REMAKING THE LANDSCAPE: KELABIT ENGAGEMENTS WITH CONSERVATION AND DEVELOPMENT IN SARAWAK, MALAYSIA

by

SARAH LYNNE HITCHNER

(Under the Direction of J. Peter Brosius)

ABSTRACT

This research aims to document an indigenous culture in a remote place in the process of actively re-negotiating its identity and connections to a changing landscape. The Kelabit have always interacted with other ethnic groups and other places; they have never been completely isolated in the secluded Kelabit Highlands of Sarawak, Malaysia. But the nature and the pace of their engagements with the outside world have changed dramatically in recent decades; numerous external forces have acted upon the Kelabit community, from colonialism to missionization to globalization. They have had very little control over some of these forces, but neither have they been passive recipients of changes wrought by these forces. The Kelabit have always displayed great agency, ingenuity, pride, entrepreneurship, and political savvy during their interactions with the world outside the plateau, and these characteristics extend to their current engagements with conservation and development in the Kelabit Highlands.

Building on recent advances in the historical ecology of anthropogenic landscapes and the political ecology of conservation, my research employed an array of ethnographic methods to address three main objectives: (1) to document the relationship between cultural sites and anthropogenic landscape modification in the Kelabit Highlands; (2) to advance a

multidisciplinary methodology of gathering, monitoring, and analyzing spatial and temporal data from different sources; and (3) to promote a multi-level collaborative approach to participatory anthropological research methods in the context of planning for several possible alternative conservation and development scenarios in the Kelabit Highlands. Included in the five articles that serve as chapters are discussions of transboundary conservation, transboundary community-based ecotourism, community mapping and technology transfer, the Heart of Borneo conservation initiative, Kelabit ethnic identity, and the anthropogenic nature of the Kelabit Highlands landscape. I have tried during the fieldwork and writing processes to move beyond the paradigm of extractive research toward inquiry that is truly collaborative and directly relevant to the Kelabit community at this crossroads in their history.

INDEX WORDS: Sarawak, Kelabit Highlands, Historical Ecology of Anthropogenic Landscapes, Political Ecology of Conservation, Transboundary Conservation, Collaborative Research Methods, PGIS, Community-Based Ecotourism, Megaliths, Heart of Borneo

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by

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DEDICATION

This work is dedicated to my parents,
Anita and Steven Hitchner,
and to my sister, Kerry Hitchner.

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# CHAPTER 1

# INTRODUCTION AND LITERATURE REVIEW

## Empirical and Theoretical Context of Research

Until recently much conservation thinking has been guided by the idea of wilderness: that the places most worth protecting are those that exist untouched by human presence. Humans have been viewed primarily as an invasive species, encroaching on otherwise pristine areas, their activities leading inexorably to the erosion of biodiversity (Brockington 2002; Terborgh 1999). This assumption has had two major consequences for the practice of conservation. First, much conservation planning and implementation has been based on models that mandate the exclusion of humans from biologically diverse landscapes, or that restrict livelihoods of local people in such areas (Brown 1998; Colchester 1992, 2005; Peluso 1994; Sheil and Lawrence 2004). Second, anthropogenic landscape processes have been viewed almost exclusively as threats to biodiversity. Conservation research has focused overwhelmingly on elements or patterns of biodiversity, while largely ignoring histories of land use in areas of conservation interest (Foster et al. 2003; Brosius and Russell 2003). As a result, many ways that previous generations of local peoples have shaped current patterns of biodiversity composition have been overlooked. In short, the identification and creation of protected areas have not been much informed by a historical perspective (Borgerhoff-Mulder and Coppolillo 2005; Foster et al. 2003).

In recent years, this assumption has been challenged on several fronts. First, a substantial body of critical scholarship has emerged challenging the idea of pristine wilderness on conceptual grounds and exposing the historical roots of the narrative about wilderness (Gray 2008; Pickerill 2008; Cronon 1995; Guha 1989; Guyer and Richards 1996; Oelschlager 1991, 1992; Proctor and Pincetl 1996). Second, archeologists, geographers, ecologists and

conservation practitioners have produced empirical studies demonstrating the anthropogenic nature of much of what had been deemed "pristine" natural areas (Maclean 2009; Roosevelt 1989; Denevan 1992; Graham 1998; Schwartzman et al. 2000; Adams and McShane 1992; Balée 1992; Nyerges 1996). Actions taken in the past without thorough knowledge of historical patterns of land use have resulted in the exclusion of humans from areas where management has shaped species composition and density over millennia (Adams and McShane 1992; Neumann 1998; Raffles 1999). Third, against assumptions that anthropogenic landscape modifications are inherently destructive, researchers have demonstrated that human modification of landscapes can actually enhance soil and water quality and maintain or increase levels of biodiversity (Fairhead and Leach 1996; Guyer and Richards 1996; Gadgil and Guha 1992; Michon et al. 2000), and that agroecological biodiversity as a result of landscape management by local communities may be an important means of *in situ* conservation (Michon and DeForesta 1995; Marjokorpi and Ruokolainen 2003). Fourth, indigenous communities have increasingly challenged the assumptions of conservation practitioners as latter-day manifestations of the idea that indigenous lands are *terra nullis* (Vermeylen 2009; Martin 2000, 2003; Wright et al. 1995). In conjunction with this, a vigorous global indigenous mapping movement has emerged to "counter-map" indigenous lands against the claims of nation-states, corporations and conservation organizations (Wainwright and Bryan 2009; Peluso 1995; Cooke 2003; Colchester 2005). Taken together, these studies and critiques have questioned the strict separation between pristine nature and humans and argued for recognition of the role of human history in the creation of landscapes.

