

## Studying Landscape Diverse for Tourism Development in the Tay Nguyen Region, Vietnam



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**ABSTRACT:** Landscape has long been recognized as an invaluable resource for tourism development and the foundation for the sustainable development of an entire territory. However, in-depth research on landscape diversity for tourism development from the perspective of landscape science has not received much attention. Applying landscape analysis, field survey, and remote sensing methods, the study has shown diversity in the landscape formation components that determine the diversity of tourism types and products in the Central Highlands. Each landscape unit contains tourism resources, the vertical structure of the landscape unit represents the specificity and tourism potential, and the horizontal structure of the landscape represents the connection of tourism resources along the route. , landscape changes over time demonstrate seasonality in tourism. The landscape structure component is both an object resource for enjoyment and at the same time a place where the tourism process takes place. This is a solid basis for developing many types of tourism such as eco-tourism, cultural tourism, resort tourism, and adventure tourism... and creates the foundation for organizing tourist territories. sustainable history, exploiting and honoring indigenous cultural and historical values, protecting the environment, and ensuring the region's long-term development.

### 1. INTRODUCTION

The term landscape is a fairly ancient name for a complete geographical science, used to express a general idea about a set of interrelationships of different phenomena on Earth [12]. Along with that development, there have appeared many terms related to the landscape such as landscape structure, landscape rules, and landscape rhythm, but the terms contain many connotations, opening up many directions. That research is the term "landscape diversity".

The term landscape diversity today is understood in two main directions. First, in the study of ecosystems, landscape diversity implies diverse habitats of biological species, this concept is popular in Europe, Australia, and China [6, 7, 15, 20]. In recent years, the concept of landscape diversity in the ecological sense has received special attention due to the increasing process of landscape simplification, and the gradual loss of natural ecosystems and habitats for many species in the face of environmental degradation. human intervention. This concept appears in association with studies on biodiversity and species habitat conservation [4, 17]. Landscape diversity is the basis for biodiversity conservation and a condition for sustainable development of the territory. The International Convention on Biological Diversity, adopted in 1992 in Rio de Janeiro, recognized this [16]. Second, in the system of Earth sciences - landscape science, landscape diversity is understood as the diversity of territorial complexes, referring to studies of natural - territorial - landscape complexes, their morphological units, as well as complexes of a higher taxonomic level. Research in this aspect is of interest to Russian and Eastern European scientists and there are many profound studies [2, 21, 24]

Although landscape diversity is recognized as the most important feature of a territory, an indispensable component in the diversity of the natural environment, the concept of landscape diversity in landscape science is still limited. mentioned less than ecological science. The landscape diversity mentioned in landscape science has a broader meaning. Specifically, the concept of landscape diversity has been put forward by many Russian geographers in many different directions, considered a diverse combination of nature, history and culture, traditional environmental management, and organizations. Other combinations form structures that describe the landscape and determine the uniqueness of the territory [5]. According to A.I.Bacca and V.O.Mokiev (1997): landscape diversity is the expression of countless information of an individual or group on terrain areas, which the external expression of it is the interaction between nature and humans and the impact of those natural components. The development of

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landscape diversity has become one of the areas of modern landscape research today, allowing us to obtain new scientific and practical results in the management and protection environment [4].

Currently, in landscape studies, there exist two approaches to studying landscape diversity. Firstly, the direction of qualitative and quantitative analysis of the landscape structure of the area is based on the landscape map and statistics to determine the coefficients. This direction determines the frequency of the appearance of landscapes in a certain space in complex natural complexes with heterogeneous geological structures. Second, diversity landscape research is based on remote sensing data, whereby landscape diversity is understood as the combination of the shape and size of different ecosystems over a large area [13].

Although research purposes are different, assessing landscape diversity will use different research methods. For tourism, landscape plays an important role, influencing tourists' decision-making because they have a close relationship with each other, specifically:

*The first*, the physical components that make up the vertical structure of the landscape that are attractive to tourists are considered tourism resources. Specifically: the location of the territory, terrain, hydro-climate, creatures, and products with material and spiritual value created by humans that have tourism value constitute tourism resources. Natural tourism and cultural tourism resources. Meanwhile, natural landscapes (including natural components) and cultural landscapes (created by humans) are both considered resources and regulate different types of tourism [14]. Affirming the important role of landscape in tourism Terkenli and colleagues (2021) affirmed "there is no tourism without landscape" [22].

