



Ecosystem Area of MULLER-SCHWANER

The Muller and Schwaner Mountain Ranges, located in the southern part of the Heart of Borneo, are some of the oldest mountain rain forests on the planet at around 130 million years old. The area is important due to its hydrological and

ecological functions which act as a source of life both regionally and globally. As a result, degradation around the Muller-Schwaner Mountains will have a regional and global impact on the environment.

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Engaging key stakeholders in the management and conservation of protected areas within the Muller Mountains is a key part of the Heart of Borneo (HoB) implementation work plan. One important benefit of this conservation effort is to maintain the ecological functions of the Muller Mountains as the catchment area of Kalimantan's five major rivers; the Kapuas, Katingan, Kahayan, Barito and the Mahakam. Another benefit is to preserve biodiversity to ensure long-term sustainability.

The Muller-Schwaner Ranges are known as an important habitat for fauna and flora, including threatened species or species endemic to Borneo. The latest study found that the area holds thousands of different species of vegetation, of which around 34% are endemic, including rare and exotic plant species. Some native plants are medicinal, and the benefits of others are not yet known. Other rare, endemic and endangered species such as gibbons (*Hylobates muelleri*), the Borneo Orangutan, Clouded Leopards, and Honey Bear also inhabit the lower mountain of the forests.

The official land functions of the forest in the Muller and Schwaner complex consists of National Park, Protected Forest, Production Forest, Produc-

tion Forest Conversion, and other land uses. Determining these management areas required collaboration amongst all stakeholders with an interest in the region.

Surrounding the Muller-Schwaner Mountains are protected and conservation areas under the authority of the district and central governments. Three of these areas serve important biological and ecological functions:

1. Bukit Baka-Bukit Raya National Park (BBBR), an area of around 180,000 hectares, formally established in 1992. The park, located in the Schwaner Mountains and spanning altitudes from 150 m to 2278 m above sea level, consists of low and high mountain forests, with primary and secondary vegetation on the border between West Kalimantan and Central Kalimantan.
2. Balai Besar, Betung Kerihun National Park (TNBK) covering an area of 800,000 ha.
3. Sapat Hawung Nature Reserve with an area of 240,000 ha.

GEOGRAPHICAL LOCATION & POPULATION

The villages in the Muller-Schwaner Mountain region are almost all underdeveloped villages and difficult to access. WWF has documented more than 30 villages, mostly Mountains region is a buffer

zone of Muller-Schwaner, both in West Kalimantan or Central Kalimantan. The villages are located in the sub-districts Uut Murung and Seribu Riam (District Murung Raya), sub-district Miri Manasa (District Gunung Mas), sub-districts Marikit, Katingan Hulu, Petak Malai and Bukit Raya (District Katingan) and sub-districts Serawai, Ambalau (District Sintang), sub-districts Boyan Tanjung, Kalis and Mentebah (District Kapuas Hulu) and sub-district Menukung (District Melawi).

