

## LANDSCAPE AND BIOCULTURAL HERITAGE: KNOWLEDGE TOWARDS TOURISM DEVELOPMENT IN VALLE DE PIEDRAS ENCIMADAS, ZACATLÁN, PUEBLA

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### ABSTRACT

The Valle de Piedras Encimadas Park was created in the year 2000; it is located in a landscape characterized by rock formations, which have allowed the development of tourism for many years. The Bellas Praderas Civil Association considers that, as a whole, it constitutes the biocultural heritage necessary for its development. The objective was to characterize the natural heritage of the Valle de Piedras Encimadas Park, and to describe the biocultural heritage that could allow participation in a dialogue of knowledge, through ethnodevelopment. Perimeter and introductory field visits were conducted in the park's territory, during the time of tasks (March 2022), as well as workshops with four working groups in the park's museum (December 2022), and ten semi-structured interviews with members of the Civil Association (February 2023), in addition to the consulting the park files (March 2022). The results show the park's organization, the characterization of the natural heritage and the biocultural heritage of Valle de Piedras Encimadas, which are the basis for the management of tourism. The study concludes that the community of Camotepec has all the elements to generate its development, based on the functioning of the park, and to enrich it with the participation of professionals who collaborate in the construction of ethnodevelopment, to increase the capacity of inhabitants to decide over their future, to preserve the natural and cultural heritage, and to improve the park's services with the resources and other knowledge from Camotepec.

**Keywords:** environmental knowledge, ethnodevelopment, heritage, tourism.

### INTRODUCTION

The importance of identifying and characterizing the heritage of a place lies in assessing it for the organization of potential tourism and the conservation of its natural and cultural resources. In Mexico, the study of heritage begins with cultural conservation, which has been considered in different legislations, with the Law of Nationalization of Goods from Religious Associations, until reaching the General Law of Ecological Balance and Environmental Protection of 1988, with its current adaptations (Pérez, 2014). Heritages, as a whole, have

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been used in government plans as tourism attractions, with the exclusion of local stakeholders, as managers of their own heritage; however, the viability of tourism can be changed and identified as a strategy of heritage conservation, an alternative to development, and the procurement of monetary resources for inhabitants.

The Valle de Piedras Encimadas Park is one of the main natural tourism attractions in Zacatlán. Since the year 1930, the place has stood out in tourism and has received visits from foreigners in the lands of Camotepec, characterized by forest landscapes and rock formations with 10 to 20 m of height. To visit it, horseback riding tours were organized and in 1995, a route was established to appreciate the principal rock formations. The park was established in the year 2000 by the government of the state of Puebla; the municipality, state government, and federal government jointly acquired 200 ha and made various investments, to build the infrastructure that it now has (Hernández and Salamanca, 2020).

In the year 2008, the Bellas Praderas Civil Association was constituted, established by a group of inhabitants from the locality of Camotepec that carried out and continues to offer the tours. The civil association (CA) is made up by 74 beneficiaries, according to its constitutive act, who are also in charge of caring for, conserving and managing the area of interest. The objectives of the CA are to obtain economic and moral support among its associates and other people and institutions that wish to provide their collaboration; to promote through communication media the dissemination of the CA and the Valle de Piedras Encimadas; and to acquire or accept the furniture and real estate necessary for the development of activities in the park, by donation or commodate. The objective of the study was to characterize the natural heritage of Valle de Piedras Encimadas Park and to describe the biocultural heritage, which could allow participating in the dialogue of knowledge through ethnodevelopment.

## THEORETICAL FRAMEWORK

### Natural resources (landscape and biocultural heritage)

From the economic point of view, natural resources are considered as *patrimonio*, word that according to the Spanish Royal Academy (*Real Academia Española*, RAE), means “The set of goods belonging to a natural or legal person, or attached to a purpose, susceptible of economic estimation” (2023). Patrimony or heritage is made up by elements that are susceptible of entering the market. However, this concept makes the forest look like an economic good with value use and exchange value; that is, as part of the formal economy, subject to buying and selling, and earning profits.

Therefore, this concept of heritage tends to be discussed according to more relevant and significant expressions in cultural terms. Discussion of its

elements adheres to symbols and representations of places, which are part of the memory of the inhabitants and their identity. Bourdieu (2016) indicated that the symbolic capital linked to the notion of identity considers heritage as a representation system based on cultural externality. The components that constitute it are objects, places or manifestations, which originate with local knowledge of the park's nature, of the past that exists both in the memory of inhabitants and in local history. Natural patrimony emerges from naturalist movements, with the protection of antiques, which promoted the conservation of places selected due to the beauty and singularity of their formations and landscapes, from which national parks were established such as Yellowstone in the United States of America, declared natural heritage in 1872 (Sanz, 2012). The term was used for the first time in Article 2 of the Declaration of the United Nations for Education, Science and Culture (UNESCO) from 1972, which recognizes as global natural heritage: "the sets of isolated construction groups in a landscape, monuments made by works of humans together with nature, natural monuments built by physical or biological formations, geological and physiographic formations, and natural places". The characteristics of the Valle de Piedras Naturales Park fit into the latter, all of them with exceptional universal value, from the point of view of science, history, art, aesthetics, or natural beauty (Pérez, 2014).

