1.0 INTRODUCTION TO THE NORTHERN HIGHLANDS OF SARAWAK

The north-east hinterland of Sarawak is known as the Northern Highlands. It comprises the Maligan Highlands in the Limbang Division and the Kelabit Highlands in the Miri Division. According to Kueh (2007), the Maligan Highlands covers an area of approximately 89,000 hectares. It is bordered to the east by Kalimantan, Indonesia, and the Malaysian state of Sabah. It extends northern to a point just above Long Semado. In the west it joins the watershed between the Trusan-Kelalan Rivers and the Limbang River that forms the western boundary. The Kelabit Highlands is the smaller of the two with an area of about 45,660 hectares. It is located south of the Maligan Highlands, with its eastern boundary formed by the Kalimantan border. Its northern and western boundaries are formed by the watersheds between Dappur River and the upper Tutoh and Limbang Rivers (see Map 1). To the south it is bounded by the Bayur River just south of the village of Bario. There are three population centers in the Northern Highlands - Long Semado is about 760 m, Ba’ Kelalan at 970 m, and Bario at just over 1,000 m above sea level.

The majority of the Kelabit live in the Kelabit Highlands while some have settled in Long Lellang. The Lun Bawang on the other hand, occupy the Maligan Highlands with their settlement at Ba’ Kelalan. The Penan live in small villages scattered outside the western and south-western of the boundaries of the Pulong Tau National Park (PTNP), namely Long Sabai in Long Lellang, Long Lobang and Ba’ Tik in Upper Baram, Ulu Telang Usan area (See Map 2).

1.1 Climate

The Highlands’ air temperature is generally cooler with a low of 14°C at night (Bario) and a high of 30.8°C during the day (Ba’Kelalan) (Kueh, 2007). The mean annual rainfall is 2,371 mm at Bario, 2,578 mm at Long Semado, and 3,037 mm at Ba’Kelalan. The rainfall is higher from March to May and October to December. The total annual rainfall is less than 3,500 mm compared to over 4,000 mm in the lowlands. The mean relative humidity is around 84% compared to 95% in the lowlands.

1.2 Geology and Soils

The present mountainous landscape is the result of sedimentation, tectonic activities and subsequent weathering since more than 50 million years ago (Sia, 2007). PTNP comprises two formations, the Meligan Formation covering 86% of the area, while the Setap Shale Formation makes up the remaining 14%. It is adjacent to the Meligan Formation in the west covering the Tama Abu Range. The Meligan Formation is composed of mainly massive sandstone, while the Setap Shale Formation is composed
of a thick monotonous succession of shale with subordinate sandstone. The geomorphology of PTNP consists of nine principal geomorphological units, namely Murud Mountain, Murud extension, Tama Abu Range, ridge valley complex, cliff and scarp, creep and slide, low country, syncline complex, and the alluvial plain and valley floor.

Soil development is intricately associated with topography (Sia, 2007). The Park’s soils are described in six major groups, namely high mountain soils, ridge top soils, slope soils, valley soils, terrace soils and flood plain soils. There are varieties of soil series or associations within the soil groups where the composition and distribution of the soil would determine the soil vegetation in the Park.

1.3 The Kelabit Highlands

Bario - the capital to Kelabit Highlands is located about 1,000m above sea level with its cool climate with temperature averaging at 22 ºC and can be quite cool at night. From the early 1960s, with the presence of the airstrip Bario was developed into an administration centre with government offices, clinic, primary school and secondary school. These facilities had influenced in-migration of many Kelabit populations from other parts of the highlands, predominantly from the southern part of the Kelabit Highlands from Pa’ Main southwards (Janowski, 2003). Bario thus became the settlement of the Kelabit community, extending its territory from the Tama Abu Range to the Dappur River. Bario Asal, the original longhouse until 1963, was the only longhouse located on the plains. Confrontation with Indonesia in 1963 also resulted in the people living bear the international border with Kalimantan to resettle in Bario – a move by the Malaysian authority to ensure their safety. Wet paddy planting was, and still is, the main occupation of the settled people. Bario Asal was renamed by the original longhouse people to distinguish it from those built by the immigrants.

Plate 1. An aerial view of Bario in Kelabit Highlands

Photo by Traci Tay
Bario is now a small settlement made up of a number of separate longhouses that are within an hour’s walk from each other. However, there are some longhouses that were built in pairs and situated really close to each other. Such longhouses can be found in Bario Asal and Arur Layun; Ulung Palang Deta’ and Ulung Palang Banah; Pa’ Ramapoh Deta’ and Pa’ Ramapoh Banah”; and Arur Dalan. There are eight Kelabit Villages outside Bario: Pa’ Lungan, Pa’ Umor, Pa’ Ukat, Pa’ Derong on the north east of Bario and within a couple of hours’ walk; and Ramudu, Pa’ Dalih, Long Dano and Batu Patong to the southeast about a day’s walk from Bario (Janowski, 2003).

