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Hanoi, November, 2021



FOREWORD

Since ancient times, human beings have lived *with the favour of heaven*, connected to and inseparable from our natural environment, surviving and developing in harmony with nature.

With its topographical diversity, varied climate and rich ecosystems, Viet Nam is one of Southeast Asia's most biodiverse countries. Over time, we have accidentally or unconsciously harmed our natural environment. The terms *global warming* and *climate change* have become ominously familiar. Today, we are witnessing a time of unprecedented species loss that is nothing less than an emergency. Immediate action is vital – **IT IS NOW OR NEVER.**

Viet Nam manages around 2.16 million hectares of special-use forests protecting a variety of ecosystems that in turn offer homes to most of the country's flora and fauna, particularly our endangered, precious and rare species. Among them, Cat Tien National Park is considered representing a typical southern forest ecosystem. It is the only national park in Viet Nam where visitors can observe forest animals in the wild at night. The park is known by many noble

titles: World Biosphere Reserve, Wetland of International Importance (*Ramsar site*), and Special National Monument Area.

Although the park portrays an ideal of nature untouched by human hand, in reality Cat Tien's biodiversity has been preserved through the dedication of its staff despite the difficulties of the mountainous terrain. Meaningful cooperation with local communities has also played a major role in protecting the park's natural treasures.

This booklet aims to provide a comprehensive overview of the aesthetic, biodiversity, and indigenous cultural values present within Cat Tien. Hopefully, given as a gift, it will be proving knowledge, inspiration and passion for tourists, students, and nature lovers alike.

Green, environmentally responsible lifestyles are inspired by an understanding and appreciation of the natural environment. The natural world can be understood through books and lessons at school, but it can only be truly experienced in person. If this booklet accompanies you on your travels through nature, then it will

*“The Fatherland’s soul dwells deep in the forest
The devastated forest implies a declined Fatherland”*
– André Theuriet (1833-1907)

have fulfilled its true purpose. Whenever you happen to be reading this booklet, as you find yourself flicking through the following pages, I hope it inspires you to pay us a visit.

I would like to express our sincere thanks to the author, Mzung Nguyen, for taking the time to learn, experience, and write with enthusiasm. Our special thanks go to German Development Cooperation GIZ for their support to compile, design, and print this booklet. We hope the messages herein make a small contribution to inspiring a love for nature.

Yours sincerely,



PHAM HONG LUONG
Director of Cat Tien National Park

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PREAMBLE

During 4 billion years of evolution, life on Earth has endured five major extinction events. The last was nearly 65 million years ago, ending the reign of the dinosaurs.

After enduring these five major events, life on Earth today is facing considerable challenges. Viet Nam has lost numerous rare species. The Javan rhino (*Rhinoceros sondaicus annamiticus*) is now extinct, Indochinese tigers (*Panthera tigris corbetti*), clouded leopard (*Neofelis nebulosa*) and leopard (*Panthera pardus*) disappeared years ago, and the Sao La (*Pseudoryx nghetinhensis*) was last seen in 2013.

If anywhere in Viet Nam can resist the challenges of the modern world, it is Cat Tien National Park, where wild

animals roam freely under the cover of the forest.

As part of the immense East Annamite Range plain, Cat Tien National Park protects a primeval forest ecosystem with lowland tropical moist forests that are home to a rich variety of flora and fauna, including endemic and rare species. This is a place where people can become one with nature and learn about the rainforest. Visitors to the park will experience a typical Asian forest ecosystem, a type of forest that Viet Nam is making great efforts to protect.



A PICTURESQUE AREA WITH EXCEPTIONAL CHARACTERISTICS

Cat Tien National Park is situated 150 km from Ho Chi Minh City to the north, located in 6 districts: Tan Phu, Vinh Cuu (Dong Nai), Cat Tien, Bao Lam, Da Teh (Lam Dong) and Bu Dang (Binh Phuoc). Extending across three provinces in Viet Nam's Central Highlands and Southeast Region, the park is encompassed by a stretch of the Dong Nai River that extends for more than 90 km.

Cat Tien is a watershed protection forest for the Dong Nai River in which the forest is a semi-mountainous area with a diverse climate and distinct rainy and dry seasons.

The period since Cat Tien was designated a strictly protected forest of 31,000 hectares in 1978 until its recognition by UNESCO as the world's 411th and Viet Nam's 2nd biosphere reserve in 2001 was marked by continuous and extensive efforts to conserve the area's natural heritage.

Conservation programmes have had a major impact on the park. The stabilisation of human settlement and cultivation practices, the establishment of buffer zones and awareness raising activities have resulted in a radical transformation, returning Cat Tien to its pristine state.

The park's 21 forest protection stations play a key role in preventing and controlling illegal hunting, illegal logging, and slash-and-burn cultivation. At the same time, thanks to its steadily improving conservation policies, Cat Tien has become an exemplary model for numerous activities, including conservation, research cooperation, rescue and reintroduction of wild animals; organisation of sightseeing tours, and ecotourism.

As a visitor to Cat Tien, you will experience what it is like to be a part of a pristine tropical rainforest.