*Second*, the level of landscape diversity per unit of territorial area determines the diversity of tourism types. The more diverse the landscape, the more types of tourism can be developed. When studying mountainous landscapes for tourism development, AN Dunet (2009) affirmed that "mountainous landscapes have great differentiation at different scales. The reason is due to differences in natural conditions and socio-cultural groups, so mountain areas are very favorable for tourism development" [10]. In another study AS Sokolov (2014) Usually, a territory with a high landscape diversity index will bring more forms of exploitation and use of the territory. In particular, many studies have confirmed that "a territory with a high landscape diversity index will be more suitable for tourism and entertainment development than a territory with a low diversity index" [3].

*Third*, the diversity of landscape functions determines the quality of tourism products. The term "function" stands for the material and energy flows of natural processes that provide goods and services to meet human needs [11]. For tourism, the information and entertainment function group, production, and supply functions play the most important role. Cultural and ethnic objects associated with humanistic elements of the landscape create intangible resources for the tourism industry [18]. Landscapes containing heritage and cultural heritage are considered "a gift from the past to the future". This is considered a special tourism resource, containing irreplaceable historical and cultural values. Heritage is the basis for developing cultural tourism, eco-tourism, sightseeing, discovery, and tourism associated with education and history. Tourism associated with heritage creates conditions to enhance knowledge, inspiration, and destination culture for tourists. Besides, Tourism is considered a "smokeless industry", but the level of natural resource consumption of tourism is not inferior to other industries. Tourism needs food, water, energy, space, and many other products provided to visitors. This functional group has provided the substrate for the tourism industry to develop. Without these goods and services of the landscape, the tourism industry cannot develop. Third, habitat functional group Natural and semi-natural landscapes provide living and breeding places for organisms, thereby maintaining biodiversity. This functional group has indirectly provided consumers for the tourism industry, especially by creating a premise for eco-tourism and nature-based tourism. In addition, the recreational and tourism functions of landscapes confirm the direct value of landscapes and ecosystems to the tourism industry. The landscape is a place of rest, relaxation, and inspiration, improving the mental and physical health of visitors.

*Fourth, landscape diversity contributes to the conservation and development of tourist destinations.* Preserving landscape diversity can create diverse and enriching experiences for visitors. For example, a land with a combination of mountains, forests, seas, and cultural landmarks will bring visitors different experiences during a trip. This can make visitors feel interested and want to explore more about that land. From that perspective, landscape diversity can be considered the basis for tourism development in the territory [25]

In addition, preserving landscape diversity can also create experiences close to nature for visitors. Well-conserved areas will have a rich variety of animals, plants, and ecological activities. This can attract tourists who love to explore and explore nature and also help increase their awareness of environmental protection. This point of view has been pointed out by Nguyen Thu Nhung and colleagues (2024) for the Cat Ba National Park area of Vietnam [19] or Dunet et al (2022) affirmed that "Landscape diversity is a factor that promotes the development of the tourism industry and is the basis for sustainable development" [9]

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However, if the landscape is degraded or loses diversity, the visitor experience will also be affected. Not only does it cause mental damage and create a feeling of unprofessionalism for the tourist destination, but the loss of landscape diversity can also make visitors feel bored and not want to return.

### 2. DATA AND RESEARCH METHODS

#### 2.1 Research area

Tay Nguyen is the highland region of Vietnam, located in the center of Southern Indochina, including 05 provinces of Kon Tum, Gia Lai, Dak Lak, Dak Nong, and Lam Dong (arranged in order from North to South). The Tay Nguyen region has great potential for tourism because of its attractive natural landscape and long-standing ethnic and cultural traditions, creating a unique nuance.

Firstly, the Tay Nguyen has quite diverse terrain, from high mountains to large plateaus and valleys with rich fields..., which has created the Tay Nguyen with a fresh, cool climate. fresh all year round, especially Da Lat and Kon Plong (temperate climate in the tropics) are very favorable for the development of tourism in general and resort tourism in particular. At the same time, this place also discovered many mineral water sources that are very good for health such as Kon Du, Ngok Tu, Dac Mol,... - places where it is possible to build resorts and medical treatment areas.

Second, Tay Nguyen is home to attractive natural landscapes such as Pa Sy, Dak Ke, Dak Phe (Kon Tum), Phu Cuong, Pulse Khoeng (Gia Lai), Dray Nur, Gia Long, Trinh waterfalls. Nu (Dak Lak), Dray Sap, Lieng Nung (Dak Nong), Prenn, Pongour, Voi, Dantala (Lam Dong); Natural and artificial lakes such as Toong Dam lake, Toong Zo Ri (Kon Tum), T'Nung lake (Gia Lai), Lak lake (Dak Lak), Than Than lake, Xuan Huong lake (Lam Dong). Objects for tourists to visit and enjoy.

Third, Tay Nguyen has nature reserves - places that preserve the unique features of primary tropical vegetation, including many rare and valuable species of flora and fauna such as Po mu, Five-needle pine, Yew, Wild buffalo, Gray cow, Benteng cow, Gaur, Elephant, Carrot deer,... These are objects that can be exploited for sightseeing and research tourism.

