

**PROJECT FOCUS**

# Indonesia: Rimba Raya Biodiversity Reserve



Based on the island of Borneo in Indonesia, this REDD+ project preserves carbon-dense tropical peat swamp by helping to halt deforestation of roughly 47,000 hectares of forest which were originally slated for conversion to palm oil plantations. The project focuses on both community development and biodiversity conservation, particularly the protection of the endangered Borneo Orangutan. In order to deliver on its goals, the project actively engages local communities to improve food security, income opportunities, health care and education.

**Project type:** Conservation-based forest management

**Region:** Asia



**Standards:**



### The project

The Rimba Raya Biodiversity Reserve is based on the southern coast of Borneo in a carbon-dense tropical peat swamp forest which is part of the Seruyan River watershed. The project's wildlife and carbon stocks are being protected mainly through physical barriers and management regimes: the construction and operation of guard towers, fire protection plans and infrastructure, monitoring plans and orangutan care facilities.

## Palm oil conversion causes a host of ecological problems including destruction and fragmentation of habitat for endangered species

Nearly 85% of global palm oil production currently comes from Indonesia and Malaysia, with the industry predicted to double by 2020<sup>1</sup>. A large percentage of palm oil expansion in Indonesia and Malaysia occurred at the expense of virgin and biodiverse forests, many of which lie on top of carbon-dense peat bogs.

In addition to the released carbon emissions, palm oil conversion causes a host of other, often irreversible, ecological problems. This can include destruction and fragmentation of habitat for endangered species, soil erosion and increased sedimentation in rivers, air pollution from forest fires, soil and water pollution from heavy use of

Peat drainage canals for palm oil.



pesticides and dumping of untreated palm oil-mill effluent, and increasing flood frequency. The water pollution and flood frequency has a measurable impact on downstream agricultural productivity and the welfare of communities. In addition, after approximately 20-25 years, the palm oil plantations are often no longer productive and they must move to new areas, as the soils can take many years to recover.

The project plays an important role in ecosystem conservation by expanding habitats within a key biodiversity area, as it is situated adjacent to Tanjung Puting National Park. Rimba Raya provides a natural buffer to the park, which is renowned for providing one of the few remaining habitats for orangutans and is recognised as a World Biosphere Reserve by the United Nations (UN). With approximately 55,000 Borneo orangutans left in the wild, the UN's Environment Programme believes that, if the trend of illegal logging, fire and extensive development of oil palm plantations continues, they will become extinct in 10-20 years. Indonesia has the largest number of threatened mammal species in the world and the fourth largest total across flora and fauna species types, according to the International Union for the Conservation of Nature (IUCN) Red List<sup>2</sup>.

In the near future, the project plans to develop a health care and immunisation programme, partnering with the NGO Health in Harmony. The health care system will assess the needs of the project zone communities and will regularly adapt for their specific needs. The project is also arranging for the construction and outfitting of a floating clinic, which will deliver medical services up and down the Seruyan River, and is beginning to distribute improved cookstoves to help reduce the air pollution that families are exposed to.

Additionally, a pilot solar energy project is under construction to provide electrification to a relatively remote area and the project is also planning to initiate a programme for biochar briquette production. Traditionally rural communities use raw biomass as an energy source, which is both inefficient and degrades the surrounding environment; the production of sustainable biochar briquettes provides an additional opportunity for community-based enterprise. Importantly, biochar enriches soils and is, therefore, also helping to improve food productivity and security.



A baby orangutan, orphaned by deforestation, in rehabilitation.

### Contribution to sustainable development

The project contributes to sustainable development in several areas:

#### Biodiversity protection

The Tanjung Puting National Park is home to approximately 10% of the global orangutan population and there is significant presence in the areas surrounding the park as well, making the project crucial in helping protect

swamp forests are key habitats for the unique proboscis monkey (*Nasalis larvatus*) which are found only in coastal and riverine habitats in Borneo. The project is part of the Sundaland biodiversity hotspot, which is largely dominated by the islands of Borneo and Sumatra and is considered one of the top five 'hottest hotspots'. Biodiversity hotspots are areas featuring exceptional concentrations of endemic species while experiencing exceptional loss and threat to habitat. This hotspot contains plants and animals that amount to up to 5% of total species worldwide, while having less than 8% of its primary vegetation remaining<sup>3</sup>. The area is also considered an Important Bird Area, as identified through Birdlife International, with more than 200 bird species recorded in the Tanjung Puting National Park.

In addition to protecting the area against deforestation, the project has committed to undertaking significant enrichment activities in the area through planting seedlings of native dipterocarp and other native tree species, particularly jabon, binuang and makaranga which thrive in degraded conditions.