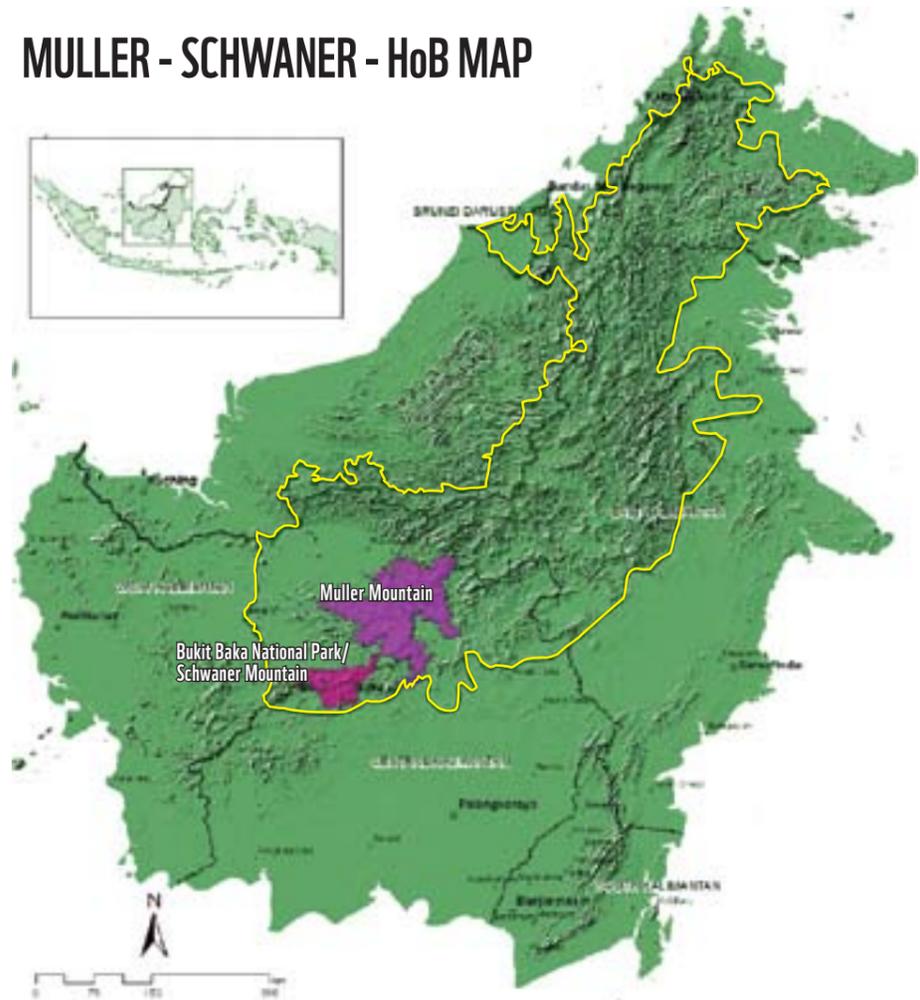
Villages in the Muller-Schwaner Mountains often change their name and move location due to important events. For example, *Tumbang* Topus has existed since the fifth century BC but has moved location a number of times due to events including the plague (i.e. cholera, dysentery, diarrhea, malaria), natural disasters (floods, landslides) and tribal war.

Almost all the villages in the Bukit Baka-Bukit Raya National Park and Muller Mountains protected area are isolated and difficult to reach. Transportation between villages is expensive and generally only accessed via the river as the villages are located in the upper reaches. Only a few can be accessed by roads which have been created by commercial logging companies.

Most villages bordering the conservation area of Muller-Schwaner Mountains have as many as 385 people in them with each family consisting of four people from the 17 villages. *Tumbang* Tohan has the largest population with around 913 people and the lowest population is in Batu Panahan with 137 people.

Population and isolation often have an impact on education levels and local economic conditions, hindering the development of the children's education. Many people in these villages only attain a low level of primary school education and many do not pass. To attend junior and high school, students must live in the district or city districts, and for college education, they have to go to the provincial cities.

MULLER - SCHWANER - HoB MAP





Presbytis Rubicunda

DIVERSITY OF FLORA AND FAUNA

Kalimantan is estimated to have the flora diversity as rich as in Africa. There are around 3000 tree species, including 267 species of *Dipterocarpaceae*, in Kalimantan and the island is known as a center of fruit tree species – with various species of *Mangifera*, *Durio*, *Baccaurea*, *Artocarpus*, *Nehelium* found there. Kalimantan is also rich in orchids (2500-3000 species) and ferns (at least 1000 species) as well as being the centre for dissemination of the *Nepenthes spp* tree.

In terms of tree diversity, ranging from seeds, herbs, and tree trunks, Bukit Baka-Bukit Raya National Park (Schwaner Mountains) has a highly diverse range. There are 817 species and 139 families. Other researchers recorded 357 species from 154 genus and 135 families. On Muller Mountain, 40 species of endemic plants have been found.