It is important to mention that natural heritage is taken up again because in it, rocks are considered as the principal element for tourism in the park. According to López (2019), the concepts of forest, water and landscape heritage derive from the general concept. In this study, they are those that are derived from the natural biotic and abiotic resources that are found in the Park, in addition to the cultural resources involved. According to the European Landscape Convention celebrated in Florence (Mata, 2014), in the 19<sup>th</sup> century, landscape became an object of representation in art and research for science. That is, contemplation of the world allowed appreciating how natural diversity is integrated with cultural diversity, and how, as a whole, they form a mosaic of interdependent landscapes, which at the same time make up resilient biodiversity, whose annual production reflects sustainability (Boege, 2021).

According to González-Jácome (2022), landscape includes the components of the ecosystem which are variable to the observer; therefore, the landscape from Valle de Piedras Encimadas reflects the daily interaction with the locals, used as the basis for tourism that, in theory, reflects rural development; however, it can also be interpreted as the commercialization of nature and culture. The collection of natural and cultural goods make up a landscape heritage that can be enjoyed in the present, but which must be transmitted without deterioration and, if possible, with an increase for future generations, which is defined in sustainable development (Cortés and Peña, 2015). The value of the patrimony can also be

universal, national and regional. The Park has had regional assessment and, to a lower degree, national, although this assessment can vary in direction and intensity, throughout time and in different cultures (Sanz, 2012).

The landscape is a concept with two aspects: one is the interior valuation, given by the social group, and the other is the external valuation, given by the landscape itself (natural and cultural elements). Likewise, there are two dimensions: that of being conserved and that of being visited. When the place of the landscape is visited, it implies perceiving it as attractive, which identifies it as a tourism product. This is because the good can be considered natural or cultural, as a product of the tourism activity, since they are attractions or have the potential to be. The main goods identified as touristic are natural goods, as is the case of the park, the rock formations, the historical-cultural resources, and the contemporary technical and scientific developments, among others (Lima *et al.*, 2012).

However, the concept of a good is economic. It has been identified as: “profit, benefit, patrimony, property, fortune, everything that is apt to satisfy a human need, directly or indirectly” (RAE, 2023). This concept contradicts the idea of including culture within the park’s management, to achieve it being sustainable. Therefore, concepts have been developed attempt to center the objectives of common welfare and not only obtaining profits.

Biocultural heritage is included to conduct the tourism activity in an integral way; it is understood in the communities as “what is ours”, as an ancestral repository, as awareness of what is owned, which allows directing a local project of community life (Boege, 2021). This project is represented by the plant and animal species that are used, the local knowledge (understandings), and the organization of the community of Camotepec necessary to carry out the tourism activity. At the same time, the participation of scientific knowledge contributed by specialists and the knowledge of other regions are required; these experiences participate in the improvement of the services that the Park provides, in the dialogue of knowledge.

### **Environmental knowledge and understandings**

Understandings are a community’s heritage, and they include knowledge of different types applied to agriculture, herbal medicine, medicine, the environment, natural disasters, forest management, among other branches which represent the interaction between society and nature (Toledo, 2005). To consider these other understandings, the International Science Council (ISC) included the local traditional systems of knowledge, as dynamic expressions of perception and conception of the world, since they can contribute to science and technology. Therefore, this patrimony and this knowledge must be preserved, protected, researched and promoted (Argueta, 2012).

In the park, a landscape heritage has been identified, preserved and protected, described by Magaña and Covarrubias (2014), as the result of the fabric of their knowledge and identities, which have appropriated nature, comprised by the geological, climatic, historical characteristics of culture referring to the customs and uses of the organization. Hernández *et al.* (2022) mention that traditional knowledge of landscape is included within ethnosciences. In Mexico, reference studies have been conducted in botany and agroforestry systems (Hernández-X, 1985; Toledo, 1994; Caballero *et al.*, 1998), which have explored forms of relationship between societies and their environment, based on ecological approaches.

For Hernández *et al.* (2022), the lands are environmental approximations to the landscape, which can refer to local knowledge, on lands and geofoms, in addition to their social construction, resource management, and cultural practices. Also, Bocco (2019) pointed out that the landscape results from community perception and social construction throughout history, defined as a deep interrelation of systems made up by their physiognomy, a particular fraction of the land surface. In the study site, the landscape is made up by a forest within an area with geological particularities that happen there, where rock formations develop, which have been the basis of tourism. However, the community has classified the valley according to its lands and physiognomy; areas of tourism exploitation have been developed, based on the aptitude and the landscape.