Fourth, Tay Nguyen is a multi-ethnic and multicultural land. The attraction that stimulates the curiosity and discovery of tourists is the culture of the Montagnard ethnic groups in the Tay Nguyen. The lives of the Montagnard ethnic groups here were formed, existed, and developed throughout a long history, closely associated with forest culture, villages, customary laws, and traditional rituals; That has created a unique and unique cultural identity of Tay Nguyen with Rong houses, Longhouses, Elephant racing festivals, Po Thi festivals, water wharf worship ceremonies, Epics, Stone Instruments,...; In particular, Central Highlands Gongs are valuable as unique evidence of traditional cultural characteristics.

Reality shows that in Tay Nguyen, tourism development still has many difficulties and challenges. Therefore, landscape diversity research plays an important role in promoting the sustainable development of tourism in Tay Nguyen, creating reasonable and attractive tourism products and programs, and creating opportunities. for the community to participate in tourism development.

#### 2.2 Research methods

To complete the research, we use 3 main groups of methods

##### a. Landscape analysis methods

This method is used to study the correlation between landscape components (geology, topography, soil, climate, hydrology, biology) of Tay Nguyen, thereby determining landscape diversity in structure. stratification structure. At the same time, this method aims to analyze the relationship between the landscape diversity of Tay Nguyen and tourism.

##### b. Field survey methods

Site-based and route-based field surveys between 2012 and 2021 were carried out to determine the reality of landscape diversity and tourism development. Field survey sites were carried out in Kon Tum Province, Gia Lai Province, Dak Lak Province, Dak Nong Province, and Lam Dong Province. Field survey routes were carried out along route 14, road 14C linking 05 provinces in Tay Nguyen and along herringbone routes connecting the Tay Nguyen provinces with the South Central and Southeast regions.

##### b. Remote sensing method

The Tay Nguyen is a vast territory with diverse terrain such as mountain, plateau, and mountain plain terrain. Although field survey methods were used, some points need to be surveyed located on rugged, difficult-to-reach terrain. So, remote sensing methods (Sentinel photo) are used to determine landscape characteristics. observe and evaluate the diversity and possibilities for tourism development at that point.

3. RESULTS AND DISCUSSION

3.1 Diversity of Tay Nguyen's Landscape

The landscape of Tay Nguyen is diverse not only in structure (including vertical and horizontal structures) but also in landscape function. The differentiation of natural formations, combined with the impact of human natural improvement activities, has created diversity in the stratification structure of Tay Nguyen's landscape. The geographical position of Tay Nguyen region compared to the sun's position and Earth's rotation, combined with topographic conditions play an important role in interacting with radiation and atmospheric circulation that has formed in the area 01 tropical monsoon landscape system of continental Southeast Asia, 01 tropical monsoon - highland landscape subsystem. The differences in terrain types and changes in climate according to the law of high altitudes have determined the diversity in structure and differentiated the landscape of the region into 04 landscape classes, 08 landscape sub-classes; 17 landscape types, and 84 genera (Fig 1).

The diversity in landscape formation components determines landscape diversity. They have a close relationship with each other and with tourism resources. Each landscape unit contains tourism resources, the vertical structure of the landscape unit represents its specificity and tourism potential; The horizontal structure of the landscape represents the connection of tourism resources along routes, and the change in landscape over time represents seasonality in tourism. The landscape structure component is both an object resource for enjoyment and at the same time a place where the tourism process takes place. The diversity in the landscape structure of the Central Highlands has great potential for tourism development here.