Ratufa Affinis

CULTURE

The culture of the indigenous Dayak in and around the HoB area is fading due to cultural and religious influences from outside. However, the Dayak still hold strong ancestral cultural roots as the religion of their ancestors, Kaharingan.

Kaharingan teaches a strong relationship and interdependence between humans to nature, where existing resources are utilised as needed. It can be seen in traditional ceremonies which are still practiced to this day including marriage, death and burial rituals, the birth of a baby, planting and harvesting, and welcoming guests. Holy shrines are still maintained and protected by the local community as a place for ceremonies or religious rituals.

Kaharingan culture still makes a significant contribution to conservation based on local wisdom in managing natural resources.



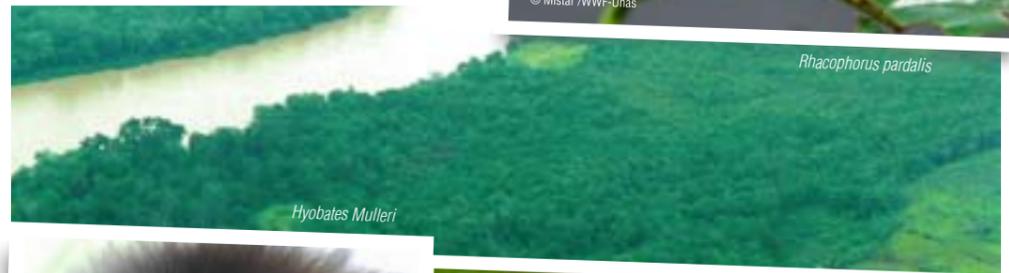
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LIVELIHOOD AND WELFARE

In 2001, the district government of Barito Utara proposed and promoted Muller Mountain Ranges and the sacred forests of Gunung Lumut to be nominated as a World Heritage Site due to the uniqueness and richness of its biodiversity.



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Rhacophorus pardalis

Hyobates Mulleri



Rhacophorus Pardalis

TRADITIONAL CEREMONIES AND SACRED PLACES

Traditional ceremonies and customs form part of life events that are considered important, such as the opening of a field, planting, harvest, marriage, welcoming guests, pregnancy, and death or burial ceremony. These are still strong even though some villages have multi-ethnic populations.

The tradition of mutual aid or *handep* is common in most villages and includes activities aimed at land clearing and rural development. Also, the Dayak community perform traditional dance and music, especially for guests who visit their village.

Some villages have places within the protected areas that are considered sacred.

Tumbang Naan village, for example, has a forest that is considered sacred as it is a source of clean water. There is also a sacred forest near *Tumbang Mohot*, close to Mohot river. *Tumbang Jojang* have a forest near Tamaloe which is where a tribe, the Kareho, first settled and *Tumbang Topus* has a sacred area in the Belatung and Mulut rivers.

Indigenous Dayak communities living in buffer zones near protected and conservation areas are still very dependent on natural resources. In the past, many of the local communities practiced shifting cultivation which resulted in weak land ownership as, in some cases, others would encroach on the land left behind.

Ethnobotany study results provide information that shows lives around the Muller-Schwaner Mountains depend on forest resources. Commercial commodities that support the local economy include rattan, resin, aloe, swallow nests, gold, fishing and hunting from the surrounding residential areas, including around the Muller Mountains.

Rubber trees have become an excellent alternative for sustainable livelihoods in local communities. This shift towards rubber has been caused by the depletion of natural resources in the rivers and surrounding areas due to pollution. Traditional forms of agriculture support the local subsistence economy in all villages through a system of shifting cultivation. However, shifting cultivation of this type also contribute to deforestation. It has become necessary to find other opportunities to develop a system of farming that is more sustainable. The level of social welfare is such that most people are still poor with only a small proportion enjoys a prosperous life.



Batu Suli