

# Saving the Heritage of Gunung Leuser National Park Tropical Rainforest Heritage of Sumatra





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A photograph of a dense, lush green forest covering a hillside. The trees are tall and dense, with various shades of green. A prominent tree with a light-colored trunk and a large, spreading canopy is visible in the center. The forest extends to the top of the hill. A blue banner is overlaid on the right side of the image.

## Gunung Leuser National Park



# Gunung Leuser National Park (GLNP), Indonesia

Since 2005, the Ministry of Environment, Marine and Rural Affairs of Spain (MARM) has supported UNESCO's efforts to improve the conservation and effective management of the GLNP, a biosphere reserve and part of the World Heritage site, the Tropical Rainforest Heritage of Sumatra (TRHS). During the last 6 years, the Spanish Government, UNESCO and GLNP have joined their efforts to ensure that this unique park and the numerous endemic species that live within its borders are well protected and remain for future generations to enjoy them. Giving that conservation does require to tackle a number of issues, ranging from law enforcement to public awareness or sustainable livelihoods development, UNESCO and GLNP have carried out a holistic approach, putting strong efforts in engaging all relevant stakeholders in the effective conservation and management of the park, the species, the habitats and the natural resources.



This Programme has been coordinated and implemented by UNESCO Office, Jakarta in close cooperation with the Directorate of Forest Protection and Nature Conservation under the Ministry of Forestry, where the three partners have worked together to achieve the established objectives. To this aim, a special team, consisting of key staff of both UNESCO Office, Jakarta and the National Park, has been established. The task of the team has been to identify and outline new activities and monitor their implementation. The team has met on a regular basis to develop monthly workplans as well as discuss the technical and financial issues related to the project implementation. Regular missions to the site have been

organized to monitor and evaluate the implementation of the project, including joint evaluation missions by UNESCO and the Directorate of Forest Protection and Nature Conservation. Encountered pitfalls and failures have been identified and recommendations put forward to improve the management of the project for the following period. Such in-situ evaluation process has been very important as it sought to rationalize the project strategy and debate on the lessons learnt with a wide range of stakeholders. The results and lessons learnt obtained from the evaluations (i.e. analysis, reflection, new strategies and plans) have been discussed with key-stakeholders and integrated into the Programme.

## UNESCO-GLNP Programmes are:

### Restore and re-establish ground presence through equipment provision and capacity building



As the first step to ensure the adequate and effective ground presence of the park staff, UNESCO and GLNP undertook several joint assessment missions to identify the equipment and infrastructure needs in the field and to develop detailed strategies and plans on the use of equipment and infrastructure. The presence of a well-equipped park with enough capacities and continuous monitoring and patrolling efforts has imposed a real (physical presence) and psychological (the risk of getting caught) pressure on the continuation of illegal activities within the park. For this purpose, several GLNP field offices have been constructed and rehabilitated along the west coast of Aceh, including the field office in Blangpidie, the field office and GLNP Information Center in Kluet Selatan, the staff housing in Aceh Singkil



for BKSDA-NAD (*Balai Konservasi Sumber Daya Alam, Nanggroe Aceh Darussalam*, Nature Conservation Agency, Nanggroe Aceh Darussalam Province). The Visitor Center in Bukit Lawang has also been fully rehabilitated and renovated, including the information displays, which provide useful information for the tourists that visit the park.

UNESCO-GLNP Programme has also provided the park with new vehicles, IT, and telecommunication equipment. Long-ranged radio communication systems (single-sideband modulation) have been installed at seven strategic locations in GLNP and BKSDA-NAD. The radio equipment has enabled GLNP management to coordinate directly with remote areas such as Tangkahan and Tapaktuan where cell phones can not be used due to the lack of network. The radios have also reduced communication costs from headquarter to the sub-regional offices in South Aceh, South-East Aceh and Gayo Lues District.



