

Development of Leangleang Ancient Park Area as a Leading Destination Based on Natural Tourism, Education and Special Interest

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Abstract: Leangleang Archaeological Park area in Maros Regency has prospective natural and cultural potential to be developed as a leading destination based on natural, educational, and special interest tourism. The problem is how to identify potential natural and cultural characteristics to be managed as tourist attractions. This study aims to identify natural and cultural characters and their management as potential to be developed into leading tourist destinations, through surveys and direct observations to describe unique, interesting, beautiful, and iconic natural and cultural characters. The results showed that the Leangleang Archaeological Park area consists of tower karst hills in which there are many prehistoric caves, various species of fauna and flora that are unique and endemic, beautiful natural scenery, and interesting community agricultural activities. Especially in prehistoric caves, there are unique and beautiful niches and cave ornaments, as well as remnants of prehistoric cultural heritage, such as the oldest hand-stamped painting in the world dating back 45,000 years. The development of these destinations must be managed by providing standard infrastructure that supports and actively involves the local community as part of a sustainable tourism industry.

Keywords: Maros, Leangleang, karst tower, prehistoric cave, oldest painting.

1. INTRODUCTION

Indonesia has enormous potential in the tourism sector. This is supported by various forms and types of beautiful and captivating natural landscapes, various cultural and historical remains, unique ethnic ritual ceremonies, various kinds of paintings and handicrafts, cultural heritage sites, and many very interesting places. for tourists to visit. The natural beauty and cultural diversity of Indonesia, which is spread across various regions, is a national asset that must be fully managed and developed to be utilized as a tourist object and attraction. One area that has the potential for a wealth of natural and cultural resources is Maros Regency in South Sulawesi Province.

Maros Regency is one of the prima donnas of tourism in South Sulawesi, mainly because of its beautiful natural conditions and unique prehistoric cultural heritage, supported by its geographical location close to the provincial capital (Makassar), and is on a strategic traffic route, namely the Makassar-Maros-Pangkep-Bone. One of the potential tourist destinations in Maros Regency is the Karst mountains which have been designated by UNESCO as the Global Geopark Maros-Pangkep in 2023. Its management is centered on three main things, namely environment, culture, and society. Karst (cluster of limestone mountains) Maros-Pangkep is one of the second largest karst areas in the world after the Chinese karst region [1] which has beauty, uniqueness, flora and fauna, high scientific and socio-cultural values. The Maros-Pangkep karst has hundreds of caves that were once inhabited by prehistoric humans. Past culture is illustrated through the remains of the world's oldest prehistoric paintings, which are 45 thousand years old (Brumm, et al 2021), and the findings of the oldest prehistoric human skeleton in Sulawesi, named Besse [2]. It is also a place where millions of species of butterflies live, thus earning the nickname of the famous scientist Alfred Russel Wallace's "Kingdom of Butterfly" [3]. As a Geopark, various natural and cultural-based tourism destinations must be preserved and managed in a sustainable manner, starting from geosites, biological sites, and cultural sites. Geosites such as karst rock mountains, Rammangramang karst towers, and karst caves. Biological sites such as Bengo-Makaroeva Scientific Forest, Karaenta Primary Forest,

Kehati Park, Argo Botanic Park Puncak. Meanwhile, cultural sites such as the Leangleang Prehistoric Park Area, the Leang Panningge site, the Leang Jarie site, and others.

Several destinations that have been opened as tourist attractions, such as the Bantimurung Natural Baths, Leangleang Prasearah Park, and the Rammangramang Tourism Village in Maros Regency have been proven to be able to increase people's income and the regional economy by increasing visitors every year. There are still many other potential tourism destinations in Maros Regency, but they still require management and development from a theoretical, integrative, and innovative point of view [4], including from the marketing aspect through promotion in various media which is still not being carried out by the local government or tourism actors others [5].

One of the tourist destinations in Maros Regency which is very potential and prospective to be developed is the Leangleang Archaeological Park area. This destination is included in the Maros Pangkep Karst area which has a variety of unique landscapes, such as towering and upright hills like towers (tower karst) within which unique, and endemic mega biodiversity lives [1]. There are also many karst caves with beautiful stalagmite and stalactite ornaments, which are habitats for rare flora and fauna, as well as storing traces of prehistoric human life as archaeological sites that are pristine and unique [6]. What is interesting is that the findings of the oldest paintings in the world, which are from around 45 thousand years ago [7]; Aubert et al 2014), can be witnessed in prehistoric caves in the Maros-Pangkep Karst area. Therefore, the purpose of this research is to identify natural and cultural characters and their management, such as the uniqueness and beauty of the natural environment, unique fauna and flora, and various types of paintings found in karst caves, provision of infrastructure and supporting facilities, so that it is feasible and can be developed as a leading tourist destination.

2. METHOD RESEACH

This research was conducted through literature studies [8], surveys and direct field observations, interviews, and data recording. The data and information obtained are described descriptively, which includes natural and cultural conditions, development potential, and a description of the facilities and infrastructure needed by visitors.