In patrimonial representation, the landscape is considered as the cultural and historical heritage of the people, with the capacity to contribute to human welfare and the consolidation of its identity (Leco, 2017). In Mexico, tourism development has standardized many landscapes and dispossessed them of their peculiarities; therefore, referring to landscape as heritage requires a dialogue of knowledge, with the participation of the human populations to whom their dominion belongs (Paradowska *et al.*, 2011).

The host of non-scientific understandings, that is, the local knowledge there is in the memory and daily life of inhabitants of a place, town or region, constitutes what is known today as biocultural heritage. It is a way of appropriation throughout time for human communities to take over the goods and services of nature (Toledo, 2005). However, Hernández *et al.* (2022) mentioned that the intergenerational transmission of understandings and memories is insufficient to keep alive the local knowledge. Because of this, there is an attempt to develop integral knowledge constructed and operated by a specific group, in this case Bellas Praderas CA.

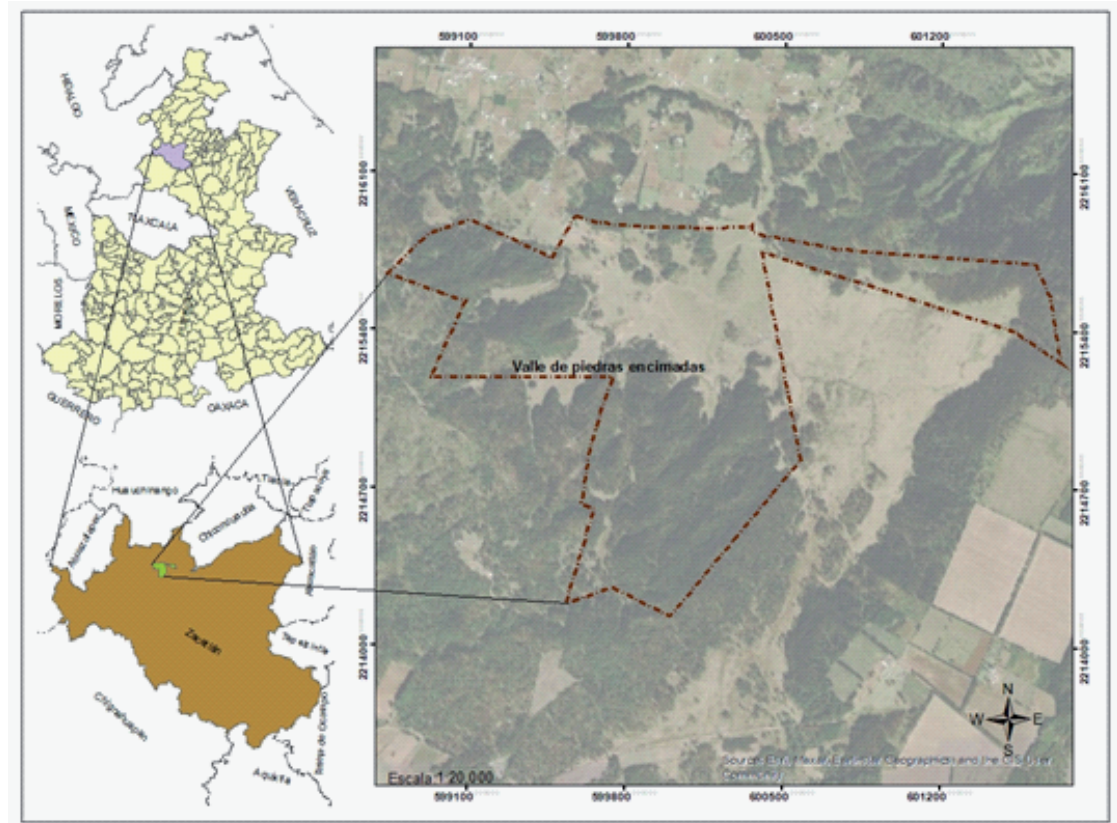
To develop this knowledge, we must consider the theory of ethnodevelopment proposed by Bonfil (1982) and the dialogue of knowledge, since this approach seeks for peoples to be able to develop their future, making use of their

resources; in this case, rock formations as natural heritage, understandings, nature and interrelationships reflected in the landscape heritage of the park. Likewise, when the dialogue of knowledge is applied, local understandings of the inhabitants and scientific knowledge of the researchers are exchanged, to construct a view of rural life, their future and, naturally, their own development.

## METHODOLOGY

### Location of the park

The Valle de Piedras Encimadas Park has 200 ha and is found in the locality of Camotepec (20°02'48" N and 98°04'00" W), 26 kilometers from the municipal township of Zacatlán, in the Sierra Norte of the state of Puebla. The main access to the site is through the Zacatlán-Huauchinango Highway (Figure 1). According to the National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*, INEGI, 2020), the total population of the community is 2,601 inhabitants; the indigenous population represents 1.27%, and 0.38% speak Náhuatl, while Spanish is used for daily communication. The



Source: prepared by the authors with cartography from INEGI, 2022.  
**Figure 1.** Location of Valle de Piedras Encimadas in Zacatlán, Puebla.

location is found within the micro-basin of the Coahuila River, which belongs to the Necaxa Sub-basin, originating 6.5 km south of Camotepec, at an altitude of 2,467 m above sea level (RH27Bb area of the national digital map; INEGI, 2022).