1.4 The Maligan Highlands

Ba’ Kelalan is the entry point to the Maligan Highlands, located at about 1,000 m a.s.l. with a cool climate averaging at 25°C. It is the land of the Lun Bawang people who have their villages in the valleys. Ba’ Kelalan belongs to the Lawas District, and consists of ten villages namely: Punang Kelalan, Long Tawing, Buduk Bui, Long Rusu, Long Ritan, Long Lemutut, Long Langai, Buduk Nur, Talal Buda and Long Nawi. Long Semado is another Lun Bawang village that is closer to Lawas Town and has a cooler temperature as it receives the cool air descending from Ruan Watergrauo which is about 1,800 m a.s.l.

Ba’ Kelalan and Long Semado are somewhat isolated from the rest of Borneo, so the people had to strive to be self sufficient. In the olden days, the absence of navigable rivers meant that the only way to move from one place to another over the rugged terrain was by walking, with the journeys often taking days or even up to a month. Rural air transport only came in after World War II, when airfields were built at Long Semado and Ba’ Kelalan.

Today, Ba’ Kelalan and Long Semado are linked by a logging road to the town of Lawas. The road is slippery and dangerous during or after a heavy rain, especially during the monsoon months of October to March; but dry and dusty during the hot months of April to September. Only four-wheel drive vehicles can be used. Ba’ Kelalan is additionally linked by rural flights from Miri and Lawas.

Plate 2. An aerial view of Ba’ Kelalan and its golden rice fields in Maligan Highlands
1.5 The Pulong Tau National Park

Pulong Tau means Our Forest in the Kelabit language. The name was first proposed when the Kelabit people in Bario submitted a proposal to the Government for a national park to be established in the Kelabit Highland in the early 1980s. The areas proposed were Mount Murud, the Tama Abu Range to its south and the adjacent twin peaks of Batu Lawi located east of Murud.

PTNP was constituted on 24 March 2005 with an area of 59,814 ha, and includes only Mt. Murud and the southern Tama Abu Range. It is located west of the Kelabit Highland between latitudes 3° 25’ N and 3° 58’ N and longitudes 115° 12’ E and 115° 35’ E. PTNP’s altitude ranges from below about 500 m to 2,424 m a.s.l. which is the height of Mt Murud, Sarawak’s highest mountain. The Park is covered by a largely pristine rain forest comprising seven distinct forest types or formations, including vegetation that has been disturbed by human activities.

The PTNP and its environs have been used by the local communities as well as outsiders for a long time (Lim, 2006). The forest is a source of food, medicine and ornamentals, and wood for construction, crafts and firewood. The Kelabit Highland was well known to the outside world long before PTNP was constituted. However, visit to the area was restricted by the Prohibited Areas Ordinance 1939 (Chapter 18 of the Laws of Sarawak). This was to avoid disputes caused by the internal migration of other races into the area. Internal migration among the Iban, Kayan, Kenyah and Berawan communities in the upper Baram was common at the time. Thus visitors including foreigners who wish to visit Bario must obtain permits from the Residents. To-day, several local agents run visitor lodges at Bario and Ba’ Kelalan and organize outdoor adventure tourism to areas that include the National Park. However, tourist numbers are still low and irregular.
Map 1 - Kelabit Highlands, Maligan Highlands and PTNP
PTNP is a popular site for scientific research by local and overseas botanists and research staff of the Forest Department beginning in the early 1970s, and more recently by researchers from overseas and local universities and the Malaysian Nature Society.

The most intensely used area of the Park is Mt. Murud itself. In the early 1990s, a Church Camp was constructed near the summit for use as religious retreats by the Lun Bawang and Kelabit people and people from outside who are members of the Borneo Evangelical Mission. Several hundred people make their way to the Camp once in two years, and stay there for up to one week.

2.0 Objectives of the Study

PTNP is the project site for the implementation of the ITTO-supported Project PD 224/03 Rev. 1 (F): Transboundary Biodiversity Conservation-The Pulong Tau National Park, Sarawak, Malaysia, Phase I. Other than its rich biodiversity and scientific values, the ecotourism potential of the Park is also recognized, but little or no proper study has been carried out. This study to assess the ecotourism potential constitutes a part of the socio-economic studies under Output 1.4 of the Project. The area covered by the study extends beyond the Park boundaries to include the entire Northern Highlands. The study examines the ecotourism assets, the types of tourism that are suitable for the area, existing facilities in the Park and in Bario and Ba’ Kelalan, and constraints in ecotourism development in the Highlands.

3.0 Description of the Communities in the Northern Highlands

The Kelabit, Lun Bawang and Penan belong to the group called the Orang Ulu communities that also include the Kayan, Kenyah, Berawan, Kiput and Bisaya. Each community has its own unique cultures and traditions. Many of these cultures and traditions are still practiced even after mass conversion to Christianity after WWII.
3.1 Kelabit Community

The Kelabit people were isolated from the outside world until after the end of the Second World War when they and the Lun Bawang and Penan communities were influenced by the arrival of Christian missionaries. The Kelabit are now mostly
Christians under the Borneo Evangelical Mission (BEM). Several hundred years ago, the people erected megaliths and dug ditches in honor of notable individuals among the community. Many still exist today (Cluny and Chai 2006). It was also an old custom for the men and women to elongate their earlobes that were weighted down by brass ear pendants or hornbill-ivory ear rings; the men had extra holes on the upper ears into which wooden plugs were inserted, while their warriors often wore leopard’s teeth. Infants as young as six months would already have their ears pierced. As they grew older, heavier earrings would be used to stretch the earlobes further. Additionally, women would have their hands and legs tattooed as a symbol of grace, beauty and femininity. These customs are no more practiced.