3. DISCUSSION

3.1. Prehistoric Cave Sites as Tourism Destinations in Maros Regency

Potential of several prehistoric cave sites as tourism destinations must be developed like the prehistoric cave sites in the Leangleang Archaeological park area in Maros Regency. A very massive karst topography stretches wide in Maros Regency in the form of a tower karst type, located in the Tonasa Formation which is from the early Miocene to the middle Miocene [9], looks so majestic, beautiful, and exotic from a distance. This karst area has an ecological function to maintain the balance of the ecosystem of the surrounding environment and is used as a natural laboratory for research on geology, hydrogeology, speleology, biology, archeology, and ecology. The existence of caves in the karst region is becoming increasingly valuable because some of them are prehistoric caves that hold a lot of cultural evidence about human life in the past. In general, in the karst environment, there are caves, underground rivers, various types of unique flora and fauna, and remnants of human culture [10] which have a function as one of the regulators of the water system in the surrounding area. The karst environment in Maros Regency has a potential attraction to visit, especially the sites of prehistoric caves in the Leangleang Archaeological Park area in which there are various prehistoric cave painting motifs dating back thousands of years, which are natural and cultural phenomena with great potential to be managed. as a tourist destination. Tourist destinations must have icons as tourist attractions.



Image 1. Leangleang Archaeological Park in Maros Regency

Research on cave wall paintings in prehistoric caves in the Maros area was first carried out by C.H.M Heeren-Palm in 1950 at Leang Pettae, Maros Regency with the finding of hand stamps on a red background paint and a painting of a babirusa jumping with an arrow in the heart which is depicted with red lines [11]. The results of recent research conducted by archaeologists found various painting motifs on cave walls, stone artifacts, kitchen waste, bone fragments, pottery fragments, and various types of biotic fossils [6].

There are 17 prehistoric cave sites in the Leangleang Archaeological Park area which can be described based on the consideration that they have been developed and have the potential to be developed as tourist destinations. This description is very important because natural and cultural phenomena as tourist destinations must be interpreted to provide explanations to tourists through a communication process to enrich visitors' understanding of a true fact and provide opportunities for tourists to gain an experience [12]. The benefit of this research is to assist managers in efforts to develop natural tourism and cultural heritage, especially interpretations of these tourist objects. The tourist destination area of the Leangleang Archaeological Park is located in the Kalabbirang Village, Bantimurung District, Maros Regency, South Sulawesi Province, Indonesia.

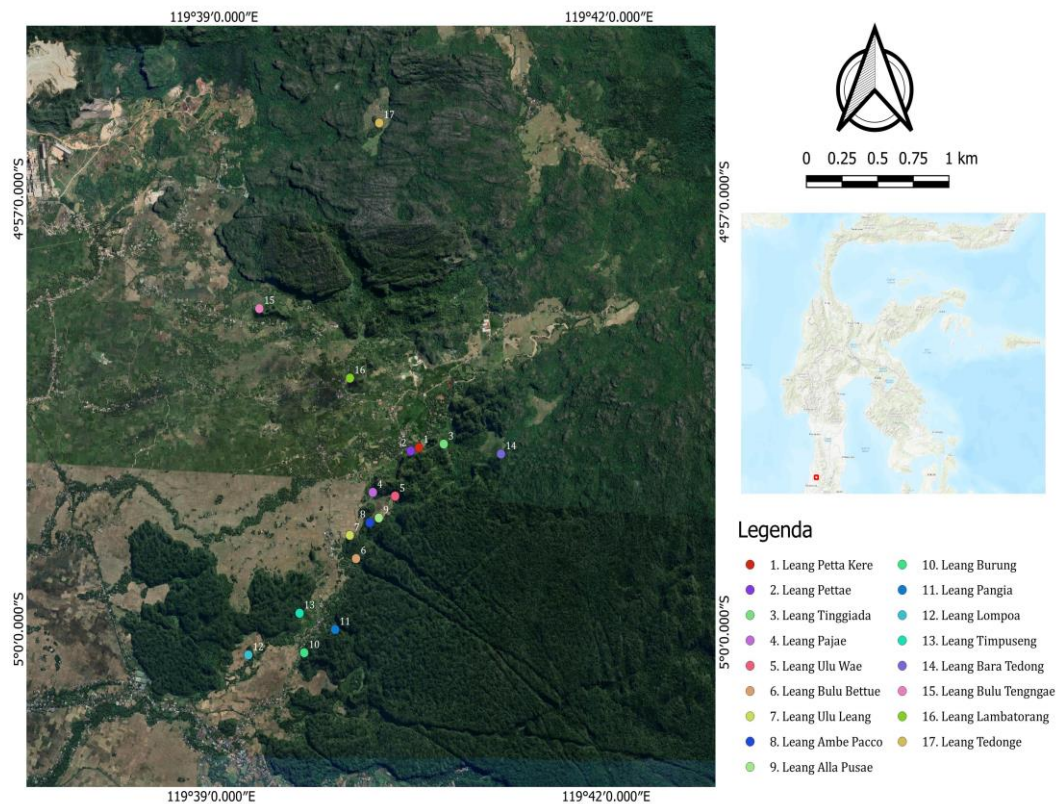


Image 2. Map of the distribution of destinations in the Leangleang Archaeological Park area in Maros Regency