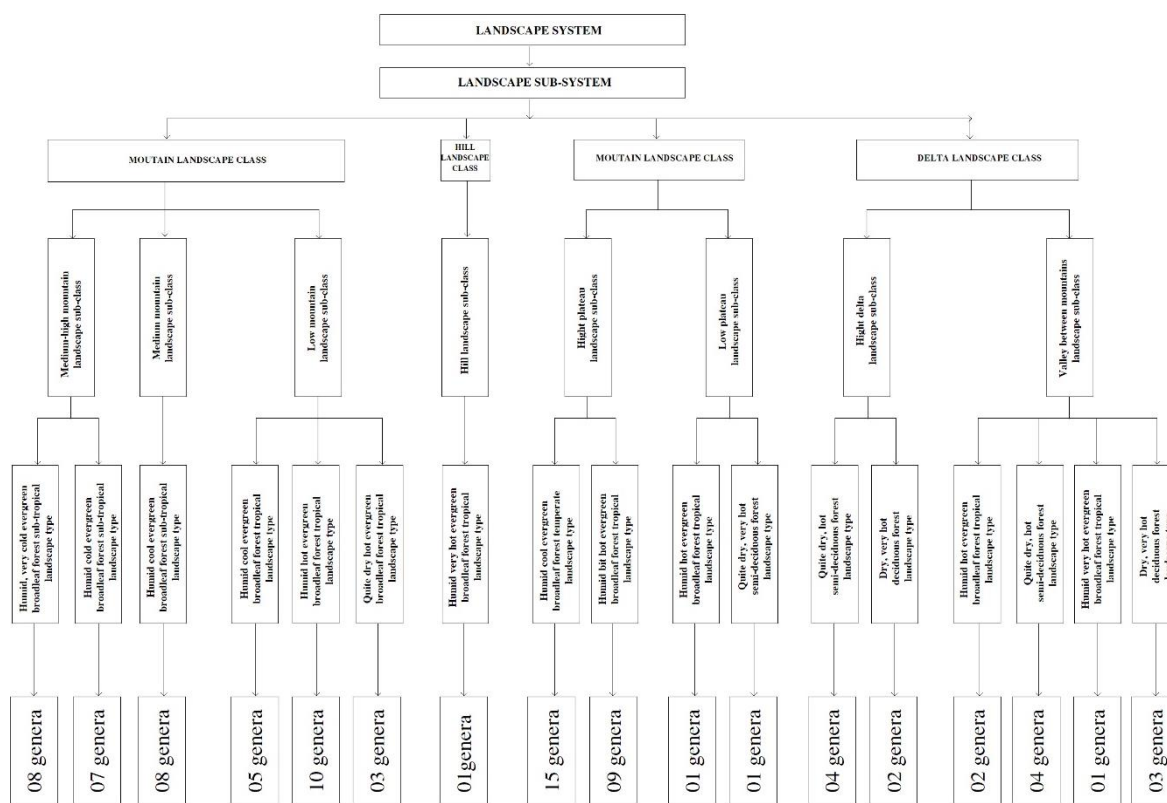


Fig 1: Diversity of Tay Nguyen's landscape structure

3.2 Diversity of Tay Nguyen's landscape structure - potential for tourism development

The mountain landscape classes occupy large in the total area of the entire region (53%) with mountain blocks and ranges with peak surfaces of over 2000 m such as the Ngoc Linh mountain range (Ngoc Linh peak 2598m), Chu Yang Sin mountain massif (Chu Yang Sin peak 2,442m), Dan So Na - Ta Dung range (Klang peak 2004m). The mountain landscape class is divided into 3 landscape sub-classes: low mountain landscape sub-class, medium mountain landscape sub-class, and medium-high mountain landscape sub-class. The landscape sub-classes are characterized by clear stratification according to high belts and great depth of separation.

- *Low mountain landscape subclass (<800m)* includes 3 landscape types and 18 genera distributed in Sa Thay (Kon Tum), Mang Yang, Krong Pa (Gia Lai), eastern Krong Pach, Lak (Dak Lak) districts, with a dense tropical climate. Characterized by an average annual temperature of 21-24°C, average rainfall >1600mm/year. The process of erosion - erosion and landslides take place mainly in this area, the level of deep separation and horizontal separation are both strong (average depth of separation is 180-250m; the level of horizontal separation is strong). >0.45km/km<sup>2</sup>, high slope (average 20-30°), in some places the slope

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reaches  $>35^\circ$ . The dominant vegetation is tropical evergreen broad-leaved closed forest. However, very few of this type of forest exist in its original form, concentrated mainly in national parks and conservation areas with a diversity of species composition such as Kien Kien (*Hopea siamensis*); Nausea (*Vatica odorata*); Honey mahogany (*Sindora siamensis*); *Machilus* sp.; Castor oil (*Euphorbiaceae*) and species of the Orchid family (*Orchidaceae*) are distributed at altitudes  $> 600\text{m}$ , concentrated in Sa Thay district. In addition, in this sub-class, there also exists a type of semi-deciduous closed broad-leaved forest, characterized by dioecious trees such as tea tree ben, and cymbidium, distributed at altitudes  $< 600\text{m}$  on low slopes. However, there is not much of this type of forest left, most of the area has been cleared by humans and converted to agricultural development purposes. Indigenous ethnic groups living mainly in this area include Ja Rai, Xo Dang, Ro Mam, Ba Na, and E De. These are ethnic groups with extremely unique and rich cultural features, including a system of festivals based on the life cycle, seasons, Gongs, sinus dances, and folk songs; writing; customs and practices; architecture of Rong house, Longhouse, statue of Mo house; costumes, cuisine...