With a population of approximately 5,000 people that is widely dispersed, the Kelabit is one of the smallest ethnic groups in Sarawak. Many have migrated to live in urban areas over the last 20 years due to economic and social factors. It is estimated that only 1,200 Kelabit are still living in their remote homeland and basically leading a traditional life. They still cultivate wet padi, maize, tapioca, pineapple, and plant vegetables and fruits. They are also great hunters and expert fishermen. Many still rear buffalos to help in transport of goods, farming, and for protein, besides selling them for cash. Traditionally, the dowry for the upper class brides must consist of at least seven buffalos.

3.2 Lun Bawang Community

The Lun Bawang are closely related to the Kelabit linguistically and in some general aspects of their lifestyles. For instance, both the Lun Bawang and the Kelabit practice a refined craft of wet padi cultivation that is unknown to other inland Borneo groups. Both groups make salt using the water taken from salt springs, another craft that is rarely practiced by other inland groups. They are also members of the BEM.

Lun Bawang means “People of the Place”, and many historians believe that the Lun Bawang were among the first few tribes to settle on the island of Borneo (Runciman, 1960). By the 17th century they had moved south and west into the Baram, Limbang and Bahau river drainage systems, but this movement was checked by the Kayan and Kenyah who were migrating in the opposite direction (Langub, 1983). Other areas settled by the Lun Bawang were the Adang River Valley (St. John, 1863), and the Trusan and Lawas rivers. The last two river systems are still occupied by them.
The Lun Bawang was formally known as “Murut” during the British Administration of the Brooke Regime and during the later colonial days. It is no longer used in Sarawak as it can cause confusion with certain ethnic groups in Sabah, who are also called Murut, but have no cultural or linguistic affinity with the Lun Bawang.

The Lun Bawang can be found in all the four political states of Borneo (Ipoi, 1989). It is estimated that 25,000 live in Kalimantan, 2,000 in Sabah, 300 or so in Brunei (Crain, 1978), and 10,000 in Sarawak (Department of Statistics, Malaysia, 1980). Today, most of them live in the Limbang Division, especially in Lawas District, while many young educated Lun Bawang have chosen to reside and work in Kuching, Sibu, Miri and Brunei.
3.3 Penan Community

The Penan are among the last nomadic aboriginal people in Borneo. They are noted for practicing ‘molong’ which means “Never taking more than necessary” from the forest. According to the 2002 district records from Baram, Belaga, Limbang, Miri and Bintulu, only about 13,000 live in Sarawak today. All Penan were nomadic hunter-gatherers until the post-World War II missionaries settled many of them, mainly in the Ulu-Baram District and also in the Limbang District. True nomads lived their lives in the forest and had no permanent shelters and they were continually on the move. They prefer to live alongside rivers from which they get their water for drinking and washing; they also fish in the rivers.

Today, the Penan still hunt with their blowpipes and hunting dogs in the forest while in search of wild sago – their staple diet. They also gather vegetables and wild fruits for their daily subsistence. They are known as the real masters of forest for their skills in hunting and tracking wild animals, and their prey usually include wild boar, barking deer, mouse deer, snakes, frogs, birds, monitor lizards, snails and even insects especially locusts. Although they live a primitive life, the women are gifted in making mats and baskets; while the men are the best makers of blowpipes called lepud, often out of Belian timber. Their superb knowledge of plant life, animal behavior and jungle survival is extraordinary.

The Penan are also a musical people. All of their musical instruments are made of wood and bamboo. One of the musical instruments is oreng, made of wood and about 18 cm (seven inches) long and 2.5 cm (one inch) wide. Slots are cut in the wood to make a long tongue vibration; the sound can be enhanced by cutting more slots. It is played by blowing into the slots and by vibrating the tongue of the wood with the fingers at the same time. Another musical instrument is the pagang which is made of bamboo cylinder about 75 cm (two feet) long and 10 cm (four inches) thick, with a long slit cut into it to make a sound box. The strings are made from four long, thin strips of the bamboo bark still attached to the bamboo at each end but are raised slightly on wooden blocks. The sound is almost similar to a harp.