1. Leang Petta Kerre

The location of Leang Petta Kerre is in the Leangleang Archaeological Park complex with astronomical points 040 58' 43.2" LS and 119O 40' 34.2" E with a height of 45 m above sea level. The air temperature in the upper cave ranges from 270C with an average humidity of 65%, while the average humidity of the cave walls ranges from 17-22% [13]. Leang Petta Kerre consists of two rooms, namely the upper and lower rooms. The lower room is 2 meters above ground level, while the upper room is about 13 meters above ground level. The lower room is a niche with a width of about 15 meters while the upper room is a cave with a mouth of 4 meters. Archaeological remains at Leang Petta Kerre are wall paintings in 16 handprints with red backgrounds and 2 paintings of red pig deer in the upper room. Other cultural evidence is in the form of prehistoric human tools from stone (flake tools), pottery fragments, food leftovers from mollusks, and findings of prehistoric human skulls. This site has been well managed, namely the availability of facilities for tourists, such as concrete staircase paths, seats, gazebos, toilets, prayer rooms, neat, clean garden arrangements, and very beautiful views.



Image 3. Cave wall paintings of hand stamps

2. Leang Pattae (Pattae Cave)

The location of Leang Petta Kerre is in the Leangleang Archaeological Park complex with astronomical points 04O 58' 43.2" SL and 119O 40' 34.2" EL with a height of 45 m above sea level. The air temperature in the upper cave ranges from 27°C with an average humidity of 65%, while the average humidity of the cave walls ranges from 17-22% [13]. Leang Petta Kerre consists of two rooms, namely the upper and lower rooms. The lower room is 2 meters above ground level, while the upper room is about 13 meters above ground level. The lower room is a niche with a width of about 15 meters while the upper room is a cave with a mouth of 4 meters. Archaeological remains at Leang Petta Kerre are wall paintings in the form of 16 handprints with red backgrounds and 2 paintings of red pig deer in the upper room. Other cultural evidence is in the form of prehistoric human tools from stone (flake tools), pottery fragments, food leftovers from mollusks, and findings of prehistoric human skulls. This site has been well managed, namely the availability of facilities for tourists, such as concrete staircase paths, seats, gazebos, toilets, prayer rooms, neat, clean garden arrangements, and very beautiful views.



Image 4. The gate of the cave at Leang Pattae

3. Leang Tinggi Ada

The location of Leang Tinggi Ada is at the astronomical points 04O 58' 41.7" South Latitude and 119O 40' 45.5" East Longitude, facing the cave to the northeast, 3 meters from the ground with a height of 45 meters above sea level (photo no. 23)). The air temperature in the cave ranges from 26o C, the average humidity is 89%, while the humidity of the cave walls is between 15-30%. Leang Tinggi There is a cave with a stockpile of poles [13].

Archaeological findings in Leang that can be witnessed are 1 hand stamp with a red background in damaged condition. Cultural finds include remains of mollusk shells, pottery, and stone artifacts. Inside the cave, there are water droplets from several stalactites and cave walls, and on the ceiling of the cave, there are bats and swallows. The cave site has been managed by carrying out fencing, but road access is only in the form of a footpath through the rice fields from the ground and there are no other supporting facilities available. The scenery in the cave is very beautiful, namely on the west side of the cave there is a stretch of rice fields, rock mountains, and local residents' villages. The site has the potential to be developed as a tourist attraction, because it is located not far from the main road, close to residential areas, and has beautiful and charming natural scenery.



Image 5. Leang Tinggi Ada with a rice field area around

4. Leang Pajae

The location of Leang Pajae is at the astronomical points 04O 59' 03.0" SL and 119O 40' 13.2" ET, facing northwest [13]. The height of the cave from the ground is 12 meters with a slope between 700-850. This cave includes a combination of pillar joints and sheet joints. Water drips from stalactites and cave walls, while many bats and swallows inhabit the ceiling of the cave.

Archaeological data that can be witnessed in this cave are 3 handprints with a red background located on the inner cave wall on the left. Other cultural evidence includes remains of mollusk shells, stone tools, animal bone fragments, and pottery fragments. The cave, which has been fenced in with razor wire, is accessible from the road by a concrete walkway. Not yet equipped with other supporting facilities such as seats, gazebos, and toilets. In front of the cave, there is a beautiful view of a wide expanse of rice fields and residential areas.



Image 6. The location of Leang Pajae Cave is at the foot of a karst tower with beautiful views.

5. Leang Ulu Wae

The location of Leang Ulu Wae is at the astronomical point $04^{\circ} 59' 04.0''$ EL and $119^{\circ} 40' 23.0''$ S at an altitude of 65 meters above sea level and 3 meters from the ground, facing west. The air temperature in the cave is around 28°C with an average humidity of 70%. This cave includes a cave with a combination of sheet joints and pillar joints [13].

(26)



Image 7. Leang Ulu Wae which formerly has traces of mining activity on the front

The cultural findings that can be witnessed at Leang Ulu Wae are 4 hand stamps that have been damaged. This cave is used by the local community to store agricultural products because it is close to residential areas. The atmosphere inside the cave is flat and can be used for shelter. At the front of the cave, there is a natural view of rows of karst rock hills, rice fields, and residential areas. This cave is located about 90 m from the main road and can be reached by footpath, not yet equipped with supporting facilities.