In spite of these challenges, few in the conservation community have responded proactively to critiques of the wilderness concept or to empirical studies of anthropogenic landscapes. Indeed in some quarters we have witnessed a decisive backlash against such challenges (Soulé

and Lease 1995; Terborgh 1999; Wilshusen et al. 2002). While conservation planners may recognize the validity of evidence regarding the anthropogenic nature of landscapes targeted for conservation, this has not translated into significant changes in conservation planning and implementation.

Description of Research Project

In hopes of addressing these dilemmas in some of the last unlogged rainforests in Borneo, I conducted research in the Kelabit Highlands of Sarawak, Malaysia from September 2006 to July 2009 (after two months of preliminary research in 2005). The Kelabit Highlands, characterized by a diverse matrix of forest types and a long history of human occupation, serves as an exemplar of the shortcomings of the conventional concept of wilderness as a guide to conservation planning and implementation. The current landscape of the Kelabit Highlands has been altered for many generations by the Kelabit people (these alterations will be mentioned in Chapter 2 and described in detail in Chapter 3). The Kelabit Highlands is a dynamic landscape, a complex mosaic of natural and anthropogenic forest types, and a central tenet of my research was to show that, rather than compromising biodiversity, the Kelabit community has played a key role in enhancing both "natural" biodiversity and agrobiodiversity. This has important implications for conservation in the area. Acknowledging the role that Kelabit have played in producing this dynamic landscape suggests that conservation values in the Kelabit Highlands should recognize these forests as elements not only of Sarawak's natural heritage, but of its cultural heritage as well. The collaborative research I conducted aimed to document the social and ecological indicators of past land use in this area, and to provide a framework for the integration of land-use history into planning for conservation and sustainable development.

This research is especially relevant to conservation planning and implementation due to the recent gazettement of Pulong Tau National Park (PTNP) in 2005, which borders the Kelabit Highlands to the west. In 2004, the State Government finalized an agreement with the International Tropical Timber Organization (ITTO) to undertake a research program aimed at documenting and managing the natural and cultural resources within and surrounding the park, as well as promoting sustainable development for the local communities living on the periphery of the park. One key goal of the project was to secure an extension of PTNP that would link the park to Kayan Mentarang National Park in East Kalimantan, Indonesia, thereby creating a transboundary conservation area surrounding the Kelabit Highlands. This project, supported by the ITTO and implemented by the Sarawak Forest Department, coincided with my time conducting fieldwork. It also coincided with the launch of the tri-national Heart of Borneo conservation initiative led by the World Wide Fund for Nature (WWF), in which the Kelabit Highlands constitutes a key area for transboundary conservation (Chapter 6 provides a multiscalar analysis of the Heart of Borneo conservation initiative and its implementation to date in the Kelabit Highlands).

Acknowledging that the projects initiated by ITTO, the Sarawak Forest Department, and WWF have made attempts to incorporate landscape history into conservation planning (at least on paper), it is my contention that greater attention to the complex historical and cultural features of the Kelabit community and landscape, as documented in this dissertation, would better inform future strategies for both conservation and sustainable development in the Kelabit Highlands. Although my research focus changed slightly during my time in the field in response to community goals and requests (which I will discuss later in this chapter), my research was guided by three main objectives and a set of questions for each.

The first objective focused on documenting the relationship between cultural sites and anthropogenic landscape modification in the Kelabit Highlands. This element of my research aimed to answer these questions: (1) How are cultural sites (megaliths, burial grounds, old longhouse sites) distributed in the Kelabit Highlands?; (2) What types of anthropogenic landscape modifications have occurred over time in the Kelabit Highlands, and what are the ecological indicators of various forms of modification?; and (3) Is there a spatial correlation between various kinds of cultural sites and evidence of landscape modification?

The second objective was to advance a multidisciplinary methodology of gathering, monitoring, and analyzing spatial and temporal data from different sources. In doing so, I addressed these questions: (1) What types of knowledge about land use history will be revealed through oral histories, sketch mapping exercises, and interviews with Kelabit people?; (2) What will geospatial data such as satellite images and aerial photographs reveal about the land use history of the Kelabit Highlands?; (3) How will spatio-temporal dimensions and different types of past land uses be revealed through the comparison of ethnographic data, community sketch maps, geospatial images, and historic government maps and archival documents?; and (4) Can a multi-sited approach to GIS-based data monitoring ensure that the process and results of data gathering are both transparent and advantageous to all collaborators, and if so, how?

The third objective involved promoting a multi-level collaborative approach to participatory anthropological research methods in the context of planning for several possible alternative conservation and development scenarios in the Kelabit Highlands. This necessitated addressing the following questions: (1) How can past and present land use practices be integrated into resource management plans for the Kelabit Highlands?; (2) How can collaborative documentation of the anthropogenic aspects of the Kelabit Highlands landscape enhance

community participation in resource management decision-making?; and (3) How can collaborations between government agencies, universities, and local institutions strengthen understanding among these institutions regarding conservation or other resource management scenarios in the Kelabit Highlands?