The Penan are shy and gentle people and have never practiced headhunting. Until their conversion to Christianity by the Borneo Evangelical Mission, most were animists who believed in a god called Bungan; they also believed in bad ghosts or spirits. Many have since led a settled life by building houses and practicing agriculture, but still depending on the forest for food and other needs. Such settlements can be found in the surroundings of PTNP namely, Long Sabai, Long Lobang, Ba’ Tik and Long Medamut. Hunting dogs are extremely important in the life of the Penan and each family may often own about half to a dozen of them.
4.0 Socio-economic Activities

4.1 Agriculture

Both the Kelabit and Lun Bawang mostly practice wet padi (wet rice) farming; while the settled Penan have learned to grow hill padi. The highland rice is recognized for its quality and taste and is in great demand in lowland towns and cities. It is popularly known as the “Bario Rice”. Its name implies a Bario origin, but the fact is that several varieties of the same rice are grown throughout the highlands, from Ba’ Kelalan to Long Semado in Sarawak, Long Pasia in Sabah, and the Kerayan region of Kalimantan (Ardhana, Langub & Chew, 2003). Due to its high demand, it has become a major cash crop.
Other activities include livestock rearing and fruit and vegetable planting; while some families in Bario have taken up sheep farming. There is little incentive for growing cash crops due to limited access to the market. For the Lun Bawang, buffalo and cattle rearing are also a major economic activity as well as major source of cash income. Fish rearing is another common activity, especially among the Lun Bawang and Kelabit. However, many still supplement their needs by collecting jungle produce, hunting and fishing. The nearby forest is also a source of timber for domestic use.

4.2 Ecotourism and Handicrafts

Limited ecotourism forms another source of cash income for the people of Bario and Ba’ Kelalan. It is often a family business that runs lodges, caters for home stay, and provides guiding and porter services for tourists. The main activity is overland trekking in the forest including the National Park, and sometimes fishing expedition. Cottage industry provides some form of employment, like beads making and pineapple jam making by the Kelabit women; while the women in Ba’Kelalan are involved in basket weaving; hats making and tribal accessories. Some of the handicrafts are imported from neighbouring villages in Kalimantan.

The Penan are, by comparison, economically less active. The settled groups have begun to plant hill padi, vegetables and fruits, and rear livestock (chickens only), but many are still dependent on the forest to supply them with their daily needs. Some are employed as resource persons, guides and porters for government and research parties and tourists.

5.0 Education and Out-migration

In 1928 the Australian Borneo Evangelical Mission (BEM) began work with modest resources, which nevertheless resulted in the establishment of the largest indigenous Christian groups in Sarawak today. Locally, the group is called the Sidang Injil Borneo (SIB). The BEM (or SIB) was established in Australia on 31st August 1928 with representatives from different denominations. Its pioneer missionaries came to Sarawak in the late 1928 to evangelize the pagan tribes. From the start the missionary faced restrictions imposed by government officers, opposition by pagan tribal leaders and problems of health and needs. Starting with small groups of several individual conversions, the teachings of BEM began to spread from one tribe to another, village to village, downstream and upstream. A Bible school was set up at Buduk Ngeri in Lawas in 1948 to teach the new believers and to train them to reach out to others. Christian commitment to education had been very strong and many young highlanders benefitted. Many of the Kelabit and Lun Bawang children were sent to further their education in urban areas or overseas. Education and better employment opportunities resulted in out-migration of educated members of the communities.

Education level for the Penan is relatively low, partly affected by their nomadic lifestyle. The Sarawak Government is conscious of their plight and has implemented settlement schemes for their benefit. Education is encouraged among the settled Penan. The nearest primary and secondary schools (up to Form 3 only) in the area are located in Bario, a two days’ walk from Ba’ Tik or Long Lobang; the children of Long Sabai attend school at Long Lellang. A small number of the Penan children
have acquired secondary education up to Form 3, but many have dropped out as due to financial constraints. However, majority of them have completed their primary education. For detail on Penan education see Langub (2008).

With the existence of the logging roads and development of plantations, some Penan men and women have left their villages to work in the nearby towns, some bringing along their spouses and children with them. Seeking employment is a problem due to low education level and lack of skills, and many have eventually returned to their villages.

6.0 Ecotourism Assets

6.1 The Pulong Tau National Park

(a) Geomorphological Features

Pulong Tau National Park covers a broad altitudinal range from about 500 m in the west to 2,424 m at the summit of Mt. Murud in the north. The park is generally mountainous with a landscape dominated by ridge-valley complexes with relatively little flat or gentle land. A series of steep mountain ridges makes up the backbone of the Park. A northeast/southwest scarp in the north peaks at Mt. Murud. Its southern extension, the Tama Abu Range runs first southwest and then south in an almost unbroken chain for more than 23 km.

Nine major geomorphological units have been identified in the Park (Sia, 2007):

i. **Mt. Murud** (2,424 m and Sarawak’s highest peak) consists of an upraised block of hard erosion-resistant sandstone formed more than a million years ago. Three small hills stand along the north-eastern ridge, the furthest east being Batu Linanit (False Summit) at 2,252 m. The ridge crests slopes are generally gentle.

ii. **Kebun Batu** or **Rock Garden** near the summit of Murud is a bare scarp located north of Bario and west of Pa’ Lungan. A strike valley and its rectangular drainage and ridges separate these cliffs and scarps from the ridge-valley complexes.

iii. **The Tama Abu Range (Apad Tama Abu)** is a prominent NE/SW then N/S strike mountain range running south-west/south from Mt. Murud. The Kelabit consider the Batu Buli scarp to be a part of Apad Tama Abu, making the Range more than 40 km in length.

iv. **Batu Pelanduk** and **Batu Bong** in the Lobang area and Shelter Rock of the Ulu Pa’ Gerawat are boulders as big as houses.