Through analysis of natural conditions, it is shown that the landscape unit in Sa Thay district possesses great potential to develop a type of tourism to explore the forest ecosystem and culture of ethnic minorities. The large forest area and diverse flora and fauna create an attraction for tourists who love wild nature. Besides, the presence of traditional craft villages, unique festivals, and unique cultural identities of ethnic minorities also contribute to attracting tourists to visit and experience. On the contrary, landscape units distributed in some other districts such as Mang Yang, Krong Pa (Gia Lai province), Krong Pak, and Lak (Dak Lak province) face certain limitations in tourism development. Due to the characteristics of highly fragmented terrain, steep slopes, sparse vegetation cover, and great influence from human production activities, these districts do not possess favorable natural conditions to attract travelers. Rugged terrain, barren land, and limited transportation infrastructure are also factors that hinder the ability to develop tourism in these areas.

- *Medium mountain scene subclass (1000-1300m)*, including 2 landscape types and 13 genera, distributed in the districts of Dak Gle, Tu Mo Rong, Dak Ha, Kon Ray (Kon Tum), Mang Yang, Dak Doa, KBang (Gia Lai), Krong Bong, Lak (Dak Lak), Krong No, Dak Glong, Dak Song (Dak Nong). The terrain is a blocky low mountain type, with a large depth of division (250-300m), strong horizontal division ( $0.35\text{km}^2/\text{km}^2$ ), slopes of  $25-30^\circ$ , and the process of erosion and erosion is strong. Such terrain characteristics make it difficult for sightseeing tourism activities but are quite suitable for the development of adventure sports tourism. In addition, due to the dominant terrain altitude (1000-1300m), the medium mountain landscape sub-class is characterized by a humid subtropical climate in the mountains with a temperature that decreases with altitude, the average temperature from  $18-22^\circ\text{C}$ , average rainfall  $>2000\text{ mm/year}$ , average number of cold months 2-3 months, average number of rainy days 141-180 days. Such climatic conditions not only create conditions for the development of humid subtropical evergreen broad-leaved forests but are also very favorable for resort tourism. Currently, this type of forest still retains its basic primitive nature, distributed in the buffer zone of Ngoc Linh, Kon Cha Rang, Nam Nung, Ta Dung nature reserves, and Kon Ka King and Chu Chu national parks. Yang Sin. The dominant plants are broad-leaved tree species belonging to the families Fagaceae, Lauraceae, Hamamelidaceae, Theaceae, Myrtaceae,... Species The trees of this forest type have a relatively large diameter, an average of 25-30 cm, an average height of 16-20m, and an average reserve of  $200-300\text{ m}^3/\text{ha}$ . Because the plant cover here is still quite rich, there are also many animals with many valuable species such as Red-faced Monkeys, Golden Deer, etc. The diversity of flora and fauna in the medium mountain landscape sub-class creates favorable conditions. Convenient for sightseeing, research, and development tourism.

Through analysis of landscape characteristics, the potential for tourism development is quite large. However, the landscape classes in this landscape sub-class develop on rather steep land ( $25-30^\circ$ ), with large depth separation (250-300m), exogenous geodynamic processes, and conflicts. weakest, most unstable with frequent landslides, erosion - erosion and mud and rock floods. This is one of the challenges and obstacles to developing tourism activities.

- *Medium-high mountain landscape subclass ( $>1600\text{m}$ )* includes 02 landscape types, and 10 genera, distributed in Dak Gle, Tu Mo Rong (Kon Tum), Krong Bong, Lak (Dak Lak), Lac Duong, Dam Rong (Lam Dong). The terrain of the region is a blocky mountain terrain with sharp peaks, steep slopes ( $>35^\circ$ ), large deep divisions (250-400m), and strong horizontal divisions ( $>0.45\text{ km}^2/\text{km}^2$ ). Due to the high terrain, the temperature drops further (average annual temperature ranges from  $17-18^\circ\text{C}$ ), the coldest month (January) is no more than  $14^\circ\text{C}$ , and the hottest month (June) is no more than high.  $20^\circ\text{C}$ ; The number of cold months is 2-3 months, except for some high peaks in the Ngoc Linh and Chu Yang Sin areas, the number of cold months is  $\geq 4$  months; Rainfall  $>2000\text{ mm/year}$ , number of rainy days 141-180 days. Thus, the climatic conditions in the medium-high mountain landscape sub-class are favorable for the development of resort tourism.