### **Data collection**

The research was of mixed character. Cartographic analysis was performed for the characterization of the natural heritage, as the first approach to the territory, and two field visits were made during the time of tasks in the park (March 2022), to verify the cartographic information, recognize the territory, and then, for the literature review of studies about nature in the study area. The characterization of the cultural heritage was made through the development of ten semi-structured interviews, considering the ten main areas of the park, through snowball sampling, starting the interviews with the president of the CA and directed at people in charge of different areas of the park.

The semi-structured interview was subdivided into three sections: 1) history of the park, 2) understandings and practices of the community from the past, and 3) knowledge, training and services from the community for the park. Similarly, the dialogue of knowledge was carried out as methodological instrument, with four working groups, established by activities with the objective of understanding their perspectives in terms of organization and services that the park provides. In the first group, there were people in charge of bicycles, horses and hiking; the second was made up by people in charge of the camp and the handicrafts shop; the third included zip line, archery, labyrinth, rolling spheres, and crashing spheres; and in the last group, there were people with quad bikes, wagons, and hiking guides.

With the semi-structured interviews, understandings and practices of the community from the past were researched, as well as knowledge, capacities and services of the community and transformations of the community as a result of tourism, which provided the outlook of biocultural heritage from the locals, who give rise to their own development. Finally, the analysis of information was through the reproduction and systematization of recordings of semi-structured interviews and working groups, as well as the review and analysis of field notes.

## **RESULTS**

### **Park organization**

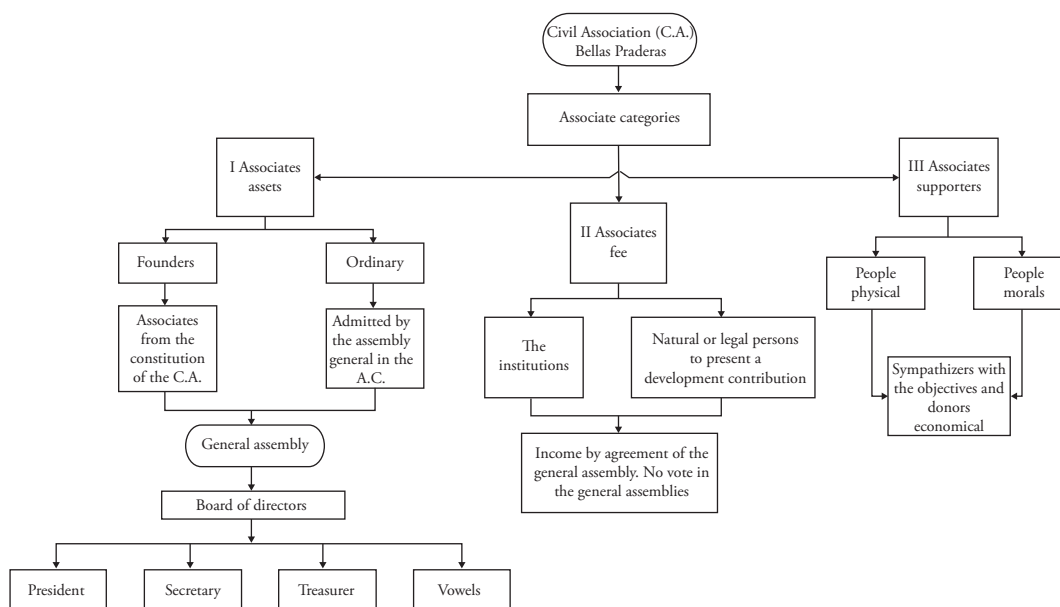
The park's organization is based on the park management provided by Bellas Praderas CA, which is divided into three categories: active associates, who are the only ones that can constitute a Council of participants, made up by a president, a secretary, a treasurer, and three vocals. From the latter, one is

named commissary, whose main activity is to monitor that the assemblies happen in an orderly fashion; the Council is approved by the General Assembly (Figure 2).

There are two types of active associates: the first are the founders who are present since the constitution of the CA, and the ordinary ones, who are those that have been admitted through the General Assembly, based on a proposal of service or activity that can be implemented in the Park; they only accept members that are originally from the locality of Camotepec. The two other types of associates do not have a vote in the assemblies, although they can contribute an idea of development or economic donations, among them the institutions and the individuals or legal entities, depending on the case.

The General Assembly of the CA is conducted every month and, occasionally, there are extraordinary ones; all the members must attend, no representatives are accepted, only permissions with written proof that the Assembly endorses with a unanimity agreement. In the assemblies, the tasks that will be carried out every fortnight are determined, in groups of ten or 15 people, in function of the amount of work that the activities agreed upon require (cleaning of the main entrance, tree pruning, painting signs, spreading ballast on the roads, making wooden garbage dumps, among others), and if someone cannot attend, they become obliged to pay a fee.