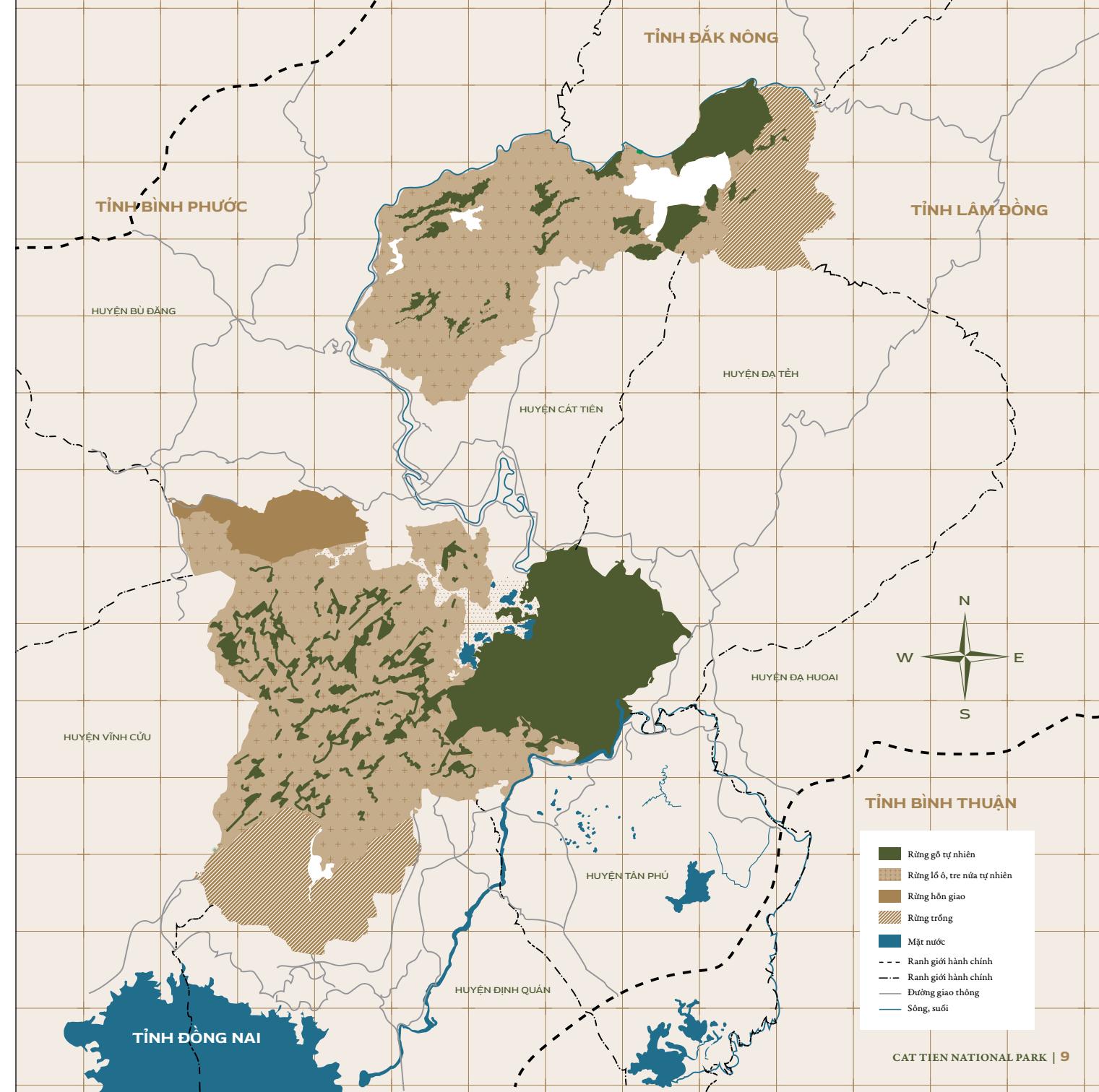


82,597.4 ha

Area under management in 2020

#411

Recognised by UNESCO as the world's 411th biosphere reserve





In the dry season, when the ground-water runs dry, the semi-deciduous forest shifts from shades of green to yellow and red. Fallen leaves create soft, spongy vegetation like the landscape in Levitan's painting 'Golden Autumn'. When the leaves of tall trees, such as the ancient Tung tree (*Tetrameles nudiflora*) and the Bang lang (*Lythraceae*) fall, their twisting branches reveal themselves like carved lines highlighted against the blue sky.

Evergreen broad-leaved forest

In the evergreen broad-leaved forest, as the plants absorb the purity of the highland earth and air, they remain in their primitive green. The leaves of dipterocarp trees (*Dipterocarpaceae* family) do not fall on mass. Whenever an old leaf falls, as ordained by nature, another will take its place.

Mixed forest

It is normally easy to recognise mixed forests. Timber species are interweaved with bamboo, rattan, and other trees. It looks as if they are 'mixing it' – meaning fighting for survival – but this is actually the trees living together in harmony.

Mono-species bamboo forest

Mono-species bamboo forest consists of bamboo trees of the same height, firmly condensed into a block. This type of forest is a result of natural regeneration on land previously ravaged by bombs and toxic chemicals during times of war.

Wetland

Wetland possesses very special characteristics. They form a giant catchment to contain water and regulate river flow, which creates a diversified and rich ecosystem for fish, amphibians, waterfowls, and other species. Without wetland, river water levels can rise to cause floods in downstream areas. The wetlands in Cat Tien cover an area of 4,000-5,000 ha with a system of interlinked lagoons, the most famous being the Bau Sau (Crocodile Lake) with an area of 2,500 ha.



CAT TIEN NATIONAL PARK – A WILD LANDSCAPE

Biodiversity is vital for the Earth's future. According to the Food and Agriculture Organization of the United Nations: "Biodiversity is the diversity of life in all forms, levels and combinations, including genetic diversity, species diversity and ecological diversity." Diversity in Cat Tien is reflected by the relative abundance of biological organism, frequency of wildlife appearance, and genes of all its species.

A war for survival

To date, Viet Nam has established 173 protected areas, including 34 national parks, 65 nature reserves, 18 species and habitat conservation areas, and 56 landscape protection areas. Viet Nam is also one of the 16 countries in the world with the highest levels of biodiversity with high numbers of endemic species and is considered to be rich in species composition compared to other countries in the Indochina region.

Over the past few decades Viet Nam's wildlife has decreased dramatically in both number of species and number of individuals. According to Viet Nam's 2007 Red Data Book, 116 animal and 45 plant species are critically endangered.

Cat Tien was ravaged by war, contaminated with toxic chemicals, exploited for post-war reconstruction, and illegally encroached upon for farming and hunting. The hunting of certain 'easy to raise, easy to sell' species has driven them to the brink of extinction in the wild.

As of 29 April 2010, the carcass of the last Javan rhino (*Rhinoceros sondaicus annamiticus*) was found in Cat Tien. The rhino had been shot in the leg by an illegal hunter, who then cut off its horn, killing the rhino in the process. Since then, Viet Nam has no longer been marked on the rhino distribution map of the world. The event made the headlines in all the major newspapers.

Most people had not known much about the plight of rhinos, but within days people began to talk about illegal hunting, endangered species, and the use of wild animals in traditional medicine.

Despite the many sad stories about illegal hunting and endangered species, hope remains. Cat Tien forest is reviving and becoming a sanctuary for many species.

“ Cat Tien forest is reviving and becoming a sanctuary for many species. ”



~1,610
plant species

11.7%
of the number of plant species
in Viet Nam

~1,730
animal species

97 & 343
mammals and birds

Biodiversity in Cat Tien National Park

Cat Tien is one of the four largest National Parks in Viet Nam. It is a pristine area with a rich and diverse ecosystem. Plant and animal species are free to grow and develop here.

The park is home to 1,610 species of vascular plants, 94 reptiles, 37 amphibians, 343 birds and 97 mammals. New species are still being discovered in the park, such as the Cat Tien bent-toed gecko (*Cyrtodactylus cattienensis*) and the ruby-eyed pit viper (*Trimeresurus rubeus*).

The complex of wetlands constitutes a system of marshes and lakes, natural mineral sites, and vegetation along the Bau Sau (Crocodile Lake), Bau Chim (Bird Lake), and Bau Ca (Fish Lake), and is a habitat for many aquatic species. Aquatic plant and animal species in this area include 125 zooplankton species, 122 benthic species and 168 fish species, attracting flocks of numerous native and migratory birds. Cat Tien is home to many endemic bird species and to more than a third of all bird species in Viet Nam.

Endemic and rare species, such as the orange-necked partridge (*Arborophila davidi*), Germain's peacock pheasant (*Polyplectron germaini*), Siamese fireback (*Lopura diardi*), woolly-necked stork (*Ciconia episcopus*),



white-shouldered ibis (*Pseudibis davisoni*), white-winged duck (*Cairina scutulata*), great hornbill (*Buceros bicornis*), wreathed hornbill (*Aceros undulatus*), etc. along with migratory birds like garganey (*Anas querquedula*), pheasant-tailed jacana (*Hydrophasianus chirurgus*), gray-headed lapwing (*Vanellus cinereus*), oriental pratincole (*Glareola maldivarum*) all flock to the area.

Cat Tien is also home to the largest gaur population (*Bos gaurus*), also known as the Indian bison, population, accounting for about a quarter of all individuals in Viet Nam.