In this area, the natural vegetation type almost retains its integrity (concentrated in Ngoc Linh, Chu Yang Sin nature reserves, and Bidoup-Nui Ba National Park), and production activities in Agriculture and forestry rarely take place. Species belonging to subtropical evergreen broad-leaved closed forests mixed with temperate conifers appear in this sub-class with a preponderance of the Lauraceae, Fagaceae, Magnoliaceae, and Po families. mu (*Forkenia hodginsii*) and gymnosperm trees such as *Pinus dalatensis* are quite abundant. In addition, this place has many rare medicinal plants such as *Panax* sp., *Polygonum*



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multiflora, etc. The mountains are high and the forests are good, so animals are quite rich with many animals. Wild animals such as leopards, tigers, short-tailed porcupines, gaurs, fire leopards, black-shanked doucs, yellow-cheeked gibbons, tawny-cheeked gibbons, mountain-eared gibbons, gray-cheeked black-headed babblers, tree frogs...

Along with majestic natural landscapes and diverse flora and fauna ecosystems, this place also contains the unique cultural identities of indigenous ethnic groups such as Ba Na, Xo Dang, Gie Trieng, Ede, and M. 'Nong with traditional festivals and unique dishes such as green vegetables, grilled meat, sour fish, bitter eggplant,...

Analysis of landscape characteristics shows that the rich natural and cultural potential in the medium-high mountain landscape sub-class will attract quite a large number of tourists, scientists, and researchers to explore the landscape. as well as research on ecology and botany.

The hill landscape class accounts for a small proportion of Tay Nguyen, including 01 landscape sub-class, 01 landscape type, and 01 genera distributed in the Cat Tien region. The terrain is high, eroded and eroded hills, with an average slope of 15-20° and a depth of separation of less than 100m; Developed on mixed rocks including Sandstone, conglomerate, and siltstone of early-middle Jurassic age. This landscape unit is located at an average altitude of 300-400m located entirely in Cat Tien district (Lam Dong). Due to the high altitude of the terrain located in a transitional position, the climate here is hot and humid, the average annual temperature reaches 24°C, and there is no winter; The average annual rainfall ranges from 1300-1900mm, the number of rainy days is > 181 days, however, there are up to 3 dry months (January, February, March), humidity ranges from 66-71%. The above thermal and humid foundation creates conditions for the formation of tropical broad-leaved evergreen closed forests. However, due to strong human impacts causing forest degradation, natural vegetation has been replaced by planted forests and agricultural ecosystems. This is the residence of two indigenous ethnic groups, the Ma and the K'Ho, with traditional crafts such as brocade weaving, bamboo, and rattan weaving,... and also preserves a treasure of literature and art. There is a very rich folk culture such as the system of Gongs, Stone Instruments, legends, folk songs, etc. In particular, this place has discovered an animistic temple belonging to the Funan culture on the top of hill A1 (Quang commune). Ngai, Cat Tien district, Lam Dong) in the Dong Nai river watershed area - evidence of a unique culture dating back more than 1,000 years of history. Analyzing the characteristics of this landscape unit shows the potential for developing cultural and spiritual tourism.

Plateau landscape class rarely 36.5% of the total natural area of the entire region, most of the area is distributed in the provinces of Gia Lai, Dak Lak, Dak Nong, and Lam Dong. This landscape class has differentiation according to altitude:

*The high plateau landscape subclass includes 3 landscape types, and 24 genera, in the districts of Kon Plong (Kon Tum), Dak Song, Tuy Duc, Dak R'Lap, Gia Nghia City, Dak Mil, Cu Jut (Dak Nong), Da City Lat, Bao Loc City, Di Linh, Bao Lam (Lam Dong) at an average altitude of 900-1900 m above sea level. The terrain is a basalt plateau with erosion, erosion, strong horizontal division (horizontal division  $\geq 0.45$  km/km<sup>2</sup>), and medium deep division (25-30m); However, the surface is quite flat (average slope 12-18°). In general, the climate in this landscape sub-class is quite pleasant with an average annual temperature of 18-23°C, average rainfall >2000 mm, a short number of dry months (1-2 months), and an average number of rainy days. from 141-180 days/year. With a cool and pleasant climate, it is a favorable condition for the development of resort tourism. At the same time, it is a favorable condition for the development of closed evergreen broadleaf forests and open coniferous forests. Currently, closed evergreen broad-leaved forests have largely been exploited and land areas have been converted to agricultural and forestry production activities. The remaining natural forests are distributed in the Kon Plong district. However, due to nature's favorable climatic conditions, Kon Plong district, Da Lat City, and Bao Loc City have developed service-oriented agriculture with flower gardens, tea gardens, and branded specialty fruits. , is attractive to domestic and international tourists. The sparse coniferous forest type still exists mainly in the Kon Plong district and Da Lat city. This type of forest combined with a cool, fresh climate creates a beautiful, poetic natural landscape - an object exploited for tourist tourism development. This place is the residence of the ethnic groups: Xo Dang, M'Nam, K'Dong, H's, M'Nong, Ma, Ede, Khmer, and Lach with unique cultural features through their products. of craft villages, cuisine, and traditional culture. The existence of indigenous ethnic villages has great appeal to tourists who love to explore, explore, and research their origins.*