The park functions every day for 9 hours, with the exception of New Year's



Source: prepared by the authors with information from the Bylaws of Bellas Praderas C.A.  
**Figure 2.** Organization chart of the Bellas Praderas CA civil association.



and June 29<sup>th</sup>, which is the patronal festivity of San Pedro and San Pablo. The entry after 15:00 h must be done with a hired guide, because although there are some signals, due to the fog that happens at different times, the visitors can get lost in the forest. The park does not have an entry fee, but a voluntary donation is requested, which is used for maintenance and conservation of the place. The services that the CA offers in the park are numerous; they are divided into eight sectors (tourist guide, attractions, food, parking, lodging, cultural, biocultural, and health), which include different activities, the most important of which being hiking, horseback riding, and wagon rides, together with the sale of handicrafts and edible and health products, which are carried out permanently. All the other activities are conducted during the weekends and in holiday seasons, except the lodging in cabins, which are under construction. To provide these services, the association has become organized in different groups, and profits obtained are divided among those that perform the activities; only four activities (bicycle rides, quad bike rides, zip lines, and palapas) are managed by the committee, where all the incomes are distributed to all the members of the association.

The routes for visits follow the rock formations within the pine-oak forest as the main attraction. In the entire valley, more than 240 have been identified, although the visit includes around 26; the most famous formations receive the names "the king's profile", "the riding chair", "the family", and "the portal" (Figure 3).

The latter is characterized by having three spaces that simulate portals, and it is said that these portals can take you to the past, the present and the future. The figures may agree with the name assigned or not, and they vary according to the imagination of the visitor. Thus, there are names that reflect the perception of figures of animals, people, cartoons and faces.

### **Characterization of the natural heritage of the park**

The study area, according to the National Forest Commission (CONAFOR), is found downwind from the Sierra Norte in the state of Puebla, where the trade winds from the northeast dominate, which sweeps humidity from the Gulf of Mexico and force air to descend down the slope of the sierra, generating cloudiness and rainfall (CONAFOR, 2015). The runoffs generated by rainfall generate an intermittent river within the study area, which in years with more rainfall is semi-permanent. This runoff joins the Coahuila River, which originates 6.5 km south of Camotepec, belonging to the Necaxa Sub-basin (INEGI, 2022).

The convergence of different characteristics and physiographic elements give place to the existence of diverse ecosystems, landscapes and micro-regions inside the park. This is because the characteristic climate is temperate humid



Source: photograph taken by the first author.

**Figure 3.** “El portal” rock formation.

(García, 1964), with a mean temperature of the coldest month that fluctuates between  $-3\text{ }^{\circ}\text{C}$  and  $18\text{ }^{\circ}\text{C}$  and the warmest month, which surpasses  $10\text{ }^{\circ}\text{C}$ . The annual rainfall ranges between 2,000 mm, with rains from May to October, and cyclonic presence in September (CONAFOR, 2015).

One of the main characteristics of the environment is fog, due to the climatic conditions in the park, and it is a factor expected during the entire day; the inhabitants mention that there is presence of clouds in spring and summer, and in rainy season and winter the fog is thicker. In these cases, the visit through the park must be carried out more carefully. This climatic characteristic provides the park qualities of exceptional landscape beauty, which merge with the natural resources of the environment and serves fundamentally as the legend of the giants.

The climatological characteristics present in the valley provide elements for the coexistence of pine-oak forest, where the genera *Pinus* and *Quercus* are present, with variable heights. The main pines are: ocote rojo (*P. patula*), ocote chino (*P. leiphyla*), ocote or pino chamaite (*P. montezumae*), and in lesser degree, pinabete (*P. ayacahuite* var. *Veitchli*), pino lacio (*Pinus pseudostrobus*), and broad-leaf oak (*Quercus crassifolia*) (CONAFOR, 2015). There are also plants such as escoba (*Baccharis conferta*) and gobernadora (*Larrea tridentata*) (CONAFOR, 2015). The ecological code of laws of Zacatlán (CONACYT and H. Ayuntamiento de Zacatlán, 2010) mentions arborescent ferns such as *Cyathea fulva*, and where the relative humidity is very high, there are epiphytes such as *Tillandsia* sp.

The vegetation present in the valley is favorable for there to be an important zone of fauna convergence and exchange. From the monitoring of mammals

carried out inside the park by Vázquez (2019) during 2017, the existence of flying and non-flying species could be appreciated, with greater influx of species of rodents and carnivores, until accounting for 33 native species. The wild fauna includes some rodents registered during monitoring: rock squirrel (*Otospermophilus variegatus*), squirrel (*Sciurus aureogaster* and *S. oculatus*), Mexican vole (*Microtus mexicanus* and *M. quiasiatater*), northern pygmy mouse (*Baiomys taylori*), ratoncito (*Peromyscus aztecus*, *P. difficilis*, *P. gratus*, *P. maniculatus*, *P. mexicanus*) and ratoncillo (*Reithrodontomys fulvescens*, *R. mexicanus*, *R. sumichrasti*). Of the carnivores, the following were observed: bobcat (*Lynx rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), skunk (*Mephitis macroura*), weasel (*Mustela frenata*), cacomixtle (*Bassariscus astutus*), coati (*Nasua narica*) and raccoon (*Procyon lotor*) (Vázquez, 2019).