To answer these questions, I employed a variety of ethnographic and geographic methods, which are described briefly later in the chapter (and in more detail in the individual chapters for specific aspects of the research). First, I give a brief introduction to the historical and cultural context of the region of the world in which I conducted my research. Chapter 2 provides a detailed and analytical description of my particular field site, the Kelabit Highlands of Sarawak, but here it is helpful to mention a few key points about the region of island Southeast Asia (mainly Indonesia, Malaysia, the Philippines, and parts of coastal mainland Asia) that provide important context for the discussions in the following chapters.

## Context: Study Area

### Island Southeast Asia

Island Southeast Asia has had a very long and variable history of human occupation and human-environmental interaction. It is difficult to present a concise and coherent history covering over 40,000 years of human habitation on at least as many islands. But as a region, island Southeast Asia shares several characteristics, including a long history of maritime trade in natural resources, colonialism by European powers, complex postcolonial nation-building processes, and current extractive resource-based economies that have led to massive deforestation, marginalization of rural peoples, and a host of other environmental and social problems. Ethnographers have long been interested in this area of the world and have produced accounts of island Southeast Asia that present slices of contemporary life while examining the

Figure 1.1: Southeast Asia[1]

underlying historical, political, economic, and social forces that have led to these modern realities.

During the Pleistocene, the region of Southeast Asia was a much larger landmass; when the glaciers began to melt, the waters rose, producing islands in and around the Indonesian Archipelago and separating them from mainland Asia. Hominids including *Pithecanthropus erectus* (Java Man) and *Homo erectus* lived in this region over one million years ago; *Homo*

[1] Open access map obtained at: http://printable-maps.blogspot.com/search?q=malaysia

*sapiens* arrived in Borneo and other islands (before they were islands) at least 40,000 years ago (Harrisson 1970; Bellwood 1985; King 1993; Sellato 1994), and more likely 45,000 or more years ago (Barker 2002; Barker et al. 2007). Though there is some debate, some scholars suggest that the earliest *Homo sapiens* in island Southeast Asia were Australo-Melanesian in origin. Sometime after 3000 BC Austronesian-speaking peoples came from China, via Taiwan and the Philippines, to the Indo-Malaysian archipelago, and then into Melanesia and the western Pacific (Glover and Higham 1996; Bellwood 1985, 1996). These Austronesian-speaking ancestors brought to the islands wet rice cultivation techniques, metallurgy, textiles, pottery, woodworking, and domesticated livestock (Shaffer 1996). Agriculture was slow to develop on the islands compared to the mainland, because the soil on many of the islands is poor; islands (especially the smaller ones) lack the large fertile floodplains and deltas found on the mainland that are conducive to the cultivation of rice and other staple crops (Hutterer 1983; Shaffer 1996; Knapen 2001). The earliest archaeological evidence of agriculture in Southeast Asia dates to around 2800 BC; wet rice agriculture began in the swamps and slowly extended into the plains. Agricultural innovations such as reservoirs, dams, terraces, and draft animals all had effects on the land in this region (Higham 1996).

Island Southeast Asia has long been connected to other world regions through trade networks, and its strategic location and wealth of natural resources have encouraged its role as a nexus of material exchange and cultural transmission (Whitmore 1977; King 1993; Shaffer 1996). Large Hindu and Buddhist kingdoms such as Srivijaya on Sumatra and Majapahit on Java ruled Borneo and other islands in the archipelago from around 600AD to the 1400s (Tê-K'un 1996). Malay sailors learned to ride the monsoons as far as Africa, and their designs inspired the Arab sailors who had long been in control of trade throughout the islands (Shaffer 1996). During

these times, products exported from the islands included rattan, timber, wax, gutta percha, edible birds' nests, and bezoar stones (Dunn 1975; Knapen 2001). But the complex socio-economic conditions in island Southeast Asia, as well as the difficulty of controlling the hinterlands from the coasts, led to the impermanence of trade-centered coastal states and thus not the expansionist empires that are found on the mainland of Southeast Asia and in other parts of the world at the time (Winzeler 1976; Anderson 1983).

Colonialism in island Southeast Asia had uneven but powerful economic, political, social, and ecological effects on local populations. Colonialism in island Southeast Asia began when European sailors discovered sea routes to Asia; Europe no longer had to rely on Muslim traders for spices such as clove and nutmeg from Southeast Asia (Whitmore 1977; Reid 1990). Colonial powers first established dominance over the spice trade through economic and military monopolies of the trade routes (Reid 1990). Once settled on land, colonialism often focused on more "efficient" extraction of natural resources for foreign markets, leading to resource depletion and environmental degradation in some areas (Bryant 1998; Peluso 1992). Colonial administrations usually tried to tighten control over natural resources (Adas 1992; Boomgaard 1992; Kartodirdjo 1984; Stoler 1995) and to impose Western science and technology in methods of managing them (Bryant and Parnwell 1996; Bryant 1998). They also enforced land intensification programs to create more resources for the markets, especially in the form of timber and agricultural plantations (Knapen 2001).