*The low plateau landscape sub-class (<800m) includes 2 landscape types, 2 genera distributed in the highlands of Pleiku (Gia Lai), Buon Ma Thuot, and M'drak (Dak Lak). The terrain is eroded, moderately to slightly weakly divided (20-30m deep division in Pleiku, Buon Ma Thuot; 50-70m in M'drak; horizontal division 0.35 km/km<sup>2</sup>), the surface is relatively gentle, average slope of 3-12°, especially the M'drak area is steeper (15-20°). With an average annual temperature fluctuating between 22-24°C, rainfall of 1300-1900 mm/year, and no cold months, this sub-layer of landscape develops closed evergreen tropical broadleaf forests and forests. closed tropical semi-deciduous broadleaf tree. However, due to the strong human impact on agricultural and forestry production activities, these forest types have been replaced by planted forests and long-term industrial crops. The conditions analyzed above show that the potential for tourism development in the lowland landscape sub-class is not high, however, if there is the right investment, it will create opportunities for agricultural tourism development ( coffee) in this landscape unit.*

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The mountain plain landscape class accounts for 10%, with gradation according to terrain altitude, including 02 landscape sub-classes:

- *High plain landscape sub-layer (350-700m)* includes 2 landscape types and 6 genera, distributed in Chu Prong (Gia Lai), Ea Sup, Buon Don (Dak Lak), and Dak Mil (Dak Nong) districts. The terrain is a denuded plain with wavy hills and mountains, a slope of 3-8°, divided into 2 relatively distinct areas: from Ban Don towards Ea Sup, the terrain is flat and wide; From Ban Don towards Dak Mil, the hilly terrain is more undulating and deeply divided. This landscape sub-class is directly influenced by the tropical plateau continental climate, with uniformly high temperatures and hot sunshine, average annual temperature of 25-26°C, no cold months, and average annual rainfall of 1400 -1500 mm. The typical vegetation type is a deciduous broad-leaved forest with a predominance of plants from the Dipterocarpaceae family, in addition to the presence of the Anacardiaceae and Loganiaceae families. In particular, along the rivers and streams (Yok Don National Park), there exists a type of closed semi-deciduous broad-leaved forest with the upper layer dominated by *Lagerstroemia calyculata*, *Oxytenanthera nigrociliata*, and the dominant upper layer. The lower layer of the canopy is *Grewia tomentosa*, *Pterospermum* sp., and *Madhuca pierreii*. Currently, these forest types exist mainly in Cu M'Lan, Ea Bung, Ea H'Mo, and Ya Lop communes (south of the Buon Don district). This is the residence of the Ede people, the M'ong people are famous for taming elephants and preserving many unique cultural features expressed through traditional festivals such as grave leaving ceremonies, water wharf worshipping ceremonies, and festivals. Gongs and handicrafts such as statues, tomb houses, etc. Although climatic conditions are not favorable for the development of activities related to resort tourism, this landscape has great tourism potential. Developing tourism activities to visit and experience special areas of Ban Don and Yok Don National Park.

- *Subclass of lowland landscape between mountains (350-550m)* includes 4 landscape types and 10 genera, distributed in the districts of Dak Ha, Dak To, Kon Tum City (Kon Tum), An Khe, Dak Po, Kong Chro, Mang Yang, Chu Se, Phu Thien, Ayun Pa, Ia Pa, Krong Pa (Gia Lai), Krong Pak, Cu Kuin, Krong Ana, Lak (Dak Lak). The terrain is of the denudation-accumulation type with residual hills, the surface is relatively flat, with little slope (3-8°), at the edge where it meets the mountains, the hilly terrain is relatively strongly dissected. and steeper (8-12°). Located between the mountainous terrain and the plateau, the climate of this landscape sub-class is not only humid tropical but also typical of the valley climate. Average annual temperature 23- 5°C, no cold months; Average annual rainfall is 1200-1700 mm, average number of rainy days is 140-181 days. Currently, due to the impact of human development activities, natural vegetation types are replaced by artificial vegetation cover (planted forests and agricultural ecosystems).

Due to the low-lying terrain, it is The low-lying landscape between mountains becomes a place where water from nearby rivers and streams gathers, forming large, concentrated, and long-lasting floods. In recent years, almost every rainy season has caused widespread flooding. That shows that the potential for tourism development here is not much.