v. **Waterfalls** include a 10 m fall on the Ba’ Selunok about 200 m downstream of the Selunok-Payau flowing together and a smaller waterfall on the Pa’ Gerawat.
vi. **Major river valleys** belong to the Ulu Pa’ Dappur and Pa’ Lungan in the north; the Ba’ Sabai, Ba’ Selunok and Ba’ Lobang in the west; and the Pa’ Menalio in the east. These rivers surge down through gorges and some breach the sandstone of Tama Abu Ridge.

vii. **The Syncline complex** at the south of the Park is a striking element with twisted, sharp features.
Seven major forest types have so far been recognized in the Park (Lim 2007):

i. Lowland Rain Forest (below 900 m);
ii. Lowland Montane Forest (900 m – 1,800 m);
iii. Upper Montane Forest with two subtypes (above 1,800 m);
iv. Kerangas Forest (up to about 1,500 m);
v. Alluvial Forest along river valleys;
vi. Riparian Forest along river banks;
vii. Disturbed Vegetation with two subtypes (throughout the Park).

A perfect way of viewing these forests is by trekking to the wilderness. The forest types differ from one another in structure (canopy height, tree size, proportions of trees, shrubs, herbs, lianas/climbers and epiphytes) and in species composition.
(c) Flora

About 819 species of flowering plants, ferns and fern-allies, including 151 species of orchids, 18 rhododendrons and 9 pitcher plants or *Nepenthes* have been documented (Pearce 2007). Study on the specimens and records are made in the Menalio-Tama Abu, Bario and Mt. Murud. Some of the high altitude plants are probably not found elsewhere in Sarawak.

The park’s botanical richness can be attributed to the variety of vegetation types that occur there, which in turn relate to the wide altitudinal range (500 m – 2,424 m), variety of soils and varied topography with exposed peaks and ridges, steep and gentle slopes, levees and floodplains (Pearce, 2007). Orchids, pitcher plants and the rhododendrons are very important resources to be conserved for the ecotourism industry. Many species are easily observed by just walking through the forest, especially at higher altitudes. Studies inside and outside the Park have recorded plants of many interesting ethnomedical uses by the local communities – for food, firewood, medicine, construction, handicrafts, fishing, wrapping and etc. (see also Endela et al. 2008).

Plate 16. *Nepenthes lowii* on Mt. Murud

Plate 17. A young fern leaf. Some ferns are edible, and many species are used by local communities for handicraft purposes
A recent study by Paschal (2007) has listed 101 species of mammals belonging to 17 families. Of this number, 4 species are Totally Protected Animals and 11 are Protected Animals under the Wildlife Protection Ordinance, 1998. Common species are Barking deer and Bearded pig. Less common mammals include Bear cat, Common palm civet, Lesser mouse-deer, Long-tailed porcupine, Malay weasel, Oriental small-clawed otter, Sambar deer and Small-toothed palm civet. Wild cattle, Sumatran rhinoceros, Sun bear and Clouded Leopard used to be abundant in the highlands (Davies, 1958).

Among the primates of PTNP the Bornean gibbon is detected most often, followed by the Long-tailed macaque and Hose’s langur. The Hose’ langur is one of the rarest animals in the world, and a viable population is believed to be living in the Park.

A total of 620 species of birds are recorded for the Island of Borneo. Of the total of 535 species in Sarawak 298 species have been recorded for PTNP respectively. Pulong Tau National Park houses 204 out of 331 resident species; 31 out of 33 endemic species; 59 out of 138 migrant species; 2 out of 26 vagrant species and 2 out of 7 introduced species. Pulong Tau National Park is one of the last strongholds in Sarawak for some endangered bird species.

Other fauna includes nine species of reptiles, 34 species of amphibians (Taha 2007) and 84 species of fish (Jongkar and Lee 2007). Among the most important fish species are Tor species, locally called peluan or more popularly known as semah, an important source of protein for the local communities.
6.2 People and Cultures

(a) Daily Lives of Local Communities

A total of 24 villages lie adjacent to the Park. The daily lives of the Kelabit, Lun Bawang and Penan people can be an interesting experience to tourists. Activities include farming, fishing, salt making and processing sago starch; and cooking with firewood and wrapping *Nuba laya* or soft cooked rice. The *Irau Mekaa Ngadan* or Name-changing Ceremony of the Kelabit is unique. Name-changing can happen three times in an individual’s life time - after the birth of one’s first child, after the birth of one’s first grandchild and if it is needed, to cast away evil spells in one’s life. The first two occasions are to acknowledge one’s status as parents or grandparents.
The Lun Bawang on the other hand, celebrate *Irau Aco Lun Bawang* or the Lun Bawang Festival Day. Such festival is normally held on 1 to 3 June yearly, during which the people will meet in Lawas District to make the occasion a grand one.

The Penan are equally rich in cultures and customs and their basic lifestyle is equally interesting. All the communities are noted for their friendliness and great hospitality.

