such as *Macaca fascicularis* and *Macaca nemestrina* (monkeys and apes) during the excavation process revealed that they were hunted as the diet of prehistoric societies. This is because according to Nur et al. (2005) *Macaca sp*. has been recorded inhabiting in primary and secondary forest areas and the edge of the Pasoh Forest Reserve which allows it to be used as an option for hunting

activities. Artiodactyl species (wild boar, deer and moth) are also one of the prehistoric animals in the Gua Pelangi and academic studies have also found that the same species is also used in the diet by the Late-Early Holocene Pleistocene community in the Lenggong Valley (Bujeng, 2009) which shows that this species is abundant in the area of peninsular Malaysia. Orders of Carnivores (beavers, foxes and cats) and Rodents (rats and hedgehogs) were also sampled during the excavation process. The presence of such species is not uncommon as the natural habitat of the species inhabiting rivers, mangrove swamps and paddy fields (Lekagul and McNeely, 1977; Abdul et al., 2014) makes it easy to hunt.

Order Pholidota (ants) are also found but in small numbers. This indicates that the species is not the main diet of the community in Pelangi Cave although the species is recorded to inhabit the tropical forests of Southeast Asia (Lekagul and McNeely, 1977). Order Squamata (water lizards and batik pythons) and order Testudines (turtles and spiders) are used as hunting animals because the species inhabit many rainforests, swamps, river banks and bushes (Muslim et al., 2016; Halim et al., 2018; Ibrahim et al., 2018; Bujeng, 2019). Due to the low number of faunal remains found in this species, it is only used as a side hunting for the Pelangi Cave community. Order Aves (jungle fowl) that inhabit lowland areas and near river flows (Javed and Rahmani, 2000) as well as mollusk shells (Families Pachychilidae, Cyclophoridae, Clausiliidae, Camaenidae and Bivalvia) that inhabit river areas with moderate water flow (Köhler and Glaubrecht, 2001) also allow the species to be the main diet of the prehistoric community of Gua Pelangi.

Contribution of Gua Pelangi Research for Prehitoric Data

Archaeological studies at the Gua Pelangi site have revealed important data related to evidence of temporary settlement areas of Pleistocene Late-Early Holocene societies. The data was obtained through the discovery of artifacts and ecofacts that had cultural characteristics at the time. Based on the analysis conducted on the findings of artifacts and ecofacts, it can be concluded that Gua Pelangi is a temporary protection area used on a small scale for the purpose of producing stone tools and food preparation (Muhammad, 2020) for the early community of Gua Pelangi.

The interpretation is reinforced by the findings of burning ash, charcoal and faunal remains at the site. In fact the site is expected to be used up to the Neolithic period based on the discovery remains of pottery decorated with impressions of cordge and without decoration in the 1st disturbed layer which clearly shows the protective structure of this cave was used over a long period of time. Archaeological studies at this site also revealed that the lithic technology adapted by the Gua Pelangi community is very well. Starting with the selection of core that found in the vicinity of the cave allows it to be crushed and smoothed using a hammer stone to get the edge points to make it into a stone tool.

The stone tools resulting from such work include flake tools, flattened bifas pebbles, continuous pebble tools, hand-axes and chopping tools (Muhammad, 2020) which are used as aids to facilitate any affairs of the Gua Pelangi community. The diet of the prehistoric community in Gua Pelangi can also be determined accurately based on taxonomic analysis conducted on the findings of fauna remains. The Gua Pelangi community has generally hunted and eaten a wide variety of animals covering large, medium and small sizes. These animals are included in the categories of terrestrial, arboreal/semi-arboreal and aquatic/semi-aquatic animals. Based on the findings of the artifacts suggest that the environment of the Gua Pelangi during the Late-Early Holocene Pleistocene is the same as today in the environment a dence of tropical rainforest.

Therefore, archaeological studies in Gua Pelangi (Figure 11) until now have recorded evidence of the survival of prehistoric communities in the last part of southern region of Peninsular Malaysia (Muhammad, 2020) which adapted to the environment of limestone caves.

This shows that at the same time prehistoric humans have been in all spaces in Peninsular Malaysia which shows the suitability of climate and environment that can provide basic materials for making stone tools and hunting animals to be used as food sources as the basic and important criteria for an area to be a stopover or settlement.

Figure 11.The location of the Gua Pelangi site shows that it is in the southernmost part of Peninsular Malaysia (Source: Tweedie, 1936; Isa, 2007; Saidin and Abdullah, 2007; Majid et al., 1998; Rahman et al., 2012; Ramli, 2019; illustrated by author, 2022)

Potential of Gua Pelangi as a archaeotourism product

At the world level, almost 12 caves sites have been recognized as UNESCO World Heritage Site (WHS) category which have been successfully developed as tourist sites. The sites are Vezere Valley, France, Peking Man site, Zhoukoudian, China, Matera Cave site, Italy, Vinales Valley, Cuba, South African Hominid Fossil site, Longman Cave site, China, Atapuerca site, Spain, Mount Carmel, Israel, site Lenggong Valley, Malaysia, Swabian Jura site, Germany, Pont d "Arc Cave site, Ardeche in France and Gorham Cave Complex, United Kingdom (Figure 12) which can be used as a examples of how to develop Pelangi Cave for the international tourism sector.