These new resource governance structures, which interfered with (or even outlawed) the traditional land and resource management structures of the local communities, were resisted by peasants and locals in a number of ways. Adas (1992) discusses the use of avoidance protest in many parts of Southeast Asia as an alternative to direct confrontation (which usually ended badly

for the peasants). Some types of non-violent protest employed against colonial administrators included withdrawal, flight, labor strikes, retreat into cults or monasteries, deliberate fudging of colonial records, protection of offenders, and destruction of state property (Scott and Kerkvliet 1986; Peluso 1992; Bryant 1993; Scott 1987). Dissatisfaction was also conveyed through literary means such as *wayang* (Indonesian shadow puppet performances) and theater performances in local languages that the administrators did not understand (Adas 1992), as well as in widely circulated stories, myths, or dreams (Dove 1996). However, when avoidance techniques failed, there was direct confrontation or guerilla warfare against colonialists (Kartodirdjo 1984; Stoler 1995). Aside from resistance by the colonized, other factors led to the fall of colonialism in Southeast Asia; several of these include conflicts between different departments within colonial governments (Bryant 1998), internal power struggles among individuals within colonial administrations (Adas 1992), competition among other colonizing nations, and collectivization of nationalist movements within the colonized areas (Winichakul 1994).

Due to a very uneven colonial history (all nations in Southeast Asia were colonized except for Siam/Thailand, whose economic development was still heavily influenced or "indirectly colonized" by Europe), there have been uneven political, economic, and infrastructure developments in island Southeast Asia (Turton 1989; Winichakul 1994; Bryant and Parnwell 1996). The processes of nation-building in island Southeast Asia have often been violent, although they have been based on internal development instead of conquest of larger territories (Winzeler 1976). State development in Southeast Asia was both a cause and a result of shifting international trade routes; as Europeans found alternate routes around the Indonesian archipelago, domination of these areas through colonialism became less important (Hall 1985).

Also, once natural resources like pepper, rubber[2], and timber could be obtained from other parts of the world (such as South America), European nations loosened their grip on the islands of Southeast Asia. But in areas such as Java and Sumatra, popular resistance was the main reason that the Dutch conceded their colonial possessions to emergent local governments (Anderson 1983).

The functionalist, compartmentalized, bureaucratic, and centralized structure of governance left by colonialism has often been retained in current nations in Southeast Asia (Bryant 1998), and these structures still serve to mostly benefit the elite (Turton 1989). The nation, as Anderson (1991, 1983) says, is an "imagined community," built on discourses of national unity and modern development and visualized through maps, museums, and population censuses. These discourses and visualization techniques often consolidate the political power in the hands of local elites and rich and powerful foreigners at the expense of local populations (Bryant 1993; Pemberton 1994; Li 1999). Southeast Asia has been experiencing rapid economic growth (despite periodic setbacks), especially in Indonesia, Malaysia, Thailand, Singapore, and Brunei, and to a lesser extent in Vietnam, Laos, the Philippines, and even Burma (Myanmar) (Hirsh and Warren 1998). There has also been a rise in the number and political influence of environmental NGOs in the region, particularly in Indonesia, Thailand, and the Philippines, as conflicts over natural resources have become more evident (Hirsh and Warren 1998).

The islands of Southeast Asia are often seen as a periphery area that can supply raw natural resources to mainland Southeast Asia and to other regions (King 1988, 1993; Rousseau 1990; Cleary and Eaton 1992; Tsing 1993; Kaur 1998a, 1998b; Hirsch and Warren 1998). In modern Southeast Asian nations, especially ones split between the mainland and islands (such as Malaysia), there is a central tension for governments who want to modernize the periphery and

[2] Rubber originated in the New World but was brought to Asia and planted there, where it became a main cash crop.

simultaneously exploit it for its natural resources (King 1988; Dove 1996). Many recent political, economic, social, and technological changes have led to the intensification of resource extraction and the exacerbation of environmental degradation and social conflict in the periphery island areas.

Many governments in island Southeast Asia suffer from high levels of corruption in regards to resource extraction. "Timber politics" and "crony capitalism" have led to timber and mining concessions being used as political favors, which leads to rapid and haphazard cut-and-run logging practices, since there is no incentive to invest in the sustainability of forest resources (King 1993; Bryant and Parnwell 1996; Nicolaisen 1997; Kaur 1998a; Cooke 1999). Also, the increased rate and new mechanized techniques of timber extraction (chainsaws, roads) have led to higher deforestation rates than previously (Potter 1991). Meanwhile, "timber politics" produces such rhetorics as "logging is sustainable" and "shifting cultivation is not sustainable," and these rhetorics greatly influence policies that impact local communities (King 1993; Tsing 1993).

Another problem, or perhaps an extension of the previous one, is the insistence that environmental degradation is simply a step in the process of becoming a fully developed nation. Officials in several Southeast Asian nations have deflected or publicly confronted Northern/Western criticism of their environmental practices with this rhetoric (Potter 1991, 1996; Brosius 1997a, 1997b, 1999; Kaur 1998). Sometimes this has led to more interest in discouraging environmental criticism than in incorporating conservation into development (Kaur 1998); other times, responses to environmental critique have led to changes in environmental policy and enforcement (Brosius 1999), or at least in the proliferation of "green discourse" (Bryant and Parnwell 1996; Brosius 1999, 2003). This "green discourse" is often linked to social

justice discourse that highlights sustainable development and modernization initiatives that will supposedly lead to the integration of local peoples into the "mainstream" of national society and also curtail environmentally destructive practices such as shifting cultivation (blaming indigenous practices for deforestation both justifies government intervention and shifts the blame from wasteful and widespread logging). In 1991, Dato' Seri Dr Mahatir Mohamad (then Prime Minister of Malaysia) proposed *Wawasan 2020* (Vision 2020), a plan that envisions Malaysia as a country that is "fully developed" economically, politically, socially, spiritually, psychologically, and culturally by the year 2020. Mahatir (1991, quoted on www.wawasan2020.com) writes: "We must be fully developed in terms of national unity and social cohesion, in terms of our economy, in terms of social justice, political stability, system of government, quality of life, social and spiritual values, national pride and confidence." This process of developing often has detrimental effects on ecosystems within these countries.