The project also has a comprehensive monitoring system as well as a fire response plan and an operational fire brigade to protect the forest.

#### Water stewardship

The project is partnering with Potters for Peace – a member of the World Health Organisation's International Network<sup>4</sup> – to train local communities in the making and selling of inexpensive water filtration devices. These are effective in eliminating approximately 99.88% of water-borne disease agents from drinking water. The project has also begun the distribution of colloidal silver water filtration systems throughout the project area.

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## The Tanjung Puting National Park is home to approximately 10% of the global orangutan population

the species. The project is the largest donor to The Orangutan Foundation International (OFI), which rescues orangutans orphaned by deforestation, rehabilitates them and releases them back into the wild. Maintaining large areas of contiguous habitats plays a vital role for other species in the area too; the project buffers the Tanjung Puting National Park which helps strengthen the management capacity of the park, extending the park goals. Peat



In addition, two of the villages have built water systems with government support that could provide clean water to every household within the community if they were working properly. As a result, the project has started working with local government to train the villagers in proper maintenance, assist in the cost of repairs when needed, and help the community develop a business plan for water distribution.



## The project is helping minimise land-use change in protecting the peat swamp ecosystem

In general, development activities on tropical peat land, such as palm oil conversion, result in increased frequency and severity of adjacent and downstream flooding, causing serious consequences for nearby communities. Drainage ultimately destroys the sponge effect of peat swamps and their reservoir function is eventually lost and this is often irreversible. The project is helping minimise land-use change in protecting the peat swamp ecosystem and its ability to hold water and provide critical hydrological services.

### Health & well-being

The project's programmes around distributing water filtration devices help increase the accessibility to clean drinking water which has a positive impact on health.

### Food security

The project is providing training on community-based agroforestry activities, which includes crop diversification, harvest rotation and the application of new technologies for improved production of native species. As fishing is central to many communities' livelihoods, the project is also planning to develop low-impact aquaculture programmes. These will help to improve fishing practices while replacing the traditional practice of burning out swamp forests, which can have a host of negative long-term effects on both aquatic and terrestrial habitats.

### Financial security

The community-based agroforestry programme planting of native species helps increase crop productivity, both for subsistence use and for potential sale to project groups, such as Orangutan Foundation International, or nearby people. The growth of cash crops, such as fruit trees, chewing gum, and rubber trees can offer some of the communities an alternative source of income if there are excess yields, or simply improve their current food expenditures.

The agroforestry programme will become more intensive in 2015 and beyond and will likely include more niche non-timber forest products such as essential oils.

The improved fishing technologies and agricultural training also supports the yields and improves food quality for trading produce. Improving agricultural productivity and diversifying income activities is important for the people in the 14 villages located in the project area, who have an average household income of around US \$1.80 per day.





The distribution of water filtration devices helps to increase the accessibility to clean drinking water.

#### **Education & skills**

The project is focused on increasing environmental awareness amongst youths and adults in the project area; this includes education on reducing hunting activities and forest fires, and protection of important bird areas. Additionally, park personnel have access to training and capacity-building opportunities, which can increase the knowledge sharing around sustainable practices to avoid deforestation.

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## **Protection of the forest helps mitigate the likely climate impacts to biodiversity, food security and financial security**