Figure 12. Location of a UNESCO world heritage site that developed as a successful tourism product (Source: Jelinek et al., 1973; Jia and Huang, 1990; Saidin, 2010; Frediani, 2012; Carbonell et al., 2014; Bourrillon and White, 2015; Conard, 2015; Wikle, 2015; Carlson and Edlund, 2016; Duval et al., 2019; Finlayson et al., 2020: Li et al., 2021; illustrated by author, 2022)

Table 3. Classification of primary data related to cave archeotourism sites (Source: Compiled by Authors, 2022)

NO.	SITE	COORDINATE	PRIVILEGES	REFERENCE
1	Vezere Velley	N 45º3'27" E 1º10'12"	Reveals evidence of rock art representing a masterpiece of prehistoric painting, notably The Venus de Laussel in Marquay, the chevaline frieze in Cap-Blanc and in Lascaux Cave	Bourrillon and White, 2015
2	Peking Man	N 39º41.22'016" E 115º55.21'727"	The discovery of early human evidence specifically the skeleton of the Peking Man representing the group Homo erectus	Jia and Huang, 1990
3	Matera Cave	N 40º39'59" E 16º36'37"	The caves at Matera record evidence of occupation since Paleolithic times	Frediani, 2012
4	Vinales Valley	N 22º37'0.012" W 83º43'0.012"	Reveals a very attractive karst landscape and traditional tobacco farming in its valley. As such the site reveals evidence of the uniqueness and uniqueness of the karst landscape alongside its traditional communities	Wikle, 2015
5	South African Hominid Fossils	S 24º9.30'996" E 29º10.36'984"	Several caves have revealed evidence of early human fossils dating back 3.5 million years, most notably evidence of the Australopithecus group	Carlson and Edlund, 2016
6	Longman Grotties	N 34º28'0" E 112º28'0"	Reveals the carved forms of more than 100,000 Buddha statues, over 60 stupas and over 2,500 inscriptions carved along more than a kilometer on the walls and in limestone caves	Li et al., 2021
7	Atapuerca Archaeological Site	N 42º22'17" W 3º32'50"	Reveals evidence of prehistoric human skeletons from over a million years ago to AD	Carbonell et al., 2014
8	Carmel Mountain	N 32º40'12" E 34º57'55"	Reveals evidence of early human development along with the changing technological advances of its stone tools	Jelinek et al., 1973
9	Lenggong Valley	N 5º4'4.47 E 100º58'20.38"	Reveals evidence of Paleolithic culture as a place to make stone tools since over 1.83 million years ago while the cave reveals evidence of Paleolithic from 14,000 years ago followed later Neolithic evidence and the bronze metal age	Mokhtar, 2010
10	Swabian Jura	N 48º23'16" E 9º45'56"	Reveals prehistoric evidence especially in six limestone caves representing Late Pleistocene life, around 45,000 to 10,000 years ago. In addition to discovering skeletons and evidence of Neanderthal life and Homo sapiens sapiens, the Swabian Jura also reveals works of art in the form of sculptures of animal figures, mixed animals of humans and humans, as well as musical instruments.	Conard, 2015
11	Pont d'Arc Ardeche Cave	N 44º23'15" E 4º24'58"	Reveals the world's oldest rock art, around 32,000 years ago. Records find over 1,000 cave paintings mostly animal motifs along with evidence of Paleolithic life	Duval et al., 2019
12	Gorham Cave Complex	N 36º7'21.61" W 5º20'31.42"	Four caves in the complex reveal important evidence of Neanderthal life in Europe from over 120,000 years ago to the life of Homo sapiens. The site reveals extensive Neanderthal life including evidence of the exploitation of birds and marine fauna, as well as producing cave paintings in abstract form.	Finlayson et al., 2020

Table 4. Classification of primary data related to cave archeotourism sites (Source: Compiled by Authors, 2022)

NO.	SITES	COORDINATE	PRIVILEGES	REFERENCE
1	Tasmanian Wilderness	S 43º7'6.5" E 146º13'50"	Revealing evidence of prehistoric human life in caves and clam hills from the last glacier to the level of Indigenous Australia	Lee and Richardson, 2018
2	Trang An Landscape Complex	N 20º15'24" E 105º53'47"	Reveals evidence of the beauty of karst landscapes and prehistoric dating back over 30,000 years	Cuc, 2019
3	Zuojiang Huashan Rock Art	N 22º15'20" E 107º1'23"	Reveals the rock art of the Luoyue Community from the 5th century BCE to the 2nd century AD. One of the motifs of his paintings is the bronze drum which until now has been a symbol of power in Southern China	Gao, 2017