### **3.3 Specificities in Tay Nguyen's landscape diversity - a lever for the development of diverse types of tourism**

First, Tay Nguyen is the only region in Vietnam with a climate similar to the temperate zone, located at the 16th parallel to the south. This climate is clearly shown in the landscapes of Kon Plong, Kon Ray, Tu Mo Rong districts, Kon Tum province, and in Lac Duong, Don Duong districts, Da Lat City, and Lam Dong province. These landscapes are located at an average altitude of 1,200m above sea level, surrounded by pine forests, and the climate has many characteristics of the temperate zone: average temperature from 18-21°C, The highest temperature does not exceed 30°C, the lowest temperature does not exceed 5°C. According to the tourism bioclimatic index, this area is assessed to have good to very good tourism development potential, especially in the form of resort and health recovery tourism.

Second, Tay Nguyen is one of the regions that still exists the typical "dipterocarp forest" vegetation - sparse forests of dry, tropical deciduous broad-leaved trees, distributed in the landscape class of Ea Sup and Buon Don districts. (Dak Lak). Characteristics of this type of vegetation: bare leaves, barren land in the dry season, and trees grow strongly and lushly in the rainy season. Currently, in the Tay Nguyen, this type of vegetation is preserved in Yok Don National Park. This is not only the habitat of rare animals, the dipterocarp forest also has many valuable plant species such as *Pterocarpus macrocarpus*, *Afzelia xylocarpa*, and *Sindora siamensis*. )... and the typical coniferous forest type distributed in the landscape class of the Da Lat plateau. Thanks to the diversity of vegetation, Tay Nguyen has become an attractive destination for ecotourism, sightseeing, and research activities. Visitors can learn about the forest ecosystem, see typical plant species, and admire the beauty of vast green forests.

Third, this is the only region in Vietnam to date that owns the longest volcanic cave system in Southeast Asia. This cave system is located in the landscape of Krong No district, Dak Nong province, with a length of up to 25 km, and includes many large and small caves of diverse sizes and shapes. These caves are one of the extremely valuable geological heritages, always containing many scientific values of both nature and society, as well as tourism values. Therefore, it is necessary to invest in comprehensive

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research to fully establish the geological, cultural, and biological heritage values. This is one of the major tourist attractions in the Central Highlands and also possesses enormous potential for developing adventure tourism.

Fourth, Tay Nguyen is famous for its majestic waterfall system, each waterfall is associated with its legend of indigenous ethnic groups. These waterfalls are widely distributed throughout the Central Highlands, including waterfalls distributed across landscape classes in Kon Tum Province, Gia Lai Province, Dak Lak Province), Dak Nong Province, and Lam Dong Province. The diversity and majesty of the waterfall system have a great potential to develop sightseeing tourism, attracting tourists to explore the natural beauty of the Central Highlands.

Fifth, not only is it a land with majestic mountains and forest scenery, but Tay Nguyen is also known as a place to preserve and promote unique traditional cultural values, including Tay Nguyen gong cultural space. This cultural space was recognized by UNESCO as an Intangible Cultural Heritage of Humanity in November 2005. Gongs are typical musical instruments of the indigenous ethnic group Tay Nguyen, closely associated with life, their culture and spirit. The sound of gongs is not only the voice of the mountains and forests but also the voice of spirituality and the human soul. Through the sound of gongs, people in Tay Nguyen express their joys, sorrows, aspirations, and dreams in life, work, and daily activities. Tay Nguyen gong cultural space spreads throughout the five provinces of Kon Tum, Gia Lai, Dak Lak, Dak Nong, and Lam Dong. This has created favorable conditions for the preservation, development, and spread of these unique cultural values. In that space, rituals and festivals related to gongs are held regularly, attracting a large number of local people and tourists to participate. With unique cultural values, Tay Nguyen Gong's cultural space has become an attractive destination for domestic and foreign tourists. Coming here, visitors can immerse themselves in bustling gong festivals, admire precious ancient gong sets, and learn about interesting cultural stories behind the resounding gong sounds. UNESCO's recognition of the Tay Nguyen Gong cultural space has contributed to enhancing the position and influence of this land on the world tourism map. Not only that, it also promotes the strong development of cultural tourism in Tay Nguyen, creating conditions for local people to preserve and promote their traditional cultural values.

## 4. CONCLUSION

The diversity of the Western landscape determines the type and tourism products in Tay Nguyen. The diversity in topography, climate - hydrology, and vegetation are both components of the landscape of Tay Nguyen, and the cultural diversity of the people in the Upper region is both a component in changing the landscape and at the same time natural tourism resources and cultural tourism resources of Tay Nguyen. That diversity has created unique features of Central Highlands tourism, which has great appeal to tourists. However, for Tay Nguyen's tourism to develop sustainably, preserving and managing landscape diversity is necessary. Measures such as strengthening monitoring and control of deforestation, protecting rare animals, investing in green technology to reduce environmental pollution, etc. will help protect and maintain contracts. landscape formation as well as tourism resources of Tay Nguyen.

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