- Training on media communication
- Geographical Information System (GIS) training
- Developing memorandums of understanding with partners
- Internal conflict resolution management
- Law enforcement training
- Biodiversity inventory training

The broad range of training activities provided have highly contributed, not only to increase but also to boost the national park capacities in dealing with illegal activities and in protecting the park, but also have boosted their motivation and their sense of belonging to the park, which is key in ensuring the effective management of the park. UNESCO has closely worked with key staff of GLNP in defining the main training needs and in developing the most adequate methodology for these activities, adapted to the specific requirements of the trainees and the topics. The training and capacity building activities organized by the Programme have been:

- Community outreach training
- Training of Trainers (TOT) for database development and management
- Database management training for resort office staff

UNESCO has also supported the participation of the GLNP authorities in international conferences as a way to improve both their knowledge on biosphere reserves management and to promote GLNP internationally.

As a follow-up of identifying the main threats and weaknesses of the TRHS, the project assisted GLNP to identify and analyze the most critical challenges and threats faced by the park management. One of the main constraints in effectively managing the park and consequently dealing with the threats to its integrity was the lack of an existing strategic plan for GLNP. The project has supported GLNP in developing the strategic plan, which was presented at the “Consultation Workshop on Strategic Planning of GLNP Management”.

## Developing, disseminating and implementing the GLNP Strategic Plan (2006-2010)

The project has provided technical assistance to implement the GLNP strategy and also to disseminate and socialize the strategy at various levels. The GLNP Strategic Plan (2006-2010) was developed in line with the vision and mission of the GLNP to achieve participatory and integrated management of the park to ensure social, cultural, economic and ecological benefits for current and future generations. The Strategic Plan followed three main lines: (1) Examine the history of threats to the park; (2) Improve the capacity, motivation, working system and performance of technical staff, forest rangers and heads of sub-regional and resort offices; and (3) Establish a network with key and strategic partners.

Most of the strategies and actions identified in the GLNP Strategic Plan were incorporated into the Emergency Action Plan (EAP) of the Tropical Rainforest Heritage of Sumatra (TRHS). The EAP was submitted to the World Heritage Committee by the Government of Indonesia upon request by the World Heritage Committee Meeting, based upon the 2006 Joint Reactive Monitoring Mission Team.

### Improve law enforcement mechanisms to protect the GLNP

Once the basic needs for managing the park were in place, UNESCO and GLNP worked together to identify and establish a system to effectively monitor the main threats to the integrity of the park. Being illegal logging and encroachment the main threats to the park, the monitoring system is carried out at two levels: at a landscape level with GIS technology and at a field level with daily patrols and other methods. Using the information, GLNP can develop related strategies and actions to deal with the violations, including legal, policy and advocacy interventions.

Through improving law enforcement mechanisms the Programme has contributed to develop a blueprint for a new management scheme, through a bottom-up management system, focusing on the lowest management units in the National Park, and thereby to transforming the management paradigm of the park from a “paper park” to a reactive and pro-active park with a vision beyond park boundaries.

To improve the monitoring system at a landscape level, the Programme has put strong efforts in improving the GIS data





collection and management, through several training modules. The presence of a GIS unit and GIS specialist provide a strong foundation for monitoring illegal activities in the park by providing up-to-date information and accurate field maps in order to monitor and evaluate programmes and activities in GLNP.

UNESCO has been working intensively with GLNP authorities and made a detailed analysis on the extent, history and characteristics of the crimes. Based on the analysis, several strategies to reduce the incidence of forest crimes in the park have been recommended to the park. In addition, a holistic and multi-level approach to law enforcement has also been introduced.

In order to react to the abundant illegal forest activities that took place in and around the park, the Programme has put special efforts in improving the law enforcement strategies of the GLNP and partner organizations, with strong efforts in law enforcement training. The park staff has been trained on the Indonesian criminal system and legal affairs, including analysis of illegal forest activities. The

capacity building approach has provided effective skills to deal with illegal forest activities such as encroachment and illegal logging, and now the park staff knows the mechanisms to report forest crimes to the law enforcement agencies.