Local communities in the peripheral island areas that live "traditional" lifestyles are often seen as an embarrassment to national governments (Brosius 1997a:64), and as a result much money and effort are spent on "modernization" projects, which often include education, missionization, subsidies for the planting of cash crops, and resettlement or forced settlement projects to eradicate traditional land-use practices such as shifting cultivation (Rosaldo 1980; Hong 1987; King 1988; Dove 1988; Poffenberger 1990; Cleary and Eaton 1992; Tsing 1993; Bruenig 1993; Bevis 1995; Dentan et al. 1997; Schiller 1997). Land development schemes and other processes of modernization often marginalize local communities by failing to integrate rural peoples, excluding them from resource harvest areas, forcing them into debt, and ignoring patterns of traditional land tenure and even government-granted (but rarely enforced) native customary rights (Rosaldo 1980; King 1988; Potter 1991; Primack 1991; Peluso 1992; Tsing

1993; Bevis 1995; Brookfield et al. 1995; Dentan et al. 1997; Nicolaisen 1997; Kaur 1998a; Sellato 1994; Li 1999; Cooke 1999). "Traditional" communities have always been dynamic, and present communities are the present product of complex histories (Leach 1954; Dove 1988; Li 1999). As such, we should not expect to see identical patterns of response to modernization plans by the government, or even similar desires integrated into larger political and economic structures (Tsing 1993; Li 1999).

Local communities have responded in a variety of ways to governmental development plans. Some resist, while others acquiesce (Scott 1987; Hong 1987; Ong 1987; Peluso 1992; Brosius 1997b; Dentan et al. 1997). The political behavior and response to development schemes vary among societies with different sociopolitical organizations and colonial and postcolonial legacies (Nicholaisen 1997). Communities also respond to political, economic, and ecological changes through alterations to their own local governance structures and rules. Peluso (1996) discusses the ways that community property rights and resource access rights shift in response to external agents of change such as market and power fluctuations, conservation projects, forced migrations, and transportation infrastructure (also Peluso and Padoch 1996). Another intra-community change that sometimes follows development is the alliance of local elites with developers, sometimes against the wishes of the rest of the community (Bevis 1995). But many scholars argue that in order to adequately meet the needs of the local communities, more attention needs to be focused on local resource management systems already in place (Hong 1987; Poffenberger 1990; Peluso 1992; Bryant 1993; Tsing 1993; Brookfield et al. 1995; Dove 1996; Peluso and Padoch 1996; Cooke 1999; Li 1999). Understanding issues regarding traditional land uses and rights to land and how these are incorporated (or not) into national and state legal frameworks is especially relevant to my research in Sarawak, Malaysia.

Land Rights in Malaysia and Sarawak

Throughout Sarawak's history, its various governments have recognized native title and tenure systems. Ramy Bulan (2008:6) writes that: "From the time of the Sultan of Brunei, during the rule of the three Rajahs from 1841 until 1946, throughout the reign of the British Crown, and upon Sarawak's entry into the Federation of Malaysia in 1963, the rights of natives to their traditional lands and their associated land tenure customs have been recognized and protected." Today, native title in Malaysia is defined and protected according to customary laws, the English common law, the Land Code of 1958, and the Federal Constitution. Land laws in Sarawak, Sabah, and Peninsular Malaysia developed differently and independently, but the Federal Constitution of Malaysia protects the rights of local communities in all states to property, livelihood, equality before the law, as well as "rights critical to maintaining the special relationship between native communities and their lands," a relationship which "underlies the spiritual, cultural, economic, and social existence of native communities" (Bulan 2008:9-10).

However, the Sarawak Land Code of 1958, which specifies the methods for the creation of NCR or "native customary rights" for native groups in Sarawak, states that only land cleared before 1958 is eligible for consideration as NCL or "native customary land." The burden of proof is on the native groups seeking NCR over their traditional lands, and this is particularly difficult for groups that do not have documentation of the boundaries of their traditional lands written prior to 1958. The Land Code also gives the state the right to extinguish NCR. However, the original Land Code in 1958 listed the requirements whereby native communities could acquire land rights[3], and was vague in its statement that land rights could be acquired by "any other

[3] These methods to acquire rights include: "(a) the felling of virgin jungle and the occupation of the land thereby cleared; (b) the planting of land with fruit trees; (c) the occupation or cultivation of land; (d) the use of land for a burial ground or shrine; (e) the use of land of any class for rights of way; or (f) and other lawful method" (Cramb 2007:9).

lawful means." Several indigenous groups have used this statement, seen as a loophole in the law, in court to gain NCR. To prevent these landmark cases won by native groups from becoming precedents for more indigenous victories in court, an amendment to the Land Code in 2000 removed this phrase, making it much more onerous for native communities to acquire NCR on lands they have traditionally occupied (Cooke 2006:37). According to Bulan (2008:8), the Land Code as it is currently written "makes it impossible for natives to secure indefeasible rights and title to native customary lands, while providing the state with the power to use native lands or terminate NCR over lands, subject only to notice and compensation." Cramb and Dixon (1988) estimated that 30,700 km² of land in Sarawak is NCL, while the government officially recognizes 15,000 km² (Cramb 2007:10). According to Cramb (2007:10), "the lower figure reflects the Taib[4] Government's desire to exclude as much as possible from officially recognized customary claims."