#### **Job creation**

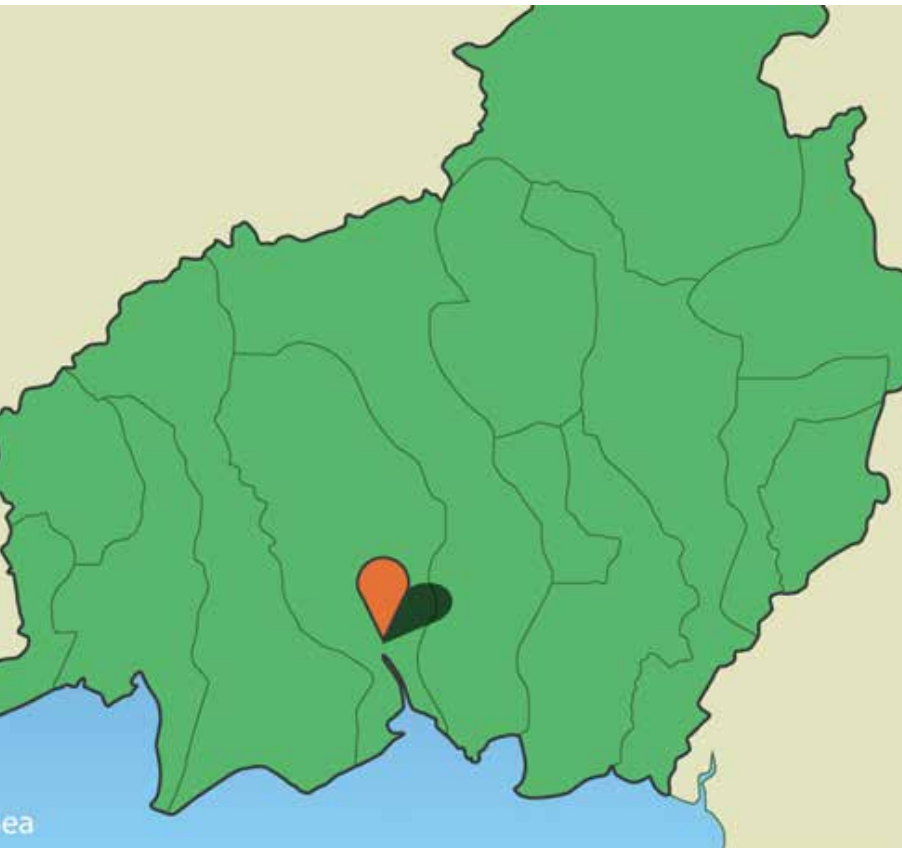
A number of direct employment opportunities have been created in order to patrol the reserve, monitor the carbon and biodiversity of the project and help with project management and community development activities. Temporary jobs for activities such as firefighting, scientific surveying and 'bushwhacking', results in over 100 additional roles; the project has also recently employed over 200 people as part of the reforestation efforts. The project is indirectly helping employ other local people through its collaboration with several NGOs such as Health and Harmony and World Education.

#### **Infrastructure development**

A number of community centres will be built in strategically selected villages to act as an interface between the communities and the protected project areas. The community centres will offer facilities for park and project staff as well as for community organisations and they will supply news and radio communication facilities, libraries and social and agricultural training programmes.

#### **Climate adaptation**

The project has qualified for Gold Level status under the Climate, Community and Biodiversity (CCB) Standard, in part, due to its climate change adaptation benefits. Studies conclude that climate change is likely to impact food security, income and health and biodiversity related to drought and flooding. However, many of the project's activities help address those threats including: fire suppression, reforestation and agroforestry, soil enrichment, crop diversification, improved irrigation techniques and the application of new technologies for improved food production such as aquaponics. In general, peatlands act as water catchment and buffering systems to provide water storage and protect against flooding. As a result, the overall protection of the forest helps mitigate the likely climate impacts to biodiversity, food security and financial security.



Rimba Raya is located in the Seruyan Regency, in the province of Central Kalimantan, Indonesia.

### The region

Indonesia has the highest global greenhouse gas (GHG) emissions from peatlands due to drainage and deforestation. It is estimated that over 85% of the country's GHG emissions derive from deforestation and peat fires, driven primarily by agricultural expansion<sup>5</sup>.

The Rimba Raya project is verified and validated to the Verified Carbon Standard (VCS). The carbon emission reductions are calculated from a protected area of approximately 47,000 hectares.

In addition to the VCS validation for carbon accounting, the project has achieved Gold Level status under the Climate Community and Biodiversity (CCB) standard as it significantly assists communities in adapting to the impacts of climate change and displays high biodiversity benefits.

InfiniteEARTH has developed and implemented this ground-breaking REDD+ (Reducing Emissions from Deforestation and Forest Degradation) project with the primary objective of forming an alliance between conservation, community and commerce to preserve High Conservation Value Forests that are also habitats for endangered species. The project has also partnered with a number of other groups and NGOs to assist in the project development, including World Education, Potters for Peace, the Organization for Tropical Studies, the Centre for International Forestry Research (CIFOR) and Health in Harmony, an organisation which links conservation activities with health care.

### Location

Rimba Raya is located in the Seruyan Regency, in the province of Central Kalimantan, Indonesia. It is bounded by Tanjung Puting National Park in the west, the Java Sea in the south, the Seruyan River in the east and a palm oil concession in the north.

<sup>1</sup> [www.unctad.info/en/Infocomm/AACP-Products/Palm-oil/](http://www.unctad.info/en/Infocomm/AACP-Products/Palm-oil/)

<sup>2</sup> [www.iucnredlist.org/documents/summarystatistics/2010\\_3RL\\_Stats\\_Table\\_5.pdf](http://www.iucnredlist.org/documents/summarystatistics/2010_3RL_Stats_Table_5.pdf)

<sup>3</sup> Biodiversity hotspots for conservation priorities, Nature

<sup>4</sup> [www.pottersforpeace.org/](http://www.pottersforpeace.org/)

<sup>5</sup> [thereddesk.org/countries/indonesia](http://thereddesk.org/countries/indonesia)

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