At Provincial and District level, the project has assisted the GLNP in developing and maintaining a fluent communication with local enforcement agencies and authorities. The continuous advocacy efforts have proved to be successful in obtaining support and reducing forest crimes. In order to gain the support for law enforcement from local communities, the project has organized a range of technical meetings with key community groups in villages adjacent to the park, whose communities can play a key role in halting encroachment and other forests crimes in the park.

In order to further improve the protection of the park the Programme initiated the establishment of a joint patrolling system, in which community members of villages located adjacent to the park joined existing forest ranger teams in protecting and monitoring the park.



After the selection process, community members were trained for a period of two weeks on topics such as patrolling mechanisms, law enforcement and forestry regulations before joining the forest ranger teams in the field.

The improved capacities and ground presence of the park staff have increased reactivity towards the illegal activities in the park, as well as to have an improved communication strategy with other stakeholders, such as local communities, NGOs, government agencies and media.

The project has also supported the initiation of the establishment of three task forces on refugees, encroachment, and rehabilitation issues, whose performances have helped improving the understanding of the situation and on how to address these issues gradually. The lack of clear delimitation of the park has been acknowledged as one of the causes for local people to encroach areas

and to extract natural resources within its borders. Therefore, the Programme has provided the park with a series of signboards delimiting of the national park, as well as providing information on the protected species and habitats inside the park.



## GLNP law enforcement efforts supported by the court

More than 12 cases of commercial encroachment inside the park have been prosecuted. In this case, unproven allegations of violating human rights were filed against GLNP authorities for removing the encroachers from the park and destroying their plantations inside the park. In May 2007, up to 212 encroachers registered an additional lawsuit against GLNP, the Langkat District Police and the Head of Langkat District. UNESCO closely monitored the case and legally assisted GLNP during the trial. Based on the provided evidences and witnesses, in August 2008, judges of Stabat District Court recognized the encroached area as part of GLNP. This process shows how the increased capacities of GLNP staff in collecting legal evidence has a direct impact towards improving law enforcement in the park.

## Public awareness campaign on the importance of preserving the natural environment of the GLNP and its status as part of the TRHS

Knowing that public support is key for the effective protection of the park and the management of its natural resources, UNESCO, GLNP and partner organizations have put strong efforts in raising the public profile of the park at local, national and international levels.

In collaboration with the Wildlife Conservation Society (WCS), the project established a Conservation Mobile Unit (CIMO, Conservation Information Mobile) to improve the awareness of school children and local people who live in the buffer zone of GLNP. The CIMO team consisted of well-trained staff from different organizations such as WCS, Orangutan Information Center (OIC) and GLNP, with a vehicle equipped with by multimedia campaign and sound system. The main objectives of CIMO were to promote GLNP as a cluster heritage of



the TRHS and socialize the UNESCO-GLNP scientifically-based ecosystem restoration through a series of awareness raising activities. Three steps were employed to achieve the above goals, namely conduct Knowledge Attitude and Practices (KAP) surveys; prepare and conduct an awareness raising campaign; and carry out a conservation camp for school children.



More than 200 students from 21 schools from Medan and Langkat Districts have participated in a series of awareness raising events that have included a Conservation Camp, a Conservation Mobile Units and writing contests. Numerous materials (posters, mugs, T-shirts, notebooks, stickers, bags, etc.) have also been distributed among participants.

As part of the development and implementation of environmental awareness and education campaign, GLNP organized a seminar inviting more than 50 journalists. As the outcome of the seminar, the Society of Indonesian Environmental Journalists was established to improve the commitment of the media in working professionally towards the dissemination of environmental awareness to the public.

Additionally, the Programme has developed a public outreach campaign in order to improve the awareness of the young generations living in the adjacent areas of GLNP regarding the importance

of conserving the Sumatran orangutan. An 8-minute 3D animation film, entitled "Tamanku adalah Temanku" (My Park is My Friend), has been developed for the elementary school students, which tell the adventures of three kids in their efforts to save their beloved GLNP from an assortment of threats, especially to orangutan. The animation film is being screened in the schools nearby the park and has its premier during the 1st Science Film Festival in Jakarta on November 2010.