6. Leang Bettue

The location of Leang Bettue is at the astronomical points $04^{\circ} 59' 21.0''$ South Latitude and $119^{\circ} 40' 06.0''$ East Longitude. The height of the cave from the ground is 8 meters, facing northeast, with a wide mouth of the cave 15 meters, a ceiling height of about 10 meters, and a depth of 500 meters. The condition of the cave with a sloping floor and is very cool, including the combination of sheet joints and pillars. On the stalactites and cave walls there is water dripping from the rock pores, while on the ceiling of the cave, there are bats and swallows [13].

The cultural remains that can be witnessed are several cave wall paintings in the form of hand stamps, stone tools, leftover shells, and pottery fragments. Archaeological research through excavations found the upper jaw found a skeleton of the upper jaw that was around 39,000 years ago [7]. This cave is used by local residents to store some agricultural equipment, in front of the cave used as a cowshed. The mouth of the cave has been fenced with broken barbed wire. This cave can be reached on foot via a path from the highway about 100 m, not yet equipped with supporting facilities. In front of the cave, there is a natural view of gardens, rice fields, rows of karst rock hills, and residential areas.



Image 8. The Front Leang Bettue with security gate.

7. Ulu Leang

The location of the Ulu Leang cave is at astronomical points $04^{\circ} 59' 29.0''$ SL and $119^{\circ} 40' 03.0''$ EL with the cave facing south. The height of the cave is 60 m above sea level and 10 meters from the ground. The mouth of the cave is 20 meters wide and the ceiling is 10 meters high. The temperature in the cave is between 18–28°C with humidity around 75%. Geologically, this cave includes a combination of sheet joints and pillar joints [13].

In this cave there are remnants of cultural heritage in the form of handprints with a red background, remains of mollusk shells, stone tools, bone fragments, and pottery fragments. Archaeological research that has been done has found rice husks that are 4,000 BC [14]. The condition of the cave is very beautiful with lots of stalactites hanging and dripping water, and on the ceiling of the cave, there are bats and swallows. The front of the cave has been fenced with barbed wire as security. This cave can be reached from the axis road for about 80 m via a footpath, not yet equipped with supporting facilities.

8. Leang Ambe Pacco

The location of Leang Ambe Pacco is at the astronomical points $04^{\circ} 59' 14.8''$ SL and $119^{\circ} 40' 11.2''$ EL, facing north with a height of one meter from the ground. The floor of the cave is two-level and has two passages that are about 40 meters long. Leang Ambe Pacco belongs to the category of caves combining sheet joints and pillar joints. On the stalactites and cave walls, water still drips from the pores of the rock, while the ceiling of the cave is inhabited by bats and swallows.

In this cave, you can see several cave wall paintings scattered on the walls of the cave, mollusk shells, used stone tools, pottery fragments, and animal bone remains, and on the front side, it is still used by the local community to store livestock and agricultural tools. The front has been fitted with barbed wire as a safety net. It can be reached from the main road about 60 m via a footpath, not yet equipped with supporting facilities. This cave is located behind a residential area, so it has the potential to be developed as a cultural tourism object.

9. Leang Alla Pusae

Leang Alla Pusae is at the astronomical point $04^{\circ} 59' 12.1''$ East Longitude and $119^{\circ} 40' 16.1''$ South Latitude, facing the cave to the north. The height from the ground is 8 meters and the slope is 400. The inside of the cave consists of two rooms, the west room is 5 meters long, while the eastern room is about 80 meters long. This cave includes a combination of sheet joints and pillar joints. On the stalactites and cave walls there is water dripping from the rock pores, while the ceiling of the cave is inhabited by bats and swallows. On the walls of the cave, there are very beautiful stone color ornaments.



Image 9. Leang Alla Puse with beautiful cave ornaments with beautiful natural scenery

Remains of prehistoric culture that can be seen are several paintings of palms with faded red backgrounds, mollusk shells, remains of stone tools, pottery fragments, and remains of animal bones, and are still used by the local community as a place to store agricultural tools. In front of the cave, there is a beautiful natural landscape in the form of vast rice fields, rows of karst hills, and residential areas. This cave can be reached from the highway about 120 m through a rice field bund and has not been equipped with supporting facilities.

10. Bird Leang

The location of Leang Burung is at the astronomical points $05^{\circ} 00' 11.9''$ SL and $119^{\circ} 39' 17.9''$ EL with a height of 45 m above sea level and about 4 meters from the ground. The air temperature inside the cave cavity averages around 29°C with a humidity of 85%, while the humidity of the cave walls ranges from 23-28%. Leang Bird has two mouths with a distance of about 30 meters. This cave has a direction facing west with a ceiling height of between 10-25 meters. This cave is a sheetrock cave [13], at the front of the cave there is a wide expanse of rice fields.



Image 10. Leang Burung where a large rice field is located at the foot of the karst tower

Prehistoric cultural remains that can be seen are several palm paintings with a faded red background, mollusk shells, remains of stones tools, pottery shards, and remains of animal bones, and are still used by the local community as a storage area for agricultural tools. . In front of the cave, there is a beautiful natural landscape in the form of vast rice fields, rows of karst hills, and residential areas. This cave can be reached from the highway about 120 m through a rice field bund and has not been equipped with supporting facilities.