1/3 of the total number of bird species

1/4 of the total number of gaur individuals in Viet Nam

61.96% of the total number of plant orders in Viet Nam

54.75% of the total number of plant families in Viet Nam

The 'Allee Effect' and Conservation Work

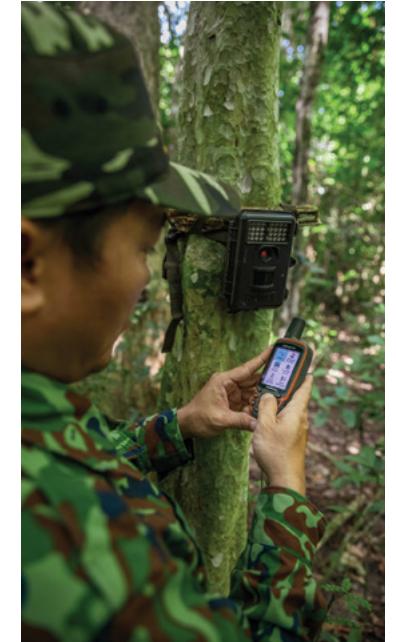
When introducing the 'Allee effect', American zoologist Walter Clyde Allee pointed out that "a decrease in the density of one species can impair the survivability of the others."

In the organic realm, all living things are part of a complex network with an intense and sophisticated balancing power called the biosphere. In the circulation and movement of the natural world, if just one genus or species disappears, chain reactions will occur directly or indirectly affecting other species. If this happens to species that play an important role in the food chain or in ecosystems, their extinction can bring about unpredictable consequences.

Cat Tien has been carrying out conservation activities for many years, taking a proactive approach to ensure its wildlife is protected.

Conservation involves the protection of wildlife and their habitats in a sustainable way. It includes regenerating natural habitats; receiving, rescuing, and reintroducing wild species; and raising awareness through research, learning, education and communication.

The park is referred to as a 'wild landscape' because in addition to its high biodiversity, it is also a model where rescue, reintroduction, habitat conservation, animal welfare insurance and other conservation initiatives are being demonstrated.



“A decline in the density of one species can impair the survivability of the others.”

– Walter Clyde Allee



Brown Fish Owl
(*Ketupa zeylonensis*)



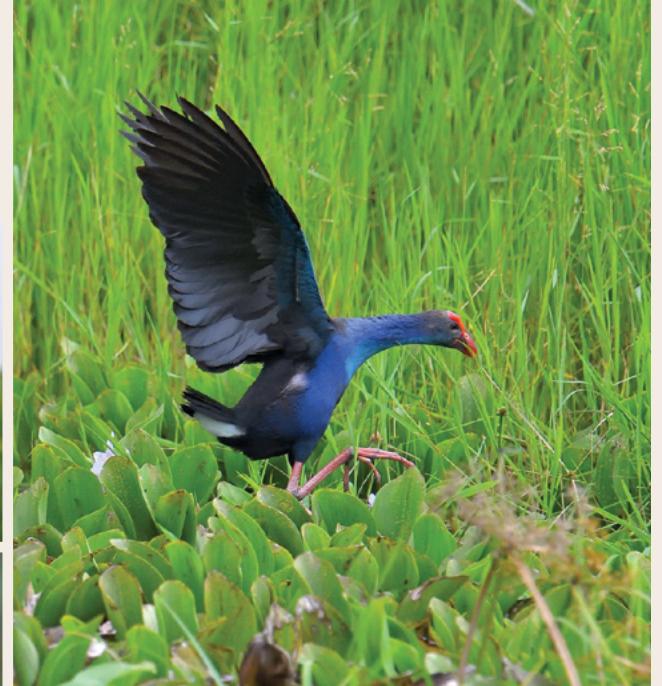
Blue winged Pitta
(*Pitta moluccensis*)



Black-and-red Broadbill
(*Cymbirhynchus macrorhynchos*)



Purple Swamphen
(*Porphyrio porphyrio*)



Purple Heron
(*Ardea purpurea*)



Sả rừng
(*Coracias benghalensis*)



Lesser Adjutant (*Leptoptilos javanicus*)



Green Peafowl
(*Polyplectron germaini*)



Asian Golden Weaver
(*Ploceus hypoxanthus*)



Red Junglefowl
(*Gallus gallus*)



Viet Nam has two species of bears whose characteristics are easily identifiable by their weight and body colour.

Asian black bear

Ursus thibetanus



The Asian black bear (*Ursus thibetanus*), also known as the moon bear, lives mainly in dense forest, especially in hilly and mountainous areas.

Male individuals weigh between 100-200 kg and females between 60-140 kg.

Their sturdy bodies are black with long and thick hair around the neck, and large round ears. The Asian black bear (*Ursus thibetanus*) likes to stand upright and move on its two hind legs. Its average life expectancy in the wild is 25 years.

Sun bear

(Helarctos malayanus)



The Sun bear (*Helarctos malayanus*) is the smallest species in the bear family, with males weighing from 50-75 kg and females between 40-60 kg. Their average life expectancy in the wild is 15-20 years. This species is easily recognised in the tropical forests of Southeast Asia, with short black hair tightly covering its whole body, small round ears, long nails and tongue, and white V-shaped hair bands on the front of the chest.

The Bear Rescue Centre

It is difficult to determine how many bear individuals live in the wild in Viet Nam because deforestation for agricultural purposes, construction and tourism have reduced their habitats. However, the main reason for their rapid decrease is hunting for captive breeding and bile extraction, and the illegal trade of live bears or their body parts.

In 2006, Viet Nam had around 5,000 bear individuals in captivity for bile extraction living in hellish conditions. The process of inhumane bear bile extraction causes physical pain, severe injury, and reduces their life expectancy to less than 20 years.

Bears are solitary animals that live in vast environments, playing a key role in the ecosystems they inhabit. A healthy bear population brings several benefits, maintaining the balance in the natural food chain and forest ecosystem. Their presence helps distribute plant seeds and they dig and loosen the soil and provide a natural source of fertilizer.

With the cooperation and support of the NGO Free The Bears, Cat Tien National

Park built a bear centre with the aim of providing bears the most suitable natural habitat. The Cat Tien Bear Rescue Centre was established in 2017 and consists of semi-wild areas surrounded by electric fences. The rescued bears mainly come from the Central Highland provinces to the south and from captive bear farms. Currently, the centre is home for rescued 39 bears and plans to host more than 50 individuals by 2021.

Once rescued, the bears are quarantined for one to six months depending on their condition. They are examined, treated, and then trained to climb and search for food. The next step is to get the bears prepared for a semi-wild environment, especially those that have never lived in the wild. Bear houses built according to international standards create a good environment for the

bears to thrive while their welfare is being attended to. Semi-wild areas including many bamboo bushes, adjacent to the houses, allow the bears to explore their surroundings. The bears are named after their sponsor or the place of rescue.

Showcasing the bear rescue work is the main purpose of the Environmental Education Centre. The centre also conducts awareness raising for tourists about bear conservation activities – limiting the use and trade of bear bile is the mission of Free The Bears. The centre has conducted research on the use of 25 medicinal plant species to replace bear bile without causing side effects and has successfully advocated with the Oriental Medicine Association on ending the use of bear bile in traditional medicines.



Free The Bears was established by Mary Hutton in 1995 and since then, the organization has organized campaigns of rescue, rehabilitation for bears, raising awareness and funds for their work. To date, Free The Bears has rescued more than 950 bear individuals and caring hundreds of bear individuals in rescue centre in India and other countries in the South East Asia.

The Siamese crocodile's (*Crocodylus Siamensis*) Journey Back to the Wilderness

In ancient times indigenous people named areas of land after animals or plants; for example, Bau Oc (Snail Lake), Bau Chim (Bird Lake), Bau Sen (Lotus Lake), and Bau Beo (Water Hyacinth Lake). Bau Sau (Crocodile Lake) was named after the countless Siamese crocodiles (Crocodylus siamensis) that lived in Cat Tien's lowland area. The freshwater crocodiles in Bau Sau wear valuable and rare genetic resource.