To promote economic development in the state, the Sarawak state government created and endorsed a program called *Konsep Baru* or "New Concept," initiated by Chief Minister Taib in 1994, which encourages the conversion of NCR lands into large oil palm plantations. The government claims that many NCR lands are "idle" or "non-productive," and through *Konsep Baru* these lands can become "productive" through joint-venture schemes in which local communities become shareholders in oil palm companies operating on their traditional lands (Cooke 2006:28). However, according to Cooke (2006:26), this rhetoric of "idle lands" and the state's claims to these lands for agricultural plantations are aimed at efforts to expand state spaces and diminish indigenous claims to land. Other scholars have also questioned the impacts of *Konsep Baru* on ecosystems and local communities in Sarawak (McCarthy and Cramb 2009; Colchester et al. 2007; Cramb 2007; Aeria 2005; Soong 2001).

[4] Tan Sri Abdul Taib Mahmud, Chief Minister of Sarawak since 1981.

Kelabit Highlands

Many of these issues are directly relevant to my work in the Kelabit. The Kelabit are a small ethnic group, numbering about 5000 people, though only about 1200 live in the Kelabit

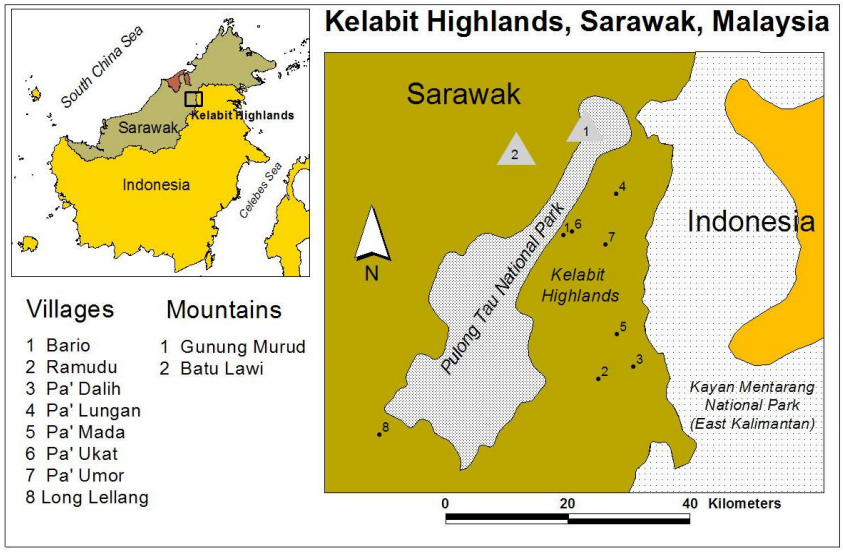


Figure 1.2: Kelabit Highlands

Highlands today[5] due to high levels of outmigration. They are closely related, linguistically and culturally, to the Lun[6] Bawang, Lun Dayeh, Lun Berian, and Lun Kerayan[7] (Eghenter and Langub 2008; Bala 2002; Langub 1987). Bala notes that these groups share a common history but were separated by sociopolitical processes. "For instance," she writes, "oral traditions indicate that the Lun Kelabit, Lun Kerayan and Lun Bawang were one people, but were

[5] Bala (2002:51) notes that a 1999 Population Census counted 906 people, but this figure did not include members of several of the southern-most villages; the number of people residing in the area also fluctuates seasonally, as more people leave the area from February to May, when the rice harvest is over and the fields are left to fallow.
[6] *Lun* is short for *lemulun*, meaning "people."
[7] Bala (2002:22) writes: "It is noteworthy to mention that today the name *Lun Bawang* is used by the people in the Trusan area of Sarawak and the Berian area in East Kalimantan. But officially, the people in the Berian area are classified by the Indonesian government as *Lun Dayeh-Kerayan* (Amster 1998:30). However, among the Kelabit, the people from the Berian area are referred to as *Lun Berian*, and the people from the Kerayan as *Lun Kerayan*, while the people from the Trusan, Ba' Kelalan, Lawas areas as *Lun Bawang*."

separated and then labeled with different names for administrative convenience by the colonialists" (Bala 2002:19). The Kelabit are also included within the larger cultural umbrella of Orang Ulu peoples ("upriver people" or "people from the headwaters"), which includes ethnic groups found in interior, upland Sarawak such as the Penan, Kayan and Kenyah, Lun Bawang, Tagal, Potok, Berau, Milau, Saban, Kelabit, and Kerayan people (Bala 2002:16), as well as the Bisaya, various Kajang groups (Sekapan, Lahanan, and Punan Bah), Bhuket, Sihan, Seping, and Punan Busang (Tan 1997). Some of the groups within this ethnic category are closely related to one another, but as a whole, Orang Ulu groups are very diverse culturally and linguistically.