11. Bird Leang

The location of Leang Burung is at the astronomical points 05O 00' 11.9" South Latitude and 119O 39' 17.9" East Longitude with a height of 45 m above sea level and about 4 meters from the ground. The air temperature inside the cave cavity averages around 29°C with a humidity of 85%, while the humidity of the cave walls ranges from 23-28%. Leang Bird has two mouths with a distance of about 30 meters. This cave has a direction facing west with a ceiling height of between 10-25 meters. This cave is a sheetrock cave [13], at the front of the cave there is a wide expanse of rice fields.



Image 10. The condition of Leang Pangia as a place for storing agricultural products

Remains of prehistoric culture that can be observed at Leang Pangia are 17 cave wall paintings in the form of hand stamps, mollusk shells, and remains of stone tools, and are still used by the community as a place to store agricultural tools, straw, rice husks, and cattle. The cave can be reached from the main road for about 65 m by way of a rice field bund, not yet equipped with supporting facilities.

12. Leang Lompoa

Leang Lompoa is at the astronomical points 05O 00' 10.6" South Latitude and 119O 39' 16.9" East Longitude with the orientation of the mouth of the cave to the south and an altitude of about 3 meters and 22 m above sea level [13]. Water drips from stalactites and cave walls. This cave is included in the category of sheet rocky caves. On the ceiling of the cave, there are bats and swallows whose droppings are scattered on the cave floor, used by residents as fertilizer.

Remnants of prehistoric culture that can be observed at Leang Lompoa are the many cave wall paintings in the form of neatly arranged handprints on almost all of the cave walls, some of which have peeled off, mollusk shells, remains of stone tools, and are still used by the community as a place to store agricultural tools. At the front of the cave, it has been fenced with razor wire as a safety net. It can be reached from the main road for about 85 m by walking paths and rice field bunds, not yet equipped with supporting facilities. Around the cave, there is natural scenery in the form of rows of karst hills, vast rice fields, and residential areas.

13. Leang Timpuseng

Leang Timpuseng is at the astronomical point $04^{\circ} 59' 53.5''$ EL and $119^{\circ} 39' 39.8''$ SL, the height of the cave is 25 m, facing east. Under the floor of the cave, there is a cavity that is stagnant with water with a large discharge so that it can be used to irrigate the rice fields around the cave. This cave includes sheet stocky caves [13]. On the stalactites and cave walls, water still drips from the rock pores, while the ceiling of the cave is inhabited by bats and swallows.



Image 11. Location of Leang Timpuseng, agricultural equipment, and large rice fields

The remains of prehistoric culture that can be observed at Leang Tempuseng are four cave wall paintings in the form of hand stamps, mollusk shells, various types of stone tool remains, pottery fragments, animal bone remains, and are still used by the local community to store agricultural equipment. At the front of the cave, it has been fenced with razor wire as a safety net. It can be reached from the main road about 80 m by walking paths and rice field bunds, not yet equipped with supporting facilities. Around the cave, there is natural scenery in the form of rows of karst hills, rice fields, and residential areas.

14. Leang Bara Tedong

The location of Leang Bara Tedong is at an astronomical point of $04^{\circ} 58' 45.7''$ South Latitude and $119^{\circ} 41' 11.6''$ East Longitude, with a height of 12 meters from the ground and a slope between 700-850. The width of the mouth of the cave is 8 meters with a ceiling height of 5 meters [13]. On the walls and stalactites, there is water dripping through the rock pores. In addition, the ceiling of the cave is inhabited by bats and swallows. Geologically, Leang Bara Tedong is a pillar cave.

Remains of prehistoric culture that can be observed at Leang Bara Tedong are 14 pieces of cave wall paintings in the form of hand stamps, two paintings of pig deer, mollusk shells, various types of stone tool remains, pottery fragments, and remains of animal bones. At the front of the cave, it has been fenced with razor wire as a safety net. It can be reached from the main road for about 64 m by walking paths and rice field bunds, not yet equipped with supporting facilities. Around the cave, there is natural scenery in the form of rows of karst hills, rice fields, and residential areas.

15. Leang Bulu Tengngae

The location of Leang Bulu Tengngae is at the astronomical points $04^{\circ} 57' 45.2''$ South Latitude and $119^{\circ} 39' 20.9''$ East Longitude, the height of the cave is 6 meters above ground level with the orientation of the mouth of the cave to the east. Leang Bulu Tengngae consists of five lined niches and all of the niches contain archaeological findings. The front of the cave is a plantation area, a small river, and irrigation canals. This cave is included in the category of hollow pillars [13].

Remains of prehistoric culture that can be observed at Leang Bulu Tangngae are 14 cave wall paintings in the form of hand stamps, two paintings of pigs and deer, mollusk shells, various types of stone tool remains, pottery fragments, and animal bone remains. At the front of the cave, razor wire has been fenced as a safety net. It can be reached from the main road for about 120 m by footpath, not yet equipped with supporting facilities. Around the cave, there is natural scenery in the form of rows of karst hills, gardens, and residential areas.