**(b) Cultural Sites**

A unique ancient culture of the Kelabit and the Lun Bawang people was erecting megaliths and digging ditches to commemorate important events. Cluny and Chai (2007) have documented 42 megaliths and four ditches. The most exciting cultural sites are found in Pa’ Main and many can be seen along the trails.
The Highland’s many natural salt springs provide a ready source of salt for the communities, besides acting as salt licks for many animals. Salt processing only takes place two or three times a year. Visitors may sometimes meet a group of people...
processing salt at one of the natural salt springs at Pa’ Main, Pa’ Umor and Pa’ Bangar in Bario; and Main Kum and Main Puenun in Ba’ Kelalan.

From left: Plate 35. A salt lick discovered within a timber licensing area. This salt lick attracts many different kinds of wildlife; Plate 36. Salt making area in Ba’ Kelalan; Below clockwise: Plate 37 & Plate 38. Salt making in progress. Lots of firewood are needed (Plate 39 & Plate 40)
Plate 41. View of blue mountain ranges of Northern Highlands with Mt. Mulu National Park in the distance

Plate 42. One of the local guides in Bario organizing a cook out in the wild with a group of backpackers.
7.0 Existing Ecotourism Activities

7.1 Bario

(i) Trekking

Trekking is the major activity in the Highlands. A number of existing trails connect Bario to nearby villages and places of attractions with a combination of culture, adventure and nature. Interesting cultural experience includes seeing the rare and unique stone megaliths. A special trip to the Pa’ Ramapuh Waterfall and Pa’ Di’it Waterfall can also be organized.

(ii) Mountain Climbing

Climbing Mt. Murud and the nearby Batu Lawi is a a five-day trek through the mountainous terrain that is only meant for fit and well prepared. The trek passes from villages to the hill forest and onto the mossy montane forests where a wide variety of plants can be seen and photographed.

(iii) Wildlife Watching and Sport Fishing

Larger animals are difficult to see but tracks left by the bearded pigs and barking deer are often the only proof of their existence. Trekkers or campers will often be able to hear the familiar calls of the Borneon gibbons. Smaller creatures like squirrels, frogs, moths and beetles can often be easily seen.

The Highlands is an excellent place for watching birds in the forest and at the salt licks. Lucky visitors will be rewarded with flocks of hornbills flying past or feeding on the tree tops.

For fishing enthusiasts, the local guides in Bario can organize sport fishing trips to the Dappur and Melinao Rivers.

7.2 Ba’ Kelalan

(i) Mountain Climbing

Ba’ Kelalan provides the shortest access for climbers to Mt. Murud, although the journey can be long and tedious depending on the weather and condition of the logging road from the village to Lepo Bunga at the foot of the mountain. The road trip by 4-wheel drive land cruisers normally takes a little more than one hour but can be more, and one can easily get stranded when the road is really bad. From Lepo Bunga the climb passes through hill dipterocarp forest and mossy montane forests, a journey of three to four hours before arriving at the Church Camp for the night. The Church Camp comprises some 90 huts built by members of the BM for religious retreats. The climb from her to the summit takes another two to three hours.
(ii) Visit around Ba’ Kelalan

Those who opt not to climb can visit the villages around Ba’ Kelalan, or cross over to the nearby Indonesian villages in Kalimantan. Local guiding services are available. Activities include farming, salt making and handicrafts. A visit to the Pa’ Sarui Waterfall can also be arranged.

Table 1 shows the annual tourist arrivals in Bario and Ba’ Kelalan between 2000 to 2006.

**Table 1: Annual Total of Tourist Arrivals in Bario and Ba’ Kelalan**

<table>
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<th>Year</th>
<th>Bario</th>
<th>Ba’ Kelalan</th>
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<tbody>
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<td>563</td>
<td>207</td>
</tr>
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<td>2001</td>
<td>609</td>
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<td>2003</td>
<td>708</td>
<td>153</td>
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<td>2004</td>
<td>811</td>
<td>64</td>
</tr>
<tr>
<td>2005</td>
<td>1,095</td>
<td>219</td>
</tr>
<tr>
<td>2006</td>
<td>1,463</td>
<td>365</td>
</tr>
<tr>
<td>Total</td>
<td>5,937</td>
<td>1,514</td>
</tr>
</tbody>
</table>

*Source: All figures are recorded based on the visitors’ books in Bario and Ba’ Kelalan*

The statistics are inclusive of those government officers coming to Bario and Ba’ Kelalan on duty and staying at the lodges for one or two nights. Tourists include both domestic foreign. The number of foreign tourists visiting Bario from year 2000 to 2006 is 2908. In Ba’ Kelalan domestic tourists comprise about 70% of the total.

The majority of foreign visitors to Bario are mainly from Europe (Britain, The Netherlands, Spain and Italy), USA, South America, Canada, South Africa, Japan, Hong Kong, China and Singapore. Ba’ Kelalan tourists are largely from the neighboring countries of Brunei and Indonesia, with about 20% from Europe, America, Hong Kong, Japan, Taiwan and Singapore.

Tourism is a seasonally varying phenomenon, driven partly by climates in both the home and visiting countries, and reaches a peak during holidays and festive seasons. Based on information from visitors books, Bario and Ba’ Kelalan receive the highest numbers of tourists during the months of June, July, August and September.