In addition, according to the ecological code of laws of Zacatlán (CONACYT and H. Ayuntamiento de Zacatlán, 2010), different birds can be appreciated in the park such as red-billed pigeon (*Columba flavirostris*), finch (*Carpodacus mexicanus*), hummingbird (*Lampornis amethystinus*), colibrí enano (*Atthis heloisa*), calandria (*Icterus wagleri*), chimbito (*Spizella passerin*), picochueco (*Loxia curvirostra*), vireo (*Vireo* sp.), clarín jilguero (*Myadestes obscurus*), tangara dorsirayada (*Piranga bidentata*) and jilguero encapuchado (*Carduelis notata*).

Among the convergence of natural characteristics, there is the soil classified as Andosol. This type includes volcanic soils, which contain considerable fertility, although with some limitations; they are very apt for agriculture, if the relief conditions allow it (Báez *et al.*, 2011). Presently, the lands from the park are forest, with open spaces in the valley, which are used for sheep grazing. Before it was a tourism park, there was corn sowing. According to INEGI (2009), in the Series IV, the park has more than half of its area (59%) with coniferous forest, specifically pine-oak forest. There are also grasses and herbs (40%), and a minimal part of rainfed agriculture (1%), which is currently used for grazing. The zone is product of a geological process from the Mesozoic period, which is why the valley surface was originated by geological processes; it presents reliefs made up by folded rocks from the Paleozoic-Cretaceous, covered by thickness of more than ten meters of volcanic deposits (Capra *et al.*, 2006), identified as Basalt; it is a type of igneous rock whose formation is due to lava that spills out of a volcano; when it cools and solidifies, this type of rock is formed (INEGI, 2005), important component for locals, since these rocks have been their main tourism attraction.

### **Beliefs, cosmogony and local knowledge**

It is pertinent to glimpse that the population has a series of beliefs, histories and myths, as part of the biocultural heritage, providing an identity, such as the Legend of the Giants of Valle de Piedras Encimadas. According to the

semi-structured interviews carried out with locals, it was possible to determine a legend of local dominion:

It is said that the valley was the creation of Quetzalcóatl, deity of the Nahua culture, for a giant that emanated nobility, since the others had been destroyed because they were proud and vain. The valley is hidden in the mountains so humans would not find it. The giant, due to loneliness, did not want to continue living, so he asked the god of wind for a companion, who refused to create it. However, Quetzalcóatl gave in and ordered the giant to pile up rocks and, then, he gave them life. When the population of giants grew, and the noble giant died, they decided to abandon the valley, so they were punished by Tezcatlipoca, who turned them into rock. These giants are suffering a condemnation in the middle of the forest, with abrupt climate changes, since there can be days with sunny mornings, rain in the afternoon, and foggy nights, and it is even said that giants wail when the wind blows.

The legend is narrated within the visits, in front of the rock formation, the “king’s profile” or “gray rock”, to explain the mystical origin of the valley. When they were interviewed, locals expressed their ideas and feelings about environmental knowledge and understandings of the park management, in their forest area, and the care for rock formations, vegetation and fauna. Therefore, their understandings have been present for generations, but they can be at risk, from intensive tourism for profit. However, throughout time, the locals have created histories of the valley, about how it used to be before it was constituted as a park and, also, after the organization set up for its function. Their historical knowledge is related to the way in which tourism was conducted; all the participants in the working groups mentioned that visitors came in cars to the place they wanted to reach; that the influx of visitors was out of control and numerous, compared to those that currently visit. There is also confusion among the visitors, related with the formation of the valley as an ecotourism park, since they are only asked for a voluntary donation and do not paying a fee, and many have the wrong idea regarding this entry, since in fact they are not charged a fixed fee.

From the perspective of the locals, the landscape has been changing: “before, it was just free, there was a lot of forest, many large trees”; “there was more vegetation, more fauna, and many rabbits”. However, locals mentioned that “since it was private property, the forest was felled, and the mountains were cleared”. Currently, the forest park is not felled, and pruning is done only once per year, as well as firebreak gaps or when a tree is old and must be eliminated, to decrease the risk of accidents for visitors.