Image 12. The mouth of the Leang Bulu Tengngae

16. Leang Slow people

The location of Leang Lambatorang is at an astronomical point of $04^{\circ} 58' 16''$ SL and $119^{\circ} 39' 58''$ BL, 60 m above sea level and about 4 m from the ground with the orientation of the cave mouth to the northwest. The width of the mouth of the cave is 12 m and the height of the mouth of the cave is 6 m. The air temperature in the cave is between 26-28°C, the humidity is between 75-85% and the humidity of the cave walls is between 17-24% [13]. This cave includes a pillar cave. There is an underground river that flows in a cavity under the floor of the cave. On the stalactites and cave walls, there is water dripping from the rock pores, while on the cave ceiling, there are bats and swallows.

Remains of prehistoric culture that can be observed at Leang Pellenge are several handprinted paintings scattered on the walls of the cave, black paintings of humans riding horses, mollusk shells, various types of stone tool remains, pottery fragments, and animal bone remains. The front of the cave has been fenced with razor wire as a safety net, there is also an underground river that is used by the local community for bathing and washing. This cave can be reached from the highway about 150 m by footpath, not yet equipped with supporting facilities and infrastructure. Around the cave, there is natural scenery in the form of rows of karst hills, gardens, and protected forests.

17. Leang Tedongnge

The Leang Tedongnge site is located at the foot of a steep karst hill and is included in the administrative area of Biku Village, Balleangin Village, Balocci District, Pangkep Regency, about 40 miles from Makassar City. The results of research on this site show that the oldest wall paintings in the world are currently dated 45,500 years ago [7]. The findings of the cave wall paintings are in the form of two handprints, one picture of a deer whose anatomy is still intact, with long dimensions 187 cm and 110 cm high, and two pictures of pigs that have been damaged in the form of peeling off the walls of the cave.

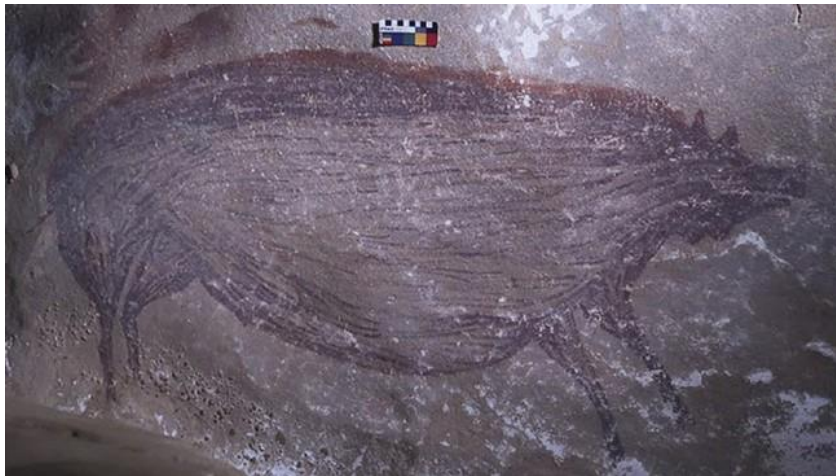


Image 13. Oldest cave paintings in the world (45,500 years ago)

3.2. Development of the Leangleang Archaeological Park Area

The development of the Leangleang Archaeological Park Area is one of the Leading Tourist Destinations in Maros Regency. The use of prehistoric caves, especially those with cave wall paintings as a tourist attraction, has great potential [15], but on the other hand, there are still concerns about its preservation because some tourists commit vandalism because they do not understand how important it is to preserve these steps [16], even the damage to paintings in prehistoric caves is also threatened due to natural processes [17] and the activities of the surrounding community [18]. On the other hand, prehistoric caves have important scientific values such as history, archeology, ecology, speleogenesis, ethnicity, aesthetics, and public [19], and economic value [20]. The remains of human culture in prehistoric caves are very important as historical documents about the process of adaptation and the course of human civilization [21].

In principle, the planned development aims so that the cultural heritage which is seen as an integral part cannot be separated from its environment, both the natural environment and the social environment, and can provide benefits. The intended benefit is a positive impact on the natural environment and can be felt by the surrounding community, especially in terms of improving the welfare of life. One of the positive impacts on the community is its utilization as a tourist attraction. Therefore, based on the potential and lifestyle trends of modern society, tourism is seen as an alternative that can be chosen as a solution in managing the Leangleang Archaeological Park area. Tourism activities can provide a significant economic impact and are environmentally friendly if managed properly and correctly so that the goal of conserving karst cultural heritage and the environment as the main assets are not neglected in building the community's economy.

The Leangleang Archaeological Park area is within the karst environmental conservation area of the Bantimurung – Bulusaraung National Park which is easy to reach. Its position is on the path of tourists visiting the Bantimurung Nature Park and the Rammang-Rammang Tourism Village. Because of its uniqueness and strategic position, it has the potential to be developed as a leading tourist destination in Maros Regency. In the framework of this goal, its development is directed at an ecotourism model that prioritizes educational aspects for visitors, especially related to natural and socio-cultural education. Likewise, the management system offered is more directed at involving the community as the main actor in tourism activities.