What motivates these foreign tourists to visit both Bario and Ba’ Kelalan? In Bario, jungle trekking, experiencing local lifestyle cum cultural exchange and seeing the traditional longhouses of the Kelabit are the top three reasons. Other reasons are appreciating nature and tranquility, flora and fauna, and visiting the Penan community. From their remarks in the visitors’ books, almost 90% of the visitors love the way their hosts prepare and cook the ‘organic’ food of rice and wild vegetables using firewood. Visitors come to Ba’ Kelalan usually to climb the highest peak in Sarawak, Mt. Murud, and to see the pitcher plants and other interesting mountain flora. For the domestic and Brunei visitors the trips are also a weekend hideaway. The annual Apple Festival also attracts visitors from far and near.
8.0 Ecotourism Facilities

8.1 Pulong Tau National Park

Being relatively new and remote, facilities in the Park are grossly inadequate. Only a number of jungle trails exist, and the only overnight accommodation on Murud is the Church Camp built by the BEM, comprising some 95 huts, with power from generators, piped water supply and a shared bathing and toilet facilities. Prior arrangement must be made with the owners if visitors wish to use any of the huts. The Park receives low priority in development citing poor tourist traffic as a reason, but it is obvious that some management presence and basic facilities will still be needed.

Clockwise from above: Plate 45. Lepo Bunga, a rest area before proceeding to the Church Camp; Plate 46. The plank walk built by the BEM to Church Camp; Plate 47. Church Camp, the tight mass of wooden buildings range from small houses to longhouse-type structures; Plate 48. Basic pit toilet shed with ladies’ bathhouse beside it.

From left: Plate 43. A group of tourists enjoying the Kelabit local dishes as shown in Plate 44.
8.2 **Bario and Ba’ Kelalan**

Both centres are linked by rural air service from Miri. Additionally, Ba’ Kelalan is linked by a logging road to Lawas and the village of Long Semado. Bario has also benefited from a logging road that was constructed recently. Although the road stops at some distance from the village it has been increasingly used by the local residents to transport goods from Miri, as the airline does not provide charter or cargo service. Use of the roads is very much subjected to good weather conditions and regular maintenance.

As Bario is more well-known as a tourism destination, ten operators have established tourism services by providing accommodation or home stay, jungle trekking and guided tours to places of interest in and around Bario. The longest trek is to the PTNP, Batu Lawi and some Penan settlements. Existing trails include the Bario Loop, Pa’ Ukat Trek, Pa’ Lungan Trek, Long Lellang Trek, Kalimantan Loop, Batu Lawi Trek, Mount Mulu Trek and Ba’ Kelalan Trek. Other facilities such as public telephones, a clinic, and internet from e-Bario are available.

Most visitors to Ba’ Kelalan stay at the Apple Lodge in the village of Buduk Nur. The lodge is well managed with electricity, piped water, television and a satellite phone. Local 4-wheeled drive land cruisers are available to take visitors to Lepo Bunga at the foot of Murud. The journey is, however, very much dependant on the conditions of the logging road that becomes muddy and dangerous after rain. Guiding and porter service is also available. It is also possible to organize a trip to nearby Indonesian villages across the international border.
9.0 Constraints and Recommendations

Some of the obvious constraints such as remote locations, poor transport and communication systems and weather conditions have been mentioned. Other problems are lack of an organized tourism structure in Bario and Ba’ Kelalan as most operators seem to be working independently. There is also a need to improve and maintain important attractions such as cultural sites and to have more publicity materials. Both Bario and Ba’ Kelalan are well positioned for culture, nature and adventure tourism that can be further improved if the following constraints are addressed:

9.1 Tourism Organizations

Bario and Ba’Kelalan should each establish a tourism organization to develop and manage ecotourism facilities and to plan and coordinate activities for tourists in a more cohesive and professional manner. The organizations are to work closely with the respective village welfare committees, the Pulong Tau N.P. management and the BEM. Additionally, the organization will need to network with established tour agencies in the major cities and towns that can help to promote and bring in more tourists. Another important function of the organizations is to facilitate training of local guides and others who are directly involved in the tourism industry.

9.2 Improved Management of the National Park

Although PTNP was constituted in March 2005, on the ground management presence and basic facilities are still lacking. As tourists continue to visit the Park although the number is still small. The Park Management must take note of this and at least help to improve and maintain existing trails and facilities at the Church Camp. A rangers’ post is urgently needed at Ba’ Kelalan to check and monitor visitors to the Park and enforce park rules, and to help in maintenance work. There is also a lack of visitor information pertaining to the Park’s natural environment and its rich and diverse biodiversity. The studies under Phase I of the ITTO-supported project have collected
a lot of scientific baseline information that can be used in the preparation of guide books, pamphlets and posters.

PTNP management can take the lead in developing conservation centres in selected villages and coordinating activities to create environmental awareness and promote nature conservation and cultural heritage of the local communities.

9.3 Cultural Sites

Major attractions are the rare and unique megaliths made of stones that are scattered in the villages around Bario with some in Ba’ Kelalan. Many of these are located inside existing timber license areas and it is the responsibility of the Kelabit community to ensure that they are not damaged. The ITTO project under Phase II will help to prepare information booklets on these megaliths.