As Vietnam's economy has developed, crocodiles have become a sought-after commodity. The products derived from their carcasses have become fashionable and command high prices. Poachers are not put off by the dangers they face from hunting this fierce species, and the crocodile population has decreased steadily as a result. In 1987, Bau Sau had just a few remaining individual crocodiles. A few years later, no trace could be found.

In 2000, the park launched a project called "Siamese crocodile's (*Crocodylus siamensis*) restoration" to conserve the species' genetic resources and ensure balance for the flooded ecosystem. In 2001, the project began searching for purebred Siamese crocodile (*Crocodylus siamensis*) individuals from crocodile farms, analysing large numbers of genetic samples with the support of national and international scientists.

Siamese crocodile (*Crocodylus siamensis*) selected for releasing into the wild must be more than two years old and more than 1.5 m long. They are released in groups of three consisting of one male and two females. Their DNA is tested to ensure the species are purebred and they are trained to re-learn their natural instincts and behaviour – such as hunting and incubating their eggs – in a semi-wild environment before they are released into the wild.

In 2001, when the road leading to Bau Sau was blocked by soil and rocks, the park built wooden cases to transport crocodiles through the jungle on the back of bicycles all the way to Bau Sau.

By 2005, crocodiles could again be spotted in the waters of Bau Sau. The individuals released as part of the restoration project had created a population of fertile crocodiles that were successfully mating and reproducing.

6
separate
crocodile releases

60
fertile individuals released

300
individuals in the wild

To date, the project has released a total of 60 healthy crocodiles on six separate occasions. After more than 10 years the crocodiles have adapted to their new environment, completely regaining their natural instincts.

Currently, Bau Sau is home to around 300 individuals. Monitoring has confirmed that the existence of Siamese crocodile (*Crocodylus siamensis*) in Bau Sau is feasible, confirming that

the project is a success story for the recovery of an animal that had appeared extinct in the wild just a few decades earlier. Today, Bau Sau is the only site in Viet Nam with Siamese crocodiles (*Crocodylus siamensis*) in the wild.

Bau Sau is a wetland, located deep in Cat Tien National Park with an area of 100-150 ha in the dry season and more than 2,500 ha in the rainy

season. Today, Bau Sau is not only home to crocodiles, it is also a habitat for various fauna and flora species listed in the Red Data Book of Viet Nam, such as green peafowl (*Pavo muticus*), lesser adjutant (*Leptoptilos javanicus*), and gaur (*Bos gaurus*). Bau Sau is Viet Nam's second Ramsar site, becoming its 50th member and making Viet Nam the first Southeast Asian country to join the Ramsar Convention, confirming its status as an ecosystem of international importance.



Cat Tien - a safe, peaceful house for wildlife

Conservation agencies, organisations and nature lovers have chosen Cat Tien as a reliable place to reintroduce rescued animals into the wild, from the most common to the rarest of species.



Acanthosaura coronata (*Physignathus cocincinus*)



Sunda Pangolin (*Manis javanica*)



Sambar Deer (*Rusa unicolor*)



Siamese Crocodile (*Crocodylus siamensis*) and Purple Swampphen (*Porphyrio porphyrio*)

Each year, Cat Tien's Centre for Rescue and Conservation of Species receives and reintroduce hundreds of animals that have been found and handed in by the public or rescued by government and non-government agencies. Thanks to the diversity of habitats and ecosystems, the species received by the centre are also extremely diverse and include gibbons, pygmy slow loris (*Nycticebus pygmaeus*), black-shanked douc langur (*Pygathrix nigripes*), sunda pangolin (*Manis javanica*), leopard cat (*Prionailurus bengalensis*), otter (*Lutrinae spp.*), elongated tortoise (*Indotestudo elongate*), Asian palm civet (*Paradoxurus hermaphroditus*), chevrotain (*Tragulidae spp.*), reticulated python (*Python reticulatus*), crab-eating macaque (*Macaca fascicularis*), porcupine, black kite (*Milvus migrans*), barn owl (*Tyto alba stertens*), etc. From 2012-2020, in coordination with the park, Save Viet Nam Wildlife reintroduced more than 400 pangolins.

Purple Heron (*Ardea purpurea*)



Tien Island – A Temporary Habitat for Primate Species

Tien island is a 1 km river journey from Cat Tien. The 57 ha forest is specially protected by a solar powered electric fence. When the boat docks, a long road opens up for travellers to explore, serenaded by birdsong and the sounds of the rainforest. The Endangered Primate Rescue Centre is nestled in a lush green area at the end of the road and includes a variety of rehabilitation facilities.

To understand Tien Island, you should start with Peanut - a yellow-cheeked gibbon (*Nomascus gabriellae*) rescued by Monkey World in 2000 from an English bird smuggler. A year later, another yellow-cheeked gibbon (*Nomascus gabriellae*), Pung-Yo, was rescued by the Pingtung

Primate Rescue Centre in Taiwan and transferred to Monkey World. At the same time, Dr. Marina Kenyon, who was studying yellow-cheeked gibbons (*Nomascus gabriellae*) for her doctoral thesis, established a wildlife care centre to rescue animals confiscated from illegal traders and care for, reha-



bilitate and when ready, reintroduce them into the wild.

In 2008, Cat Tien National Park was selected as the site for the only primate rescue centre in the south of the country, which is today's Tien island. Peanut and Pung-Yo became the first wild inhabitants at the centre. Four endangered species are being cared for at the centre including: black-shanked douc langur (*Pygathrix nigripes*), Annamese langur (*Trachypithecus margarita*), yellow-cheeked gibbon (*Nomascus gabriellae*), and pygmy slow loris (*Nycticebus pygmaeus*). Most of the rescued animals have been in contact with humans over extended periods and have lost many of their natural instincts. This can make it difficult to reintroduce them into the wild. As with the Bear

Rescue Centre, the primates taken in receive medical care and are then treated and reintroduced into a semi-wild environment.

At the centre, the primates are trained to adapt to the natural environment and then assessed to identify which individuals are ready for reintroduction into the wild or being retained in the centre for full life care. The centre has also been the site of successful primate reproduction activities for gibbons, langurs, and lorises.

Tourism activities are not developed to maximize profits. Instead, the centre has established strict regulations. During each visit, visitors are allowed to stay for a maximum of one hour and must observe primates from



a distance. Also, Tien island closes for a few months each year from July to October to focus on technical interventions and rehabilitation activities. These measures aim at maximizing the health and wellbeing of the primates because the more that wildlife, and primates in particular, are familiar with people the harder it is to reintroduce them into the wild.

In the treetops, visitors can see healthy rescued primates swinging from branch to branch in the semi-wild area of the island. In the barn areas, where primates undergo rehabilitation, visitors are introduced to wildlife care and rescue work and the difficulties faced reintroducing rescued animals into the wild.

Along with the primate rescue,

rehabilitation and reintroduction work, Tien island pays a great deal of attention to educating and raising community awareness about wildlife conservation, especially about rare and endangered primate species. The centre has an on-site education centre that provides information and photos about primates. Pupils and students are the main audiences for these activities. The centre also offers scholarships and field research opportunities for students, and hosts seminars for exchange and research collaboration activities.

The strange world of trees

The truth of life originates from plant cells. Wherever nature is respected, life, respiration, and metabolism continue. The most venerable and resilient inhabitants of the ecosystem are probably the trees. They are historical witnesses to the daily variability of the earth, retaining in themselves the traces of time.