Based on the natural and cultural characteristics of the Leangleang Archaeological Park area destinations, the appropriate tour packages to be developed are general tours, educational tours, and special interest tours.

a. Tourism in General

The development of tourist destinations in the Leangleang Archaeological Park area as a tourist destination must be supported by attractions and facilities that are considered general in nature with the targeted segment being tourists who do not demand special themes, but rather a place to restore mental freshness and fitness. This general type of tourism demands objects of interest to everyone or most visitors with easily accessible natural and cultural attractions. Apart from being easy to reach, various facilities that provide safety and comfort must be available, to serve every visitor segment, children, youth, adults, the elderly, the elderly, and also persons with disabilities.

Therefore, Leang Petta Kerre and Leang Pattae which have been arranged in such a way as Leangleang Prehistoric Park have the most potential for this type of public tourism. Accessibility to reach the location is quite adequate, can be reached by various types of vehicles, and provides various cultural and natural attractions. The natural environment with some of its uniqueness is quite interesting for visitors, including karst rock gardens, rivers, cliffs and karst hills, caves with stalagmite and stalactite ornaments, animals, butterflies, Sulawesi black monkeys, and beautiful and cool natural scenery. From a very iconic cultural aspect, there are cave wall paintings at Leang Petta Kerre and Leang Pettae in the form of hand stencils, pig deer, and other motifs that date back 45 thousand years. Other cultural attractions are prehistoric human settlements in the form of prehistoric caves and various cultural remains, there is a mini museum filled with photographs and artifacts, and the life of the surrounding community.



Image 14. General tourists visiting the Leangleang Prehistoric Park

Appreciating this main attraction is quite easy because now there are footpaths, bridges, and stairs to the cave where the cultural heritage object is located. Management of the Leangleang Prehistoric Park has been carried out since the 1980s, so in general, this location has been equipped with various facilities and security and comfort for visitors. Other supporting facilities are fences and security posts, parks, prayer rooms, gazebos, information boards, signboards, toilets, information rooms, and parking lots. As for the development plan, this location is feasible enough to become one of the main destinations for the development of the Leangleang Archaeological Park area, namely as an information center in the field of cultural heritage, especially prehistoric caves in the Maros Pangkep Karst area. With the general tourism model, this location can act as a visit center which then offers information about other alternative destinations with more specific tourist themes. Thus, in addition to maximizing the role of Leangleang Prehistoric Park as a tourist attraction for all people, it will also offer tour packages for visitors who have special or different interests.

For this purpose, a number of things need to be addressed, including the rehabilitation of several public facilities that are currently available, such as footpaths that are not friendly for parents, children and persons with disabilities,

toilets need to be improved so that they meet public service standards, equipping boards information for certain points, information spatial planning to become a center for managing area cultural heritage and tourist information services, park cleanliness, the addition of toilets, gazebos, shelters, and park benches, installation of CCTV, and provision of special space and equipment for first aid.

b. Tourism for Education

Tourism for Education is recreation or tourism trips undertaken with the aim of restoring fitness or freshness in which added value is instilled in education. This tour generally targets students or school children, from early childhood to high school, even to the tertiary or university level. For this reason, the tourist objects prepared are tourism objects that provide many attractions related to formal and non-formal learning objects.



Image 15. Visitors to educational tourism at the Leangleang Prehistoric Park

In the Leangleang Archaeological Park Area, the right destination for the education package is the Prehistoric Park and Leang Bulu Bettue has the potential to be developed for the educational tourism segment. In particular, the destination area has a relatively easy level of affordability and is not far from the main road. These destinations have educational value, such as finding artifacts, food remains, pictures of cave walls, former excavation boxes, and bones which can provide very important knowledge about the history of civilization, culture, archeology, biology, geography, and geology. The cave system consists of passages, especially at Leang Bulu Bettue, where visitors can do trekking by tracing a 400-meter cave passage, in which there are beautiful views of cave ornaments in the form of colorful stalagmites and stalactites. Around these destinations, visitors can witness and learn about poultry and cattle farms, plantations, and resident rice fields. A visit to the destination takes about one to two hours, including the time it takes to walk 200 meters from the parking lot to the mouth of the cave.

c. Special Interest Tourism

This tourism segment is intended for tourists who want a recreational trip that is different from tourism in general and tend to seek challenges to stimulate adrenaline. For this tour, complete supporting facilities are not needed as for general tourism objects, but only basic infrastructure, such as clean water and an emergency rescue system. Based on its natural characteristics, the forms of special interest tourism activities that can be offered include the following:

- a. Cave Walk Tour (easy category), namely exploring the cave from Leang Bulu Bettue to Leang Samalea, with a distance of 400 meters. The challenges are in the form of a dark situation in the cave, climbing, climbing slopes, following tunnels, and passing through gaps. The risks that need to be anticipated are being hit by falling rocks, colliding, falling, being squeezed, and getting lost. Supporting facilities needed include gazebos/shelters, catwalks, signs, evacuation routes, information boards, and supporting equipment. The equipment needed

includes lighting (individual or group), head protection (helmet), field shoes, a first aid kit, and a safety rope. For the path and circulation of visitors, it consists of Leang Bulu Bettue to Leang Samalea and back, with alternative observations around the mouth of Leang Samalea. The time needed is between 90 and 210 minutes for one trip. This cave tracking trip is required to use an experienced guide.