People from the CA mentioned that the forest grew as a result of the establishment of the park, because within its agreements, it has been decided that they will not fell trees; the firewood that is used by tourists who arrive

to camp in the park comes from branches that are cut during the tasks. This includes some branches from the trees that cover the rock formations, so visitors can appreciate the full rock formations. Another piece of local knowledge is found in the utilization of plants, which receive local names, for example, they call trees from the locality “ocote chino” or “encinos”; it is similar with the shrub vegetation and there is greater accuracy for the case of medicinal plants, of which there is also knowledge about the ills they cure, procedures, doses, and frequency of use. Among their environmental knowledge, names and uses of edible plants, ferns and mushrooms are included; the latter are used during the rainy season, between the months of July and August.

The locals have knowledge of the lands, their characteristics and localization, and where it is favorable to farm in the locality of Camotepec. They also point out the changes that have taken place throughout time; they mentioned that the soil “used to be black and now it is no longer like that, it is washed out”. This is a reflection of the depth and abundance of local understandings of the inhabitants, as suggested by Toledo (2005). During a certain time of the year, some fireflies have been observed, indicator of good conservation of the forest (Magaña and Gómez, 2023). In addition, in another season, some blue and pink butterflies arrive. Regarding the wild fauna, the animals mentioned by the locals were: rabbits, squirrels, opossums, armadillos, coyotes and rattle snakes. Hunting is practiced in the locality, and their populations have decreased. Regarding birds, they mentioned that “there are hawks” that hunt other smaller birds, and that there is also a bird called “caxcos” of blue turquoise color, and which can be seen only in season, although its arrival has decreased.

Inside the park, tenants from Camotepec and some members of the organization carry out sheep grazing. Since they own sheep, the locals shear their ewes and prepare the wool to knit overcoats, a characteristic garment of the zone, due to the cold and rainy climate. Currently, the wool that is sheared is found in the pillows of locals, and sometimes in blankets, although it is knowledge that is prone to be lost, because given that they compete with cheaper items, their value depreciates.

Horses are a key piece to carry out tourism in the valley, since the visits are done on horseback; therefore, they require management. In this case, each groom is in charge of his horses, and the only rule is that the male horses are gelded so that they have a calm temperament and they are easier to handle in the presence of the park’s visitors.

One of the social and cultural elements that make up the landscape as heritage is its peculiar households, differentiated by the type of climate and the construction material (Ferrari and Paterlini de Koch, 2013). In the case of the park, since it is a forest area with temperate climate, the locals mentioned that

“most houses are simple, made of wood, where you share with all the siblings and they all coexist in the same room, and when the economy improves, the houses are made of cement and brick; and tourists even decide to stay in the community, with its wooden homes”. Another local described the homes in Camotepec as “wooden houses, with tile or *tejamanil* roofs, completely made of wood, which are found between paths, since before there weren’t that many roads, they were mostly paths. The real roads were where they walked, we call them bridle paths, only horses walked on them, and the others were paths where only people walked”. Someone else said they were “cabins with thin walls that were intertwined with wooden pegs, with wooden furniture, usually on logs and with *tejamanil* roofs”.

#### **Ceremonies, festivities, fairs and social activities**

The CA that runs the park participates in festivities. The fair at the locality takes place the last week of the month of February, to celebrate the Virgin of Ocotlán; they select a queen among the young women of Camotepec and carry out many activities, from dances to outdoor activities, such as races from the main entrance to the church in the locality; it should be mentioned that some of the attendees to the community festivities also arrive at the park for a day in the countryside.

Another important festivity in Camotepec mentioned by interview respondents is the festivity devoted to Saint Isidore the Laborer (May 15<sup>th</sup>); people of the locality usually make a visit of the lands that will be farmed, “with dances and praises for the saint”. In the plot that each local will farm, a wooden cross is placed in the center, with white flowers, to obtain a good harvest; from these harvests, they participate in the park, since the tenants are allowed to offer their products to visitors.

On June 29<sup>th</sup>, they come together with the locality for the patron saint festivity for Saint Peter and Saint Paul, in honor of the patron saints of the Zacatlán Parish; that day, they dedicate a mass. In previous years there was a gathering, offering food to the people who attended the festivity and some dances. Sometimes, there has been participation from government institutions, and at the end of the year, the traditional Christmas Posadas are held. All of this reflects the worldview of the community, which has been transmitted generation to generation, and has built their identity and culture.

#### **Training and scientific knowledge**

According to the approach of ethnodevelopment, external knowledge is integrated with local knowledge. In the case of the park, foreign elements that have been merged are the different training events and courses, which have been offered by the Ministry of Tourism in Puebla, and the Zacatlán

office, in addition to the courses offered by Civil Protection. According to the semi-structured interviews conducted, the stage when they received a lot of training was between 2009 and 2010, offered in the municipality. The training and courses helped to improve the services that they provide and to develop the new ones, in addition to improving the organization, which indicates the appropriation of knowledge.