While nature bestows upon the park with a variety of rare and precious animals, she does not forget to create the rich flora present in the systems of large and small trees, shrubs, grasses and phytoplankton. The park is home to 1,610 species of woody plants and rare types of wood, such as rosewood (*Dalbergia spp.*), Go do (*Afzelia xylocarpa*), Go mat (*Sindora siamensis*), Burma ironwood (*Xylia xylocarpa*), Burma Padauk (*Pterocarpus macrocarpus*). These trees are precious for their durable wood, beautiful colours and wood grain. This type of wood was used in the past to fashion furniture and decorative objects. But

that was more than 40 years ago when forest coverage was extensive. Forest coverage has dwindled since then, replaced by various types of industrial crops, such as coffee, rubber, pepper, cashew, and tea, etc.

Today, Cat Tien's primary forests are among the last remaining places where visitors can still admire these rare and precious trees.

The trees here are well-known for their fancy appearance. This is because each species and each tree has its own unique shape. The more we study these trees, the more inquisitive we get.

“Trees are historical witnesses to the daily variability of the earth, retaining in themselves the traces of time”

Go do

Afzelia xylocarpa

Go do (*Afzelia xylocarpa*), a tree species in the Fabaceae family, is a large wooden tree with a straight, round shape. It grows up to 25-30 m high and is white-grey in colour with quite a rough bark. Go do (*Afzelia xylocarpa*) are low-branched trees, with oval shaped leaves of 5-6 cm that are pointed at the tip. In general, Go do (*Afzelia xylocarpa*) grows slowly and are usually distributed in evergreen or semi-deciduous forest. They often grow in topsoil layer, on flat terrain or drainage slopes. They love the light, bloom from March to April and fruit from October to November.

A hermaphrodite flower sprouts from the top of their branches and turns into a cluster of bean-shaped fruits. Bac Dong is a famous 700-year-old Go do (*Afzelia xylocarpa*) in Cat Tien that is a favourite spot for tourists. It is almost 40 m tall with a diameter of 2.5 m. Go do (*Afzelia xylocarpa*) is vigorous and lives in harmony with surrounding plant populations. While they are classified as rare, Go do (*Afzelia xylocarpa*) is listed in the Viet Nam Red Data Book due to over exploitation.

Da bop co

Ficus spp.

Da bop co (*Ficus sumatrana*) are parasites that live on the trunks of host trees. After eating Da bop co's fruits (*Ficus sumatrana*), mammals such as primates release seeds in their droppings onto host plants. When the necessary conditions are met, seeds germinate at the base of a host tree's trunk. They quickly focus only on developing their root system, with parts of their tentacle-like roots plunging deep into the ground to form pillars. They start as small roots that then interweave and stick together to form traces like stitched winding cuts. Over time, these stitched cuts fade and disappear, making the Cay da bop co (*Ficus spp.*) and its host look as though they are one tree. However, if you were to knock on the trunk with your hand, you would not hear a bass sound as you would with other trees. The sound of the Da bop co (*Ficus sumatrana*) is more resonant and hollower because its trunk is actually made up of layers of roots.

With an extremely strong spatial invasiveness instinct, this species flexes its root coils like muscles. As they grow larger, they crush the host plant until it slowly dies. People call this species the 'strangling Da bop co' (*Ficus sumatrana*) or the 'ungrateful Da bop co'.

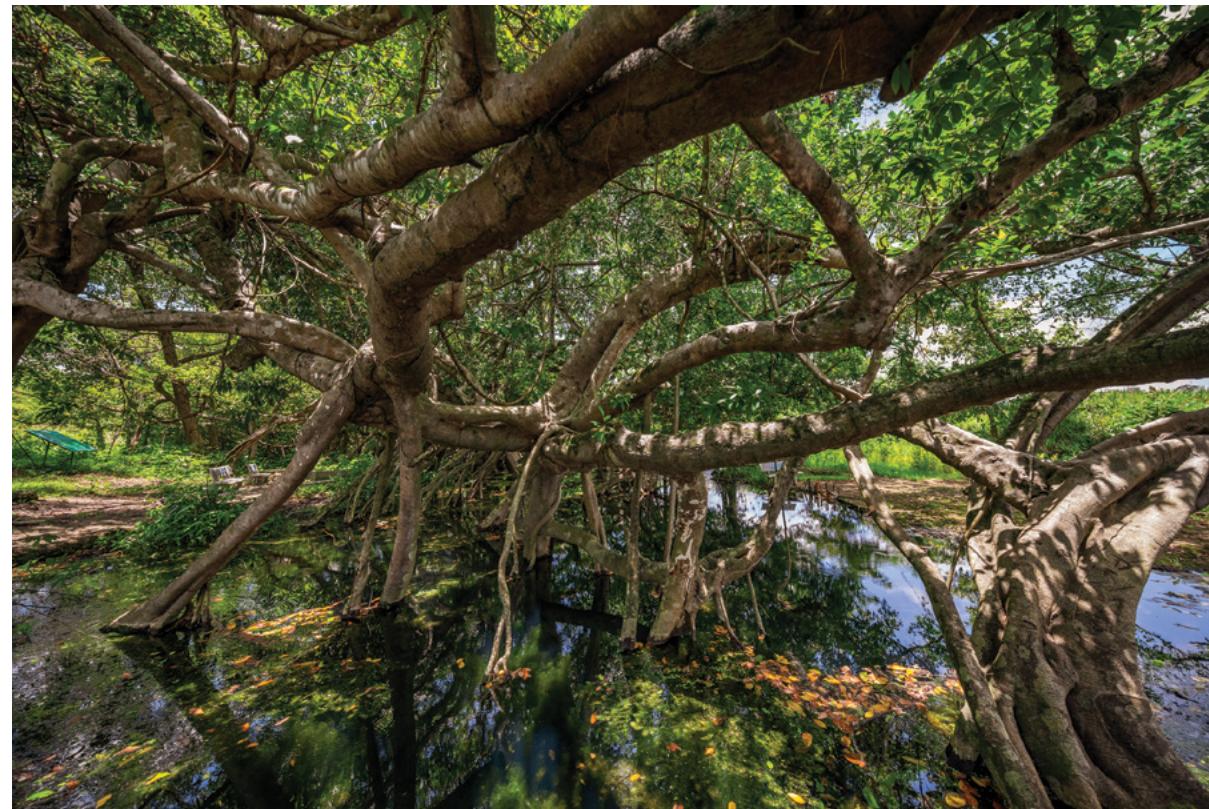




Bang lang

Lythraceae

Bang lang (*Lythraceae*) can be seen along the park's trekking routes. This species has a broaden stump, a straight trunk and a yellowish-grey bark, which peels off in patches to form random patterns similar to those found on a gua-va trunk. Its flowers are white or purple in colour. Termites love to nest in and eat the trunk of this tree. As a common plant species, with its typical characteristics and a high density, visitors to the park encounter them often as they wander through the forest. The trees are often hollow; after many years of being eaten by termites, only the surrounding bark remains. But the trees survive. This demonstrates the miracle of ecological balance in nature where termites, which are harmful to plants, help to accelerate the decomposition of rotting trees into compost, creating nutrients to feed other plant species. The niches made by termites are nested by other species such as snakes, weasels, pangolins, and bats. With their burrs, forming an assortment of countless strange shapes, the Bang lang (*Lythraceae*) often makes a strong first impression. They look different decked out in their own fashion. The wood grains in the trunk form amazing wavy, tangled patterns.



Benjamin fig *Ficus benjamina*

Benjamin fig (*Ficus benjamina*) in Cat Tien is one of the outstanding features of the area. With countless roots embedding themselves firmly into a freshwater stream, the tree covers the entirety of the stream's surface, casting the surrounding area in shade throughout the year. This

benjamin fig (*Ficus benjamina*) is about 400 years old and 8 m tall.

There is a natural water tank covering an area of more than 600 m² right next to the hundred-trunk tree that receives pure spring water originating from the core of the primary forest, uncontaminated by chemical or

by-products from people's daily activities. After hiking or cycling, visitors to the park can stopover to relax, take a rest or camp. There is nothing more wonderful than being immersed in the water, listening to the babble of the stream, inhaling the fresh air, and taking in the scent of the forest.

Ancient Tung tree

Tetrameles nudiflora

Ancient Tung tree (*Tetrameles nudiflora*) is a large tree whose leaves fall in the dry season. It often grows in lowland areas in evergreen forests at a maximum altitude of 500-700 m above sea level. The trunk is grey and white in colour, 30-40 m in height, and with a diameter of up to 1 m it stands firmly on a buttress root block. Its timber is a very bright colour with a shiny surface, and as a result is often overexploited for the production of guitars, clogs, matches, wooden brushes, and cork.

The ancient Tung tree (*Tetrameles nudiflora*) stands firmly on the route leading to Bau Sau, its trunk and giant root system crawling along the ground resembling the slithering of snakes and the twitch of a dinosaur's tail. This is a favourite attraction of visitors, with many returning to the same spot during subsequent visit.



Bam bam

Entada phaseoloides

Bam bam (*Entada phaseoloides*) is a woody liana whose shape resembles a spring or chain. In some places it is known as the 'iron chain' plant. The Bam bam (*Entada phaseoloides*) is common in the park and can be seen lying around the trunks of big trees or crawling on the ground, showing off their winding vines. They produce large fruits that look like giant beans. Inside the fruit, round seeds that can reach up to 5 cm in diameter are arranged in rows. Indigenous people call the seeds lucky beans or peaceful beans, and often engrave their names on the fruit to pray for peace.

The bark, seeds and leaves are used to make medicine to treat pain and seizures. The vine has a bitter and acrid taste, its benefits include improved blood circulation and the treatment of rheumatism.

Edible plant species

There are other edible plant species that can be used for food, such as rattan shoots, buds of Bang lang (*Lythraceae*), and leaves of fig trees, etc.

Tour guides will introduce you to delicious fruits that can be found in the forest, such as fruits of the Truong vai (*Nephelium sp.*) and Xoai rung (*Mangifera minutifolia*). Konia seeds (*Irvingia malayana*) are the most delicious and a favourite of upland people. The park is also home to Fabaceae family such as Dau ma (*Pueraria phaseoloides*) and a range of healthy forest vegetables such as Lac tien (*Passiflora foetida*), Nhip leaves (*Gnetum gnemon*).

Remnants of the Javan Rhino in Viet Nam

In April 2010, the carcass of a single-horned Javan rhino (Rhinoceros sondaicus annamiticus) was found in Cat Tien National Park.

The female rhino of about 15-25 years of age had a bullet wound in her left leg that had become infected and her horn had been cut off. A study by the World Wild Fund (WWF) and Cat Tien National Park collected 20 samples of faeces during 2003-2006

and sent them to Queen's University in Canada for analysis. The results showed that there were at least two rhino individuals living in Cat Tien between 2003 and 2006. They also confirmed that the female found dead in 2010 was one of them.

“
The last rhino in
Viet Nam is extinct ”

— International Rhino Foundation



A comprehensive inventory of the Javan rhino (*Rhinoceros sondaicus annamiticus*) in Cat Tien National Park was conducted from October 2009 to April 2010 to identify the status of the population through genetic analysis of collected faeces samples. In October 2011, WWF and the International Rhino Foundation (IRF) announced to the world that the last rhino in Viet Nam was extinct. Currently, this last Javan rhino (*Rhinoceros sondaicus annamiticus*) skeleton is on display at the park as a reminder of the need to respect nature.

A Unique Wildlife Zone

Endemic animals must, first of all, be indigenous species that live in nature only in a certain geographical area or in a type of habitat that does not appear elsewhere. Cat Tien National Park is home to many such endemic species.

Cat Tien is home to 97 species of mammals belonging to 30 families and 11 orders, of which up to 43 species are under threat of extinction domestically and globally, including 38 species listed in the 2007 Viet Nam Red Data Book. In addition, 18 species and subspecies of mammals are endemic to the Indochina sub-biogeographical region. In particular, three species and subspecies are endemic to Viet Nam: the black-shanked douc langur (*Pygathrix nigripes*), the Javan rhino (*Rhinoceros sondaicus annamiticus*) (already extinct) and the Indian muntjac (*Muntiacus muntjak annamensis*).

The distribution of endemic species in Cat Tien demonstrates the importance of the park for biodiversity conservation both nationally and for the world.

There are 343 bird species, accounting for 40.4% of the total number of bird species (848) in Viet Nam. They belong to 68 families and 20 orders, of which 17 are rare species that have been discovered and listed in the Viet Nam Red Data Book. If compared with the composition



Great Egret (*Casmerodius albus*), Little Egret (*Egretta garzetta*)

of bird species in the whole of Viet Nam, without a doubt Cat Tien is a 'mini kingdom' for forest birds in Viet Nam.

Some species are rare and precious such as the woolly-necked stork (*Ciconia episcopus*), green peafowl (*Pavo muticus*), lesser adjutant (*Leptoptilos javanicus*), white-shouldered ibis (*Pseudibis davisoni*), white-winged duck (*Cairina scutulata*), and orange-necked partridge (*Arborophila davidi*), etc.

Cat Tien is located in the endemic bird zone in the lowlands of southern Viet Nam and has populations of 3

species: the orange-necked partridge (*Arborophila davidi*), grey peacock-pheasant (*Polyplectron bicalcaratum*), and grey-cheeked tit-babbler (*Macronous kelleyi*).

Among the 94 reptile species living in the park, 18 are listed in the Viet Nam Red Data Book; for example, the Siamese crocodile (*Crocodylus siamensis*) and reticulated python (*Python reticulatus*). Three species among 37 amphibian species and listed in the Viet Nam Red Data Book; 903 insect species and 450 butterfly species.

Butterfly Season in Cat Tien

At the end of April and early May, the routes of the park are awash with colourful butterflies. They swoop into the puddles after the rain when the sun has begun to peek out from behind the clouds. This is photo hunting season for photographers and an opportunity for nature lovers to experience a butterfly filled landscape that moves and shimmers to the beat of the forest.

The more than 450 endemic and migratory species of butterfly that appear in the forests of Cat Tien account for more than 50% of the butterfly species in Viet Nam. There are two rare species listed in Viet Nam Red Data Book 2007: common birdwing (*Troides helena cerberus*) and the five-bar swordtail (*Graphium antiphates pompilius*)



Common birdwing (*Troides helena cerberus*)



Five-bar swordtail (*Graphium antiphates pompilius*)

450

Endemic and migratory butterflies

50%

Of the total number of butterfly species in Viet Nam

2

Rare species listed in the Viet Nam Red Data Book 2007



Watching a perfectly formed creature will enrich your imagination. From egg to larva to pupa, and then escaping its earth-bound form to soar gently in time and space, they are reborn, leaving behind all the trivialities of an ephemeral life.



PILGRIMS TO STUNNING SECLUDED AND TRANQUIL PLACES



Nightlife in the Wild

Cat Tien National Park is one of the very few places in Viet Nam where visitors can see all kinds of wildlife in nature.

Along the animal-watching routes of Cat Tien, visitors can see a wide variety of wildlife such as deer, mink, weasels, porcupines, birds and small carnivores.

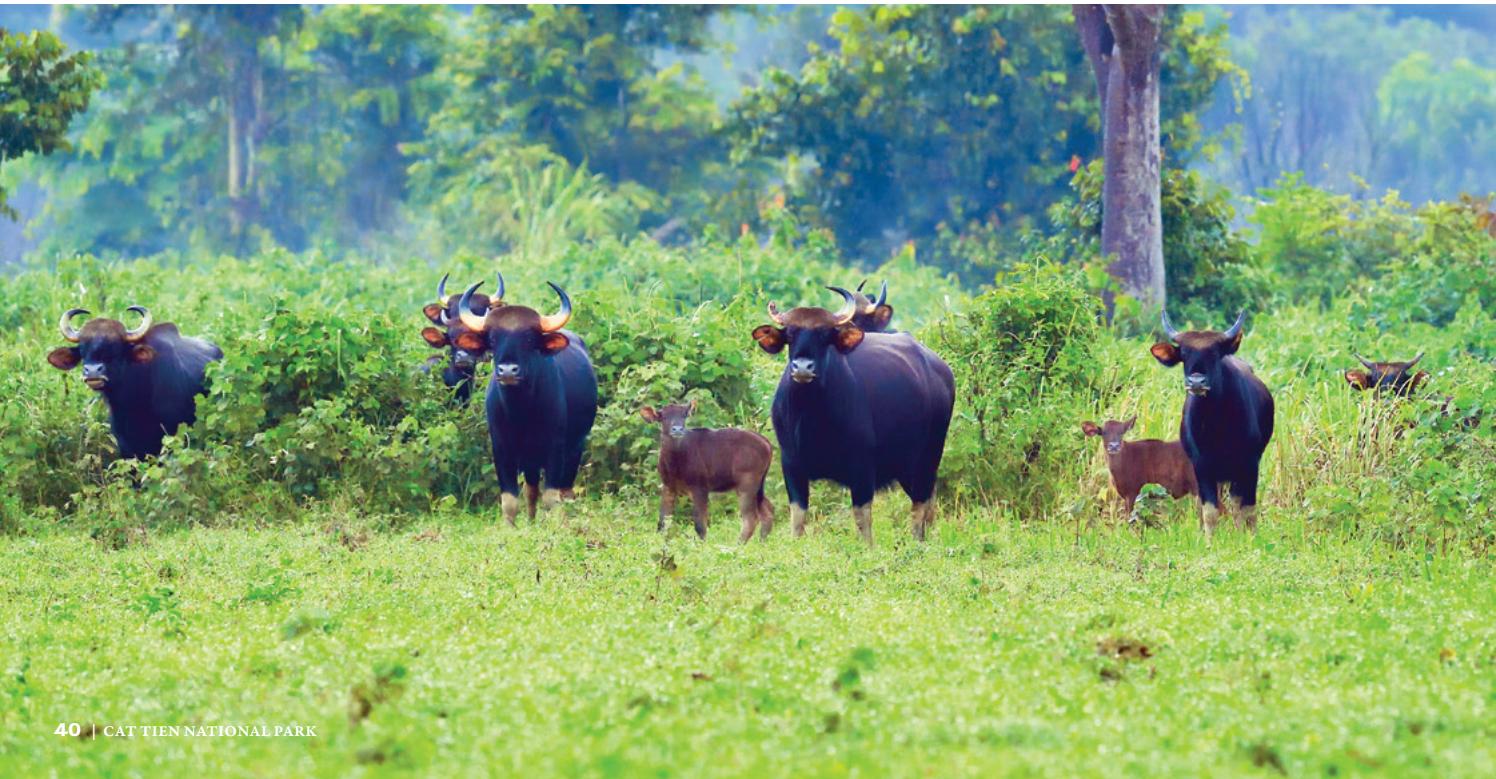
The most awaited animal throughout a night trek is the gaur (*Bos gaurus*). Gaur (*Bos gaurus*) are large, dark-haired mammals that mainly inhabit hilly areas in India, East and South-east Asia. They are also known as the

Malayan bison or the Indian bison and have been listed as a vulnerable species in the IUCN (International Union for Conservation of Nature) Red List of Threatened Species since 1986. Vietnamese ethnic people call them 'min' or 'minh' meaning 'wild buffalo', because their appearance is similar to the buffalo.

Adult gaur (*Bos gaurus*) can reach up to 1.9 m in height and weigh about

a ton. They have white legs, black bodies and are one of the largest bovines in the world. In Viet Nam, there are less than 300 gaur (*Bos gaurus*) individuals, 110 of which roam within the borders of the park. The males are a glossy black colour and the females dark brown.

Both males and females grow large horns that curve forward by up to 80 – 85 cm. On the forehead between



Lesser Adjutant (*Leptoptilos javanicus*)



Sambar Deer (*Rusa unicolor*)



Sunda Pangolin (*Manis javanica*)



Clouded Monitor (*Varanus nebulosus*)

the two horns is a tuft of hair, usually yellow in colour. The lower part of the leg from the knees down is white, making the animal appear as if it is wearing white boots.

The top part of its back protrudes at the neck and together with a large hairy bib on the chest and a range of muscle running down its spine, the gaur presents a very powerful animal indeed. The dominant male, which

assumes responsibility for protecting the herd and for fathering offspring, is generally more muscular and has a much higher protrusion on its back than the rest of the herd. Because of its enormous physical and natural strength, the gaur has almost no natural enemies, except for tigers. In Viet Nam, gaurs (*Bos gaurus*) are the most hunted and slaughtered species due to their economic value, particularly their bile, meat, and horns.



Gaur (*Bos gaurus*)

Trekking in the Wild

When trekking along trails through the primary forest visitors can enjoy the park's famous attractions, passing through the old forests on the winding roads that run along the legendary Dong Nai River. This is the main waterway carrying red silt, which plays an important role in the ecology and economy of the whole region.

Ben Cu Rock Rapids is where the river meanders and then wriggles through the rocks. Here, it sounds as if the river is cheering the fast pace of the flowing water. The rapids are located 1 km from the centre of the park along a route where butterflies gather under the canopies of the old green trees.

If you opt to observe the wild gibbons in their natural habitat on one of the park's tours, you'll follow a unique schedule. The tour

guide will meet you at 4:30 in the early morning to take you along deserted trails. Visiting the forest at dawn when it is covered in mist and resounds to the song of birds looking for breakfast is an incredible experience. While waiting for the gibbons to appear, you can observe the diverse plants and insects.

Mushrooms of all colours and shapes are scattered across the rainforest floor. Various mushroom species including: Lingzhi (*Ganoderma*



Vượn đen má vàng (*Nomascus gabriellae*)

lucidum), bean chicken mushroom (*Termitomyces albuminosus*) and weird-shaped mushrooms are all gathered here.

And then, from the tall branches, the yellow-cheeked gibbons (*Nomascus gabriellae*) – a critically endangered species according to the IUCN Red List of Threatened Species – swing through the trees above. It is easy to recognize them by their distinctive colouring: adult males have black fur on their bodies with yellow cheeks, while females and baby gibbons

are resplendent in yellow fur from top to toe. They eat leaves, young shoots, fruits, insects, bird eggs, and chicks in the nest. Their arms are strong with particularly flexible wrists, enabling them to swing from branch to branch and make leaps of up to ten metres. It has four limbs that are longer than its body, no tail, and can walk on its two hind legs. Nearby, you can see a black-shanked

douc langur (*Pygathrix nigripes*), a leaf-eating species endemic to Viet Nam and Cambodia classified as threatened in the IUCN Red List of Threatened Species. This species has a grey body with white markings on the buttocks, black shoulders and arms, and a grey head with a black rim above the forehead. Its beard is white and its neck red. Slanted eyes, arms longer than its legs, and a long

white tail are its most recognizable features.