b. Trekking tourism, which is a recreational trip to enjoy the beauty of nature, culture, education, and at the same time exercise on foot. Some of the routes that can be offered include: (1) the trip can start from Leang Bulu Bettue along the cave to Leang Samalea, continue to Leang Ambe Pacco, and end at Leang Ulu Wae or Leang Pajae (medium category). This route combines caving and trekking with the main challenge of caving, climbing, and descending rather steep slopes. Other attractions that can be enjoyed are poultry farms and paddy farming. The total distance traveled on this route is 1.1 km to 1.4 km with a travel time of 50 minutes to 90 minutes, it is required to use a guide. (2) The trip can start from Leang Bulu Bettue, go through the cave to Leang Samalea, continue to Ulu Leang, and end back to Leang Bulu Bettue (medium category). This route combines caving and trekking with the main challenges of caving, climbing, descending rather steep slopes, and swamps (thatch vegetation around Leang Ulu Leang). The total distance covered on this route is 1.2 km with a travel time of 45 minutes to 90 minutes, required to use a guide. (3) The Leang Bulu Bettue route goes to Leang Ulu Leang, then Leang Ambe Pacco goes to Leang Ulu Wae and ends at Leang Pajae. This route offers trips along the limestone hillsides with the main attractions being cave sites with pictures of cave walls, karst environments, rumbia swamps, poultry and cattle farms, rice fields and farms, and karst valleys. The total distance is 1.3 km with travel time between 45 minutes and 90 minutes, it is recommended to use a guide. The three trekking alternatives have almost the same distance and travel time, and other attractions that might enrich the visitor experience are observing animals, including species of birds, reptiles, and the Sulawesi black monkey. The main risks that are important to anticipate in this tourism activity are falling rocks, getting lost, falling, hitting, and attacks by reptiles and insects. Important supporting facilities to be prepared include gazebos, shelters, park benches, signs, information boards, small bridges/walkways, footpaths, toilets, and supporting equipment such as lighting (especially for cave trails), head guards (helmets), trekking boots, and first aid. The main gate is located around Leang Bulu Bettue, so it is important to have an information room and management facilities at this location.

c. Outbound Tour

Outbound tours can be placed around a single hill between Leang Ambe Pacco and Leang Pajae. This tour still requires further analysis to plan the shape and needs of the facilities.

d. Fishing and Farming Tourism

Fishing and rice farming tours are other alternatives that can enrich the attractions around Leang Uluwe-Pajae. The location in the form of a valley surrounded by limestone hills (doline) has abundant water sources, which are suitable for the development of fishing tourism and rice farming. This tourism development must be fully driven by the community with the support of the manager or the government. This location requires government support, especially in providing road infrastructure. The main gate for the development of special interest tourism can be placed around Leang Bulu Bettue or around Leang Pajae, and public facilities must be prepared, especially information rooms, toilets, clean water, and management rooms.

3.3 Management System

The management system built is community-based, that is, objects are managed jointly, collaboratively, and integratively, with the community as executor. The position of the government through related agencies (South Sulawesi Cultural Preservation Center, Maros District Government, and the Bantimurung Bulusaraung National Park Office) is as a companion and other parties such as the private sector as a supporter. To facilitate coordination, it is necessary to establish a management body consisting of all stakeholders.

Each location, route, or center is managed by a community group, technically each member of the group or the surrounding community can act as a business actor, guide, and manager. To integrate the visiting system between locations, routes, and centers, each group coordinates with each other facilitated by the management agency. The Management Body consists of representatives from each group, the Sul Cultural Preservation Center, the National Park, and the Regional Government. This is important so that the main goal of preservation carried out by the

government can be realized, and the local government's goal of developing community-based and sustainable tourism can be achieved.

4. CONCLUSION

The potential destination for the Leangleang Archaeological Park area to be developed as a leading tourist destination in Maros Regency has very high prospects, especially from the aspect of its uniqueness and natural beauty and very iconic prehistoric cultural remains. The natural uniqueness is in the form of the karst mountain environment which has topographical and geological uniqueness, the distribution of caves, flora, and fauna, and prehistoric cultural remains which are of important value for science. This is also supported by its presence in the Maros Pangkep geopark area which has been designated as a global geopark by UNESCO which can attract tourists from foreign countries.

Based on the character of the potential natural and cultural tourist attractions found in tourist destinations in the Leangleang Archaeological Park area, the development is directed at an ecotourism model that prioritizes educational aspects for visitors, especially related to natural and socio-cultural education. For this reason, the right types of tourism to be developed are general tourism, educational tourism, and special interest tours such as caving, trekking, outbound, fishing, and farming.

In order to develop this destination as a leading destination, several things need to be addressed including the rehabilitation of several facilities that are currently available, such as footpaths that are not friendly for parents, children, and persons with disabilities, toilets need to be improved so that they meet the standards public services, completing information boards for certain points, structuring information space to become a center for managing area cultural heritage and tourist information services, cleaning parks, adding toilets, gazebos, shelters, and park benches, installing CCTV, and providing special space and equipment for first aid.

Another thing that is very important to ensure the sustainability of the management of tourist destinations is to actively involve the role of the local community as tourism actors, such as parking management and souvenir shops, culinary, homestay, and tour guides.

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