The Kelabit Highlands spans approximately 2500 km² in interior Borneo along the border with Indonesian Kalimantan and has a long history of land use and landscape modification. In recent generations, there have been several political and historical events that have affected both patterns of land use in this area and cultural identity among the Kelabit. These will be discussed in detail in the next chapter, but briefly, they include:

(1) the shift from the production of the staple food, rice, using swidden techniques and temporary swamp plots to permanent wet rice fields (Janowski 1995, 1988);

(2) changes in political power in Sarawak (namely British colonialism[8] and then independence of Malaysia and incorporation of Sarawak into Malaysia);

(3) World War II, which led to a resurgence of headhunting in Sarawak and to the first sustained contact of Europeans with the Kelabit (Tan 2008; Bala 2002; Harrisson 1959):

[8] Sarawak has a unique colonial history, which will be described in more detail in Chapter 2. It was ruled by three generations of the English Brooke family, starting in 1841 when James Brooke was given land near Kuching by the sultan of Brunei in exchange for his assistance in quelling uprisings and piracy against the sultanate. The Brookes ruled Sarawak for one hundred years before ceding it to the British colonial office in 1946. The "Brooke Era" was characterized by its policies regarding cessation of violence between local communities and policies of non-interference of the colonial administrators into the lives and traditions of the local communities (Walker 2002; Talib 1999; Ooi 1997; Pringle 1970).

(4) the beginnings of education for the Kelabit and the establishment of schools in the Kelabit Highlands (Bala 2002; Saging 1976/77);

(5) the advent of Christianity in interior Borneo and the mass conversion of the Kelabit to Christianity (Amster 2003; Bala 2002; Harrisson 1959; Southwell 1999);

(6) the demarcation of the political boundary between Malaysia and Indonesia, which influenced the travel and marriage patterns between Kelabit in Malaysia and related ethnic groups in Indonesia (Amster 2005; Bala 2002);

(7) the subsequent war of Confrontation (*Konfrontasi*) between Malaysia and Indonesia, which was fought in the mid 1960s in the Kelabit Highlands (Tan 2008; Bala 2002; Saging and Bulan 1989);

(8) the establishment of Bario as the administrative center of the Kelabit Highlands and subsequent infrastructural developments there (Bala 2002; Saging and Bulan 1989);

(9) the outmigration of young Kelabit seeking work in the cities outside the Kelabit Highlands, leading to the highly diasporic nature of the community today Amster 2003; Bala 2002; Talla 1979; Saging 1976/77);

(10) the incursions of industrial logging in the Kelabit Highlands;

(11) the promise or potential for conservation in the Kelabit Highlands (ITTO 2003, 2007);

(12) numerous different proposals for the future of the Kelabit Highlands, leading to confusion and anxiety due to the uncertainty of the area's future (Amster 2008).

Kelabit were known in the past for their elaborate secondary burial rituals, their status as headhunters, and their impressive megaliths (Harrisson 1959; Rousseau 1990; King 1993).

Today, the people are distinguished for their famous Bario rice, their high levels of education and professional success, and their devout Christian faith. Until recently, the Kelabit Highlands included the last unlogged areas in Sarawak (except for parks and protected areas), and many Kelabit hope that this area can be protected. But due to powerful timber politics and pervasive governmental discourses regarding modernization and development, chances are slim that the Kelabit Highlands will escape the fate of the other forests of island Southeast Asia.

My original research objectives, as well as the ones that emerged during the course of my fieldwork, extended from three main theoretical approaches that I will describe briefly here: the historical ecology of anthropogenic landscapes, the political ecology of conservation, and collaborative ethnographic methods.

## Theoretical Approaches and Literature Reviews

### Historical Ecology of Anthropogenic Landscapes

Anthropologists have long been interested in the interactions between natural and cultural systems (Balée 1992; Crumley 1994; Dove 1985; Rambo and Sajise 1984; Roseman 1996), and they have often invoked theories and methods from the natural sciences in determining how humans shape landscapes and how environmental factors affect cultural institutions. Many researchers have stressed this dialectical relationship in attempts to understand the present ecological conditions within a historical framework (Crumley 1994; Winterhalder 1994; Balée 1998; Fairhead and Leach 1996; Whitehead 1998), while emphasizing the premise of New Ecology that these conditions are forever in a state of flux and that all landscapes are a mosaic of different stages of succession that do not ever lead to a stable state of equilibrium (Denevan 1992; Fairhead and Leach 1996; Stewart 1998). Historical ecology is both a conceptual framework to study "the temporal dimensions of ecological analysis" (Winterhalder 1994) and a

methodology (or set of methodologies) by which to study the history of landscapes. These concepts and methods borrow from many diverse fields, such as archaeology, geography, geology, chemistry, history, linguistics, ecology, ethnography, meteorology, palynology, and information technology. "Doing" historical ecology often involves comparing and contrasting many data sets in order to cross-check the sources and to fill in gaps in the historical record, as many of the sources only provide partial answers to questions about past landscapes (Crumley 1994; Dahlberg 2000). As such, it is by nature an interdisciplinary field of inquiry and often requires the expertise of many kinds of scientists and the input of long-term local residents (Nyerges 1996).