Table 3 shows the special data of the UNESCO world heritage site that allows it to be a successful and preserved tourist area. In addition, until now at the world level also revealed three cave sites that were conducted archaeological studies and developed as tourism products (Table 4) in the same category as the Gua Pelangi. Based on the primary data, it clearly shows the great potential of Gua Pelangi and its surroundings to be developed as one of the successful eco, cultural and heritage tourism products in the southernmost region of Peninsular Malaysia. Based on the record of success of world eco, cultural and heritage tourism sites that have been successfully developed in a sustainable manner as a tourism product, the tourism marketing process in Gua Pelangi should be carried out. Scientific evidence obtained during the excavation process carried out in Gua Pelangi needs to be seriously developed as a major tourism product in Negeri Sembilan. Then a tourism marketing technique by producing tour package brochures began to be carried out in collaboration between the Negeri Sembilan government, the Center for Global Archaeological Research and the company AtoA Adventure began to be designed (Figure 13). The package involves an accurate, compact and planned tour package offering that needs to be provided to enable tourist visits to the archaeological site to be carried out (Srivastava, 2015). The package is designed by taking into account the aspects of conservation of tourist locations that allow the site conservation process during the visit process (Thomas and Langlitz 2018) to take precedence so that the existing heritage can be preserved. To achieve this goal, AtoA Adventure Company (Anonymous, 2022) has played an active role in providing a combined tourism package between eco, culture and archaeological heritage tourism. Tour packages offered by the company include cave exploration, pioneering and jungle trekking, camping, limestone hill climbing, jungle cooking demonstrations and visits to indigenous villages (Figure 14) as well as special visits to the Gua Pelangi excavation site to experience for yourself is at an archaeological site (Figure 15).

Figure 13. Tourism brochure around Gua Pelangi was created to meet the needs of eco, cultural and heritage tourism (Source: Anonymous, 2022)

Figure 14. Tour package around Gua Pelangi involving cave exploration activities (a); pioneering and jungle trekking (b); hilltop climbing (c); and abseiling (d); at Batu Dinding Hill cooking demonstrations at Felda Pasoh Village (e); and visits to indigenous villages (f) (Source: AtoA Adventure Company, 2022)

Apart from that, in this area, a tourism package is also designed which involves forest exploration involving expeditions to the top of Batu Dinding Hill, Batu Lumut Hill and Batu Beras Hill which are around the limestone hill of Gua Pelangi in a radius of less than five kilometers. The expedition to visit the cave also involves cave areas that are within 500 meters of the Gua Pelangi such as Gua Batu Dinding, Gua Kelawar, Gua Waris, Gua Telaga and Gua Tirai. This shows that there are packages that incorporate eco-tourism sites in the tourism package around Gua Pelangi. The tourism package was well received because there was a tourism promotion work carried out to publicize the tourism location. Promotion uses five main channels (Figure 16) such as (i) travel agencies (Marzuki, 2010), (ii) through exhibitions and fairs or tourism festivals (Rahman, 2018), (iii) through professional relationships (Idientee and Choy, 2019), (iv) notes or press conferences (Ahmad et al., 2014) and (v) internet methods (ALsSarayeh et al., 2011) have been streamlined to disseminate information on relevant tourist sites. This is important to do first so that the tourism marketing strategy runs optimally.

Figure 15. Special visit package to the archaeological research site in Gua Pelangi (Source: Research data analysis, 2022)

Figure 16. Promotional channels through travel agencies at Gua Pelangi site (a), exhibitions and fairs or tourism festivals at USM Pulau Pinang (b), professional relations at Royal Chulan Hotel, Seremban, Negeri Sembilan (c), notes or press conferences at oboriginal village (d) and internet (e) have been applied in the tourism marketing process in Gua Pelangi (Source: Anonymous, 2022 and compiled by author, 2022)

CONCLUSION

Archaeological excavations in Gua Pelangi are generally able to show evidence of the population of prehistoric communities in Peninsular Malaysia that are between 14,000 and 9,000 years old. This shows that the environment of Peninsular Malaysia in the past was suitable for habitation with the protective structure of the cave being an option to be used as a temporary settlement for the community. The technology of making stone tools began to evolve from the process of sorting the appropriate type of rock to the process of tapping and crushing into tools.

The diet, on the other hand, shows that this community hunts large, medium and small sized animals. These include terrestrial, arboreal/semi-arboreal and aquatic/semi-aquatic animals as their nutritional diet.

Based on academic studies that reveal high-impact data, Gua Pelangi has begun to be used as a tourism product in the Jelebu district as evidenced by the cave environment in other parts of the world. Several tour packages have been designed involving interesting eco-tourism, cultural and archeological heritage sites involving several tour products that combine Gua Pelangi site visit, hiking, culinary demonstrations and visits to aboriginal villages. Such tour packages can provide an exciting tour experience for tourists who dream of a tour experience in a village setting. Based on these facts, it can be concluded that archaeological studies conducted in Pelangi Cave have enabled high-impact heritage tourism sites to be created and developed as sustainable and successful tourism products in the southern part of Peninsular Malaysia.

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