The Park was one of the natural attributes that was considered for the municipality of Zacatlán to be incorporated to the program of Pueblos Mágicos in the year 2011 (Hernández and Salamanca, 2020). The training processes of locals are related to this fact, which has benefitted the park and its operators. Based on the first report by the municipality government of Zacatlán (Cruz, 2012), the Integral Program for Tourism Training and Competitiveness was carried out, which trained different tourism organizations, among them Bellas Praderas CA, in aspects such as service for diners, design and development of tours and visits, commercialization of touristic products, development of touristic products, *superhost* and effective communication; all of this, with the purpose of improving the services offered inside the park.

Civil Protection has trained them in first aid and transport, attention and dressings for the wounded. Also, in accordance with the services that are offered, they have received some preparation, as is the case of the grooms, since they mentioned that they must give a good impression, welcome visitors, introduce themselves, and offer their services, without bothering the visitor. The description given by the grooms points out that members of the CA take ownership and reproduce the knowledge that was taught to them.

## DISCUSSION

The community of Camotepec, through Bellas Praderas CA, conducts a type of tourism in the park, where it shows the capacity for decision making about management, conservation and implementation of services that are of interest to visitors. Regarding nature and culture, it does with the practice of community organization within a social and solidary economy; that is, it is an example of the practice of ethnodevelopment, as suggested by Bonfil (1982). To characterize the natural heritage, environmental aspects present were described, considering climate, hydrology, fauna, flora, soil, land use and vegetation; and geology, which together describe the convergence of the environmental characteristics that shape the landscape.

The attraction of the landscape is in the conserved pine-oak forest, and in the rock formations, sculpted by nature during millions of years through the erosion caused by wind and rain; these seem to be in an unreal world, surrounded by pine-oak forest, which is covered by fog at different times of the day (Figueroa and López, 2017).

The enjoyment of geophysical resources and attractions offered by the territory, in this case the valley, to contemplate the elements present in it, is attributed a monumental, artistic and cultural value, establishing the use-consumption of the space for leisure (Guzmán, 2022). Similarly, Cáceres (2015) states that the physical-natural characteristics constitute the tourism attractions of a place, in this case the park; the traits that give it intrinsic value are the rock formations, the mountains surrounding it with conserved pine-oak forest, the wild fauna, the intermittent river that crosses it, in addition to the climate with seasonal variations.

Also, the local beliefs, worldview and knowledge are elements of the cultural heritage that shape that which makes a tourism destination attractive (Lima *et al.*, 2012). Therefore, it is fundamental to incorporate the biocultural heritage, to achieve a proposal of change regarding the view of tourism that incorporates the community's understandings, towards a practice of ethnodevelopment from the perspective of good living.

Based on the legend of the giants, we can attest that legends and knowledge are part of the culture of a locality, and these are accumulative, changing and holistic, so that they undergo processes of adaptation to the needs of the locality (Hernández *et al.*, 2022). Therefore, the park reclaims life, understandings, culture and forest production, through ethnodevelopment. Likewise, the relationship between people of the locality and nature has allowed for families from Camotepec to obtain their food and satisfy their material and spiritual needs, which translates into the sustainability of nature and culture in Valle de Piedras Encimadas, as mentioned by Boege (2021).

On the other hand, the park's operation, based on the conjugation of the natural and biocultural heritage, and the contest of other understandings, has the possibility of generating an experience of self-development, ethnodevelopment, or alternatives to development that result from the view of the community. It allows the incorporation of other understandings and the possibility of establishing an experience which, in addition to the conservation of natural resources, allows the community's benefit according to its own view, built upon a dialogue of knowledge.

## CONCLUSIONS

The natural heritage of the park is not only found in the rock formations, but rather there are other natural characteristics that converge, such as flora, fauna, relief and climate. These elements make up an incomparable landscape, defining a landscape heritage favorable for the development of tourism and the conservation of natural resources, with sustainability vision. Tourism management conducted by the CA and the community of Camotepec represents the biocultural heritage that is expressed in the collection of understandings



about nature, use and conservation of natural resources, celebrations and traditional festivities, and the valley's imaginary and legends.

Likewise, the local food offered, the park's administration, its daily operation and planning, considers the conservation of natural resources and especially rock formations. Naturally, with a vision of future, success will depend on the survival of the members of the CA and part of the community. From this approximation, it is clear that the landscape heritage is only one of the elements, perhaps the first, within a tourism project such as the Park. The biocultural heritage of the community of Camotepec must be incorporated, and especially of members of the CA, who have the understandings, vision, management, operation and administration to develop the tourism activity in the Valle de Piedras Encimadas Park in Zacatlán, Puebla.

In addition to the landscape and biocultural heritage, the participation of external stakeholders is required, with their knowledge, ideas and participation; this, in order to become incorporated into the project, through a dialogue of knowledge, as essential resources for its functioning. The park's operation and the CA have been essential in the conservation of the forest and the rock formations that sustain the development of tourism. The basis has been local understandings and the appropriation of other knowledge, through training that has been provided by the Ministry of Tourism and Civil Protection, as well as the participation of professionals, who have strengthened the ability to decide and to construct their own development, that is, they have created ethnodevelopment from the perspective of good living.

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