One main focus of the field of historical ecology is the assertion that areas that appear to be unaltered by humans have in fact been influenced by many generations of landscape use and/or management by local peoples, or were in the past (Balée and Campbell 1990; Adams and McShane 1992; Greider and Garkovich 1994; Cronon 1995; Guyer and Richards 1996; Nyerges 1996). Geographers, ecological economists, anthropologists, and others have also contributed to the critique of the "wilderness concept" (Blaikie and Brookfield 1987; Cronon 1990, 1995; Denevan 1992; Gomez-Pompa and Kaus 1992; Martinez Alier 1995; Berkes 1999; Gray 2008; Pickerill 2008; Maclean 2009). The myth of a pristine nature has had a powerful influence in conservation discourse, in that it proposes a dichotomy between humans and nature that leads to an assumption that human exclusion from protected areas will maintain this pristine state of nature (Slater 1995; Zerner 1995; Fairhead and Leach 1996; Guyer and Richards 1996; Leach and Fairhead 2000). This myth is therefore the basis of new types of "ecological imperialism" in which concern for wildlife overrides concerns for people (Adams and McShane 1992), overlooks human contributions to present biodiversity and ecological function, and even blames local

communities for ecological destruction. The application of historical ecology as a concept and a methodology to studies of landscape change helps overcome these misconceptions (Hoare 1985; Gadgil and Guha 1992; Fairhead and Leach 1996; Michon et al. 2000).

The tenet of historical ecology that local communities often maintain or increase biodiversity and ecological function requires studies of indigenous knowledge pertaining to land use and landscape change. Traditional ecological knowledge, or TEK (which itself is a slippery concept, but used here to mean the knowledge about the environment acquired through generations of trial and error and social learning), is more highly valued by ecologists and conservation planners than it has been in the past (Agrawal 1995; Sillitoe 1998; Zent 1999; Berkes et al. 2000). TEK as seen from an ecological perspective offers methods for measuring, evaluating, and coping with ecosystem resilience, ecological feedback loops, multiple species management, resource rotation, succession, and landscape patchiness; in this sense, indigenous landscape management practices are types of adaptive management that change in response to dynamic ecological changes (Berkes et al. 2000). As a result, TEK and cultural diversity have been linked to biological diversity (Roseman 1996; Brosius 1997b; Nazarea 1998; Purcell 1998; Dove 1999; Zent 1999; Lizzaralde 2004; Maffi 2005). However, it can be detrimental (culturally and ecologically) to extract TEK from the local social context in which it is embedded, as is often the case in salvage or extractive TEK projects (Sillitoe 1998; Zent 1999). Doing so often perpetuates myths about the "ecologically noble savage" (Berkes 1999), which can overlook the fact that although TEK has been able to accommodate ecological changes in the past, it may be inadequate to handle modern problems at greater spatial or political scales or within the necessary time frame (Sillitoe 1998; Zent 1999). Still, TEK can indeed be a valuable asset both in recreating landscape history and in creating site-specific sustainable and socially just

conservation or development plans (Dove 1986; Gladwin 1989; Moock and Rhoades 1992; Sillitoe 1998; Peña 1999).

Many studies within the field of historical ecology have focused specifically on indigenous and smallholder agriculture (Geertz 1963; Spencer 1966; Johnson 1974; Rambo and Sajise 1984; Dove 1986; Netting 1993). One type of agriculture that has received much attention is shifting cultivation or swidden / slash-and-burn agriculture. This system involves many stages, including site selection, slashing, felling, and burning vegetation, and planting, weeding, and harvesting crops, and it requires a complex balance of managing labor, time, and space (Conklin 1954; Dove 1986; Padoch et al. 1998). There are many types of swiddens (Dove 1986; Spencer 1966), though most intersperse short use times with long fallow periods. Though often demonized by proponents of modern development, this system historically has not interfered much with ecological functioning of the landscape (Conklin 1954; Geertz 1963; Angelsen 1995). However, changes in swidden systems in response to market integration (demand for commercial crops in addition to or in place of subsistence crops) and as a result of immigration, higher population densities, more transportation infrastructure, and lack of space have led to more intensive use of land (forcing shorter fallow times) and more extensive creation of new swidden plots, especially along new roads (Geertz 1963; Dove 1986; Angelsen 1995; Padoch et al. 1998). In these cases, shifting cultivation can become maladaptive and ecologically destructive.

Historical ecology can elucidate the historical, social, political, and economic factors that have influenced human landscape management decisions in the past and the present (Hirt 1989; Denevan 1992; Zerner 1995; Guyer and Richards 1996; Leach and Fairhead 2002). Shifts in livelihood options often change land use systems; in particular, changes in the spatial patterns of households to areas of resource harvest such as nucleation of villages and higher population

densities in villages affect the surrounding landscape (Dahlberg 2000). Political and economic development, education, and integration into market systems also can have profound effects on the types and amounts of resources used (Bahre 1991; Salafsky 1994; Colfer and Soedjito 1996; Nyerges 1996; Padoch et al. 1998; Dahlberg 2000; Michon et al. 2000).

This is especially the case in tropical forest ecosystems threatened by deforestation for industrial logging, large-scale plantation agriculture, or livestock grazing. Timber extraction is a particularly political subject in tropical countries, as these areas supply the rest of the world with cheap logs and wood products (Riswan and Hartanti 1994; Sheil et al. 2004). There have been numerous scientific studies on the effects of logging and land clearance on tropical forests (Douglas et al. 1993; Primack and Hall 1992; Putz et al. 2000). Logging is lucrative for the economies of developing countries, but it comes with great ecological and social costs which are mostly borne by the local communities whose lands are directly affected (Hecht and Cockburn 1990; Douglas et al. 1993; Dove 1993; King 1996).

In sum, historical ecology can provide informed speculation about the state of ecosystems before major human-induced (deforestation, land clearance, intensive resource extraction, pollution, etc.) or natural (fires, droughts, floods, etc.) ecological