9.4 Promotional Materials on Jungle Treks and other Attractions

Printed information is needed to describe the natural environment around Bario and Ba’ Kelalan, the villages in the vicinities, local customs and traditions, and socio-economic activities such as wet rice farming, buffalo and cattle rearing and salt mining.

9.5 Assistance to the Penan Community

Some tours include visits to the Penan villages. The Penan still live a very simple life and many have not had much contact with the outside world. Tourism is an opportunity for employment and to earn cash income but they need training on basic hygiene and food preparation. Training is also required on guiding and local knowledge. Assistance can come from the PTNP and from local tour agents. What some villages require urgently are piped water, electricity and toilet facilities.

9.6 Improved Rural Air Service

Flight frequencies to Bario, Ba’ Kelalan and Long Lellang can be further increased as the need arises. Major problems that are currently faced by the local communities, scientists and researchers to the Highlands are the high cost of bringing goods and materials into and out of the Highlands. The situation has been made worse by the recent rise in fuel cost that resulted in the cancellation of charter flights. Another problem is the refusal by the airline to carry items that are deemed as dangerous, such as batteries and methylated spirit that are essential for scientific research.

9.7 Effects of Logging

Local guides and tourists are unhappy that the recent logging operations east of Bario has damaged the forest and some megaliths and polluted the rivers. On the cultural sites ITTO had officially contacted the timber companies and the local village chiefs and Rurum Kelabit that are jointly responsible for protecting the relics. The Rurum Kelabit should take the initiative and seek further cooperation of the timber companies to minimize damage on the environment and the resources.

9.8 Training

Overall, ecotourism in the Highlands can be enhanced with training in the various areas, as shown in Table 2. Many guides have been trained under the Sarawak Tourist Board, Sarawak Tourism Federation and Sarawak Forestry Corporation programmes, but training should be extended to more communities or individuals including the Penan communities. Due to difficult access, educational background and financial constraints, special guiding courses may need to be conducted for the Penan, to be organized by the PTNP management.

Table 2: Training Needs of Tourism Services

<table>
<thead>
<tr>
<th>Homestay/Lodge</th>
<th>Tourist Guides/Porters</th>
<th>Boat Service</th>
<th>Handicraft Production and Sale</th>
<th>Food &amp; Beverage Outlets operators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourism and hospitality lessons</td>
<td>Guiding lessons</td>
<td>Boat engine maintenance and repair</td>
<td>Handicraft-skill courses</td>
<td>Tourism and hospitality</td>
</tr>
<tr>
<td>Language and communication courses</td>
<td>Language and communication courses</td>
<td>Search and rescue and first aid courses</td>
<td>Tourism and hospitality lessons</td>
<td>Language and communication courses</td>
</tr>
<tr>
<td>Entrepreneurship</td>
<td>Product knowledge courses</td>
<td>Tourism and hospitality classes</td>
<td>Entrepreneurship</td>
<td>Entrepreneur-ship</td>
</tr>
<tr>
<td>Product knowledge course</td>
<td>Tourism and hospitality classes</td>
<td>Product knowledge courses</td>
<td></td>
<td>Food and dish preparation</td>
</tr>
<tr>
<td>Health and hygiene</td>
<td>Search and rescue and first aid courses</td>
<td>Language and communication courses</td>
<td></td>
<td>Health and hygiene</td>
</tr>
</tbody>
</table>

10.0 Conclusions

Pulong Tau N.P. is a valuable natural heritage and its establishment is set to enhance conservation of Sarawak’s highland rain forests and biodiversities, besides serving as an important water catchments area. With the rapid disappearance of tropical rain forests throughout the world, the potential of PTNP as a potential ecotourism destination will be immense. The Park will continue to make significant contributions to the socio-economic well being of the local communities living in the vicinities.

Highland ecotourism combines culture, nature and adventure into a package that is unique only to Sarawak, but much needs to be done in planning, institutional and product development and training. Active local participation is crucial but the local people alone will not be able to achieve much without human resource and financial inputs or investments from outside. In the meantime, it is important that the PTNP management and local travel operators must begin to work together so that each party knows what the other is doing, especially in regard to tourism activities in the Park. For example, it was recently learned (Chai, pers. comm.) that the operators in Bario
have established two new trails in the Park for tourists without the knowledge of the authority.

Accessibility to PTNP is unlikely to improve in the immediate future. The timber road from Ba’ Kelalan to Lepo Bunga at the foot of Murud provides faster access for tourists and researchers to the Park during fine weather but requires regular maintenance. In this respect, the park authority and local communities must continue to seek the cooperation of the timber licensee concerned. The Park’s ecosystems and resources are extremely fragile and construction of the Church Camp and trails by members of the BEM and their annual religious retreats (now a bi-annual event) in the past has inflicted much damage on the forest and vegetation. Each retreat attracts between several hundred to a thousand members who stay at the Camp for up to one week. Their impact on the Park must not be ignored.

The Kelabit and Lun Bawang communities have established eco-tourism networking on their own initiatives and have included Murud as a destination long before the Park was constituted. With the Park now officially gazetted, Sarawak Forest Department and Sarawak Forestry Corporation must work together to strengthen its management, by implementing the Park’s Strategic Management Plan that was developed during Phase I of the ITTO project.