In this primate population you can also find stump-tailed macaques (*Macaca arctoides*), pig-tailed macaques (*Macaca leonia*), and pygmy slow loris (*Nycticebus pygmaeus*), all categorised as endangered, rare animals according to Viet Nam's regulations on wildlife conservation and protection.

Mushroom Research Centre

The mushroom research centre is located close to the park's headquarters. Over the last 10 years, the centre has discovered more than 300 species of mushrooms, of which nearly 200 have been collected and preserved. Here you can see with your own eyes mushroom cultivation areas that grow species with indigenous genetic resources, such as Lingzhi (*Ganoderma lucidum*), Bao ngu mushroom (*Pleurotus ostreatus*), and Bach huong mushroom (*Lentinula platinedodes*) - mushrooms with medicinal properties known to enhance resistance, strengthen the liver, and inhibit cancer cells.



Cruising on the Dong Nai River

A canoe or motorboat cruise along the legendary river in the early morning or late afternoon is perfect for observing the park's ecosystems on both sides of the river. Kingfishers, green peafowl (*Pavo muticus*), great hornbill (*Buceros bicornis*) all gather along the Dong Nai riverbanks.



Green Riding

There are 15 km of bicycle routes to explore in Cat Tien. The routes take visitors past some of the park's unique attractions, including Bau Sau, the hundred-trunk curtain fig, Queen's flower (*Lagerstroemia speciosa*) Loc Binh and the Ben Cu Rock Rapids. Cycling is an environmentally friendly means of transport that the park encourages visitors to use. And if you need to burn more calories, try yourself as a marathon runner along this track while discovering Cat Tien's five types of forest.



Picnic Area

The picnic area is nestled under the forest canopy, not far from the park's administrative centre, lodgings, and restaurants. Visitors camping overnight immerse themselves in nature, waking in the early morning to the cold air and a mist gradually pierced by the sun as it breaks through the trees.

IV

HERITAGE CONSERVATION BELT

In 1975, IUCN recognised the right of indigenous people to access and play a role in protected areas. Before community-based conservation emerged in the 1980s, biodiversity conservation movements ignored the interests of local people, often separated nature from culture.



Ta Lai Longhouse

In 1975, IUCN recognised the right of indigenous people to access and play a role in protected areas. Before community-based conservation emerged in the 1980s, biodiversity conservation movements ignored the interests of local people, often separated nature from culture.

Maintaining and developing local cultural identity while improving the lives of local communities is a key goal of conservation. Several policies have been promulgated to increase the rights of indigenous people. Community-based conservation has developed steadily as a result of these policies.

For generations, the indigenous people of S'Tieng and Chau Ma have lived scattered across Cat Tien's

forests. Their lives rely on the traditional practices of slash-and-burn agriculture, hunting and relocating whenever the land becomes unproductive. Forest resources are frequently illegally exploited as a result of agricultural activities and people's demand for farmland, timber, and wild animal products.

For many years, the park has been relocating people from the core zone through the resettlement of residen-



tial areas to the buffer zone and generating livelihoods for the affected households.

The Ta Lai Longhouse project originated from an idea to restore a traditional house of the local Ma people. The project was originally funded by WWF and carried out with the participation of the local community, who used their traditional knowledge to sketch plans for the long house's design. The long houses were built by indigenous people with bamboo and are regularly repaired and renovated.

The project is a model of cooperation between business and the community. It provides important accommodation and ecotourism services and receives firm support from the national park. Each time

a visitor stays the night, the long house allocates VND 150,000 to the community development fund. The most impressive aspect of the project is that indigenous people, including the Ma, S'Tieng and Tay, come together to provide tourism services. The park organises a range of activities including trekking; water-based activities such as swimming and kayaking; cycling; and zip line adventures. Ta Lai also supports the community by employing local workers and selling local products.

The project has changed the way indigenous people think about forest conservation and their attitudes to living in permanent settlements. Funds allocated from the profits are used for maintenance, security, community education and environmental protection.



“ Exercise the right to use natural resources, improve human resources, protect the environment, and maintain sustainable livelihoods ”

– Hoang Van Thang
Centre for Natural Resources and Environmental Studies,
National University, Hanoi

Cat Tien Archaeological Site

Located on the left bank of the Dong Nai River is Cat Tien Sanctuary covering hundreds of hectares and stretching for 15 km along the river's length. The sanctuary's hills and riparian floodplain spill into the foothills of the last mountain along the South Annamite range.

Ancient architecture and vestiges of the past are everywhere and have gradually been revealing their mysteries through the decades. Scientists have identified the area as an ancient religious town that conveyed the spirit of a Brahmin and Hindu holy place in the years between the 4th and 8th centuries.

The holy town was a busy stop along the network of trade routes from east to west that were well developed by the 3rd century.

Cat Tien's architectural legacy includes various types of tower temples, ancient tower tombs, altars, water line system and long houses. Temples and towers facing east have large brick courtyards where rituals were conducted. The temple's exits open on to paved paths that lead to the riverbanks and connect the monuments and temples. The bricks are decorated with geometrical, flower and leaf patterns and moulded from terracotta in various shapes and sizes. This enables the bricks to form different structures and perform specific functions.

There are over 1,140 artefacts of all kinds at the archaeological museum, including fragments of reliefs, rings, and pots in materials ranging from gold, silver and bronze to tin, copper, and gemstones.

Most remarkably, 265 pieces of gold relief were engraved with the statement "a maze of gods" using traditional engraving and metal bending techniques. There are pieces of gold engraved with multiple heads,



1,140

Artefacts in the archaeological museum

265

Pieces of carved gold relief



multiple human hands and ape-humans, which lead archaeologists to believe they are characters in the Indian Ramayana epic, such as Hanuman and the demon king, Ravana.

The most distinctive and richest of these artefacts are the sets of linga-yoni made of gold, silver, bronze, quartz, stone, and terracotta.

The displayed lingas include Southeast Asia's smallest gold linga and its largest monolithic semi-precious stone linga at 25 cm in length and weighing 3,435 kg. An artfully created bronze linga has been adapted from the cylindrical part of three-layer stone lingas. There is

also a stone linga-yoni set which is considered the largest in Southeast Asia with a length of 2.26 m and a 2.1 m tall linga that is considered the biggest in Viet Nam.

“The architectural legacies in Cat Tien include many types of tower temples, shrines, water line systems, and long houses”



WHEN THE FOREST IS A WAY OF LIFE

On 27th September 2012, Cat Tien National Park was awarded the title of Special National Relic and recognized as the first of its kind in the south of the country. This event marked a milestone for Cat Tien, acknowledging its value and the persistent efforts of its many stakeholders to conserve its rich and precious biodiversity.

This land is a place of discovery and relaxation but also a place for learning, research and raising social awareness. The primeval forest teaches us about ecological order, survival, love, compassion – it enables us to listen to and understand the natural world.

You will understand what it is to be a 'responsible tourist', bringing rubbish out of the forest and keeping a safe distance from the wildlife, going quietly and respecting nature. When you leave the forest, your lungs will be full of air and your heart full of interesting stories and unforgettable nice memories.

CAT TIEN NATIONAL PARK

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