## Ecosystem restoration in Sei Serdang, North Sumatra Province



Degradation of orangutan habitat is a major threat to their survival. To address this issue UNESCO and GLNP have carried out ecosystem restoration in Sei Serdang, which was identified as a critical orangutan habitat.

The Programme has carried out several preliminary assessments and studies including community ecology studies, socio-anthropological studies and legal analyses in order to define the best methodology to implement ecosystem restoration. The aim of the ecological restoration is not only to recover degraded forest areas, but also to do it following the ecosystem approach, by replicating the natural forest succession process. The ecological activity has been closely supervised by senior experts in botany and ecosystems in the Indonesian Institute of Science (LIPI) as well as the Forestry Research and Development Agency (FORDA), Ministry of Forestry.

As a preliminary and necessary phase in the restoration process, an anthropologist from the University of Indonesia carried

out a socio-anthropological survey in two villages close to the proposed restoration area, namely Sei Serdang and Namo Sialang. The main purpose of the survey was to socialize the scientifically-based ecological restoration in the park, and to assess stakeholders' perspectives about the park as well as to identify their possible involvement to conserve and rehabilitate the degraded land inside the park. The study provided a detailed description and analysis of socio-cultural aspects of communities in targeted villages and explored the understanding of ecological or habitat restoration as well as the conservation in the park.

The project has focused the restoration efforts in the 27 ha area where the park boundaries are clear and acknowledged as part of the park by the local communities and the palm plantation companies operating in the area. This site is located in Sei Serdang, Resort Cinta Raja-Batang Serangan, Langkat District, North Sumatra Province. In order to ensure that all the trees planted in the restoration site are local species,



the individuals and seedlings planted through an Accelerated Natural Succession methodology have been collected by the restoration team from surrounding forest.

The project developed a fully equipped restoration to host the restoration team on a permanent basis, including a nursery area. The permanent presence of the team is proving to be key for the success of the project, providing intensive care to the seedlings, regular monitoring to restored areas and increased visibility of the area as national park.

In the surroundings of the restoration camp, the project has established a demonstration plot, where the more representative species used in the restoration have been planted. Visitors to the restoration area collaborate on the restoration efforts by planting one tree, showing their commitment towards the conservation and restoration of the natural ecosystems in the park. The site has received a number of relevant visitors such as Dr. Ir. Haryadi, a former Secretary of Director General of PHKA, Mr. I Gusti

Putu Laksaguna, the Deputy Minister for Culture and Tourism Resources Development, Ir. Adi Susmianto, the Head of Research and Development R&D Center, Dr. Ir. Y. Purwanto, the Director of the Indonesian Committee for the Man and Biosphere (MAB) Programme and Dr. Ir. Ismayadi Samsuodin, a Restoration Ecologist of the Forestry Research and Development Agency. Additionally, several representatives of the Ministry of Environment, Marine and Rural Affairs of Spain have visited the area and contributed to the planting activities.

As part of the promoting natural succession, the project has developed a database programme to compile the information gathered during the monitoring of the restoration area. This database includes information such as date and size of planting, location, name of species and growth rate. The database also compiles information regarding fauna registered in the area such as wildlife footprints, bird sounds or direct viewing.

Although the results of this activity will require at least 4 years to generate

conclusive results, there are already clear signs of its success, including extremely low seedling mortality rate (below 10%) and increasing use of the area by wildlife, e.g. Thomas leaf monkey, orangutan, pig-tailed macaque, Sumatran elephant, bearded pig, hornbill, Sumatran tiger and sun bear. This wildlife was not registered in the past decades in this area due to forest disturbance. The existence of the restoration programme and continuous ground presence of the restoration team in the site has significantly reduced forest crimes including illegal logging and encroachment around Sei Serdang and Tangkahan Area. It is estimated that the presence of the restoration team has an impact protecting over 300 to 350 ha of forest surrounding the restoration site.

## Ecosystem Restoration

A study was conducted on the flora composition of the secondary forest block in the restoration site by LIPI (2010). In three sampling plots covering a total 0.75 ha LIPI has recorded a total of 298 tree individuals consisting of 67 species, 61 genera and 33 families. Euphorbiaceae was recorded as the most abundant family in the plot (14 genera), followed by Moraceae (7), Rubiaceae (5), Annonaceae (5) and Sapindaceae (4).

## Establish supportive environment for sustainable ecotourism development

Ecotourism is a rapidly growing market worldwide and the figures of national and international visitors in GLNP increase yearly. Taking into account the positive impacts that ecotourism can bring to the park, and looking at the main threats and weaknesses it faces, UNESCO and GLNP have collaborated in developing a programme aimed to improve the conditions and local capacities for market development, as well as to promote the national park as an international ecotourism stop.

An in-depth analysis of the potentialities and weaknesses of developing ecotourism in GLNP has been carried out, and the tailor-made recommendations have been shared with the main stakeholders. UNESCO has also worked together with GLNP in developing the standard operating procedures of tourism

services and provided capacity building opportunities for the park staff, mainly the guides, to improve their capacities in managing tourism and providing updated and accurate information and services to the visitors, following worldwide established good practices for ecotourism.

The project has also provided materials for several international exhibitions held in Indonesia to promote the TRHS in general and GLNP specifically as an ecotourism destination. Amongst others, the project has produced posters, banners, flagship species bookmarks, a pocket guide to the park, a complete guidebook to GLNP, and a GLNP tourism map. These materials which have been distributed among a wide range of stakeholders have contributed to raise the image of GLNP for the tourism market.



Series of signboards have also been installed in several locations in the park to promote tourism, including a neon box in Medan Polonia Airport, and informative displays in the newly-renovated Bukit Lawang Visitor Center. Moreover, the ecotourism promotion signboards have been installed in the main tourist attraction areas such as Marike, Tangkahan, and Sekoci (Langkat District), Tapaktuan-Bakongan road (South Aceh District), and Laut Bangko Lake.

Since the national park's signage was in deteriorated conditions and contained out of date information, UNESCO and GLNP agreed to install new office signposts with the World Heritage logo to achieve greater visibility and awareness of the park as a World Heritage property. The signs have been located in ten GLNP resort offices in Tapaktuan (South Aceh District) and Regional Office in Stabat (Langkat District).



## Safeguarding critical orangutan habitat in the GLNP

The GLNP remains one of the biggest and best preserved habitats of the critically endangered Sumatran orangutan. By contributing to the Sumatran orangutan conservation, as a flagship species to the park, the Programme also aims to contribute to the conservation of all the other species and habitats in the park.

Seeking to follow a scientifically sound strategy for orangutan conservation, the project has gathered critically important and updated information on the orangutan population and habitats in the park. To do so, a comprehensive orangutan census has been carried out in the park and adjacent areas. Through this census, UNESCO, GLNP and its implementing partner, PanEco, have identified the most populated areas, main distribution, and threats to orangutans. The census has confirmed the presence of

orangutans in habitats previously known to host populations of this species, and has discovered populations at higher altitude. The results of the analysis, though still preliminary, show that the population of orangutans in the park is still viable. Nevertheless, the pressures such as human-orangutan conflict and mainly habitat destruction constitute serious threats to the orangutan conservation inside and surrounding the park.

Through satellite imagery, the Programme has evaluated the forest cover and deforestation trends in the national park for the last 20 years, and concluded that most degraded areas corresponded to lowland forest areas, which are the main habitat of the orangutan. Therefore, special attention needs to be paid to these areas.



To identify additional threats to Sumatran orangutan conservation, the Programme has also carried out a socio-economic study in the park to identify the areas with higher orangutan population and with higher risk of human-orangutan conflict, due to the high density of human populations. This study provided in-depth understanding of the threats to orangutan populations, as well as the identification of future conservation strategies to improve its protection. Through this socio-economic analysis and ecological study, GLNP now has a complete set of baseline data on orangutan conservation which will be the basis for long term planning and management. This information has been shared with all the



relevant stakeholders on orangutan and environmental protection to ensure that it is taken into account when developing their programmes.

## Updated status of the Sumatran orangutan in GLNP

The surveys of the Gunung Leuser National Park (GLNP) have now been completed throughout the park. Orangutan nests were found along all transects surveyed, including those at highest surveyed altitude, around 1,500m asl. This suggests that orangutans may occur more often at higher altitudes in the park than anticipated based on previous surveys. In addition, logged areas that were surveyed tended to have lower orangutan densities than primary forest areas, but still supported reasonable orangutan densities and overall numbers of orangutans. As a result of these two findings these surveys indicate that the actual area covered by the Sumatran orangutan's distribution is in fact larger than those published before, in which logged forests and areas above 900m asl have mostly been excluded. This larger orangutan distribution area therefore automatically leads to a higher orangutan abundance estimate than previous surveys, like those from the 2004 Population and Habitat Viability Assessment (PHVA) report in which an estimated 2,025 orangutans were reported for GLNP. Preliminary estimates from the present surveys indicate that there are in fact closer to 6,684 orangutans in the park, with 95% lower and upper confidence limits (LCL and UCL) of 4,536 and 9,861 individuals.

## The establishment of human-wildlife conflict taskforce



UNESCO and the OIC have worked together to establish the Human Orangutan Conflict Response Unit (HOCRUC). The team regularly monitors potential conflicts in areas prone to crop-raiding by orangutans and identifies and maps key conflict areas in and around the GLNP through the use of a GIS program.

HOCRUC has also established a toll-free Short Messaging Service (SMS) center to receive and compile data, and ensure that the relevant species-specific mitigation response unit will act on reported instances. In addition, to facilitate the actions, the Standard Operating Procedure has been developed following best practice methods for human-wildlife conflict mitigation. Additionally information, regarding the types, patterns and methods utilized by local farmers for dealing with Human-Wildlife Conflict were collected in order to disseminate the best practices.

### Human-orangutan conflict (HOC) criteria

An important aspect of any conflict situation is the verification of the conflict and species involved when standing a change of mitigating the problem.

Five criteria of HOC have been identified and are as follows;

- Criterion 1: No Conflict (verification took place and orangutan is not the conflict species),
- Criterion 2: Orangutan(s) who sporadically raid agricultural crops in farmlands and/or plantations due to close proximity to a National Park,
- Criterion 3: Orangutan daily raid agricultural crop in farmland and/or plantation due to being isolate in these landscapes,
- Criterion 4: Orangutan(s) living in captive situations and
- Criterion 5: No conflict was recorded but that there is potential for conflict due to the landscape setting, crop types and abundance grown.



## **Develop policy to support the conservation of Sumatran orangutan**

In order to develop a conducive environment for orangutan conservation in North Sumatra Province, UNESCO has worked with an environmental law firm in developing an academic draft, the early stage of governor decree, aimed to generating necessary actions which should be carried out by provincial and district governments in protecting the orangutans in the province. This draft has been developed through a participatory process where relevant stakeholders, such as government agencies, conservation organization and community representatives, have provided their perspectives and inputs.



## About Environmental Sciences, UNESCO Jakarta:

The Environmental Sciences Unit at UNESCO Office, Jakarta has two global means of protecting natural sites and dealing with environmental issues; the Man and the Biosphere (MAB) Programme and the World Heritage Convention.

The Environmental Sciences approach to sustainable development is characterized by long-term commitments to site conservation, development of broad-based partnerships and interdisciplinary cooperation, exchange of scientific knowledge and information, and building a strong relationship with local people. Part of the work concerns tropical forest conservation and some of the recent projects include orangutan protection and habitat conservation, community-based forest management, ecosystem restoration and the development of climate change adaptation measures.



SELAMAT DATANG DI  
**TAMAN NASIONAL  
GUNUNG LEUSER**



Logo of the Ministry of Forestry and Environmental Conservation  
Logo of the National Park  
Logo of the National Park  
PARK TRAJAKAT (NATIONAL PARK)  
(National Park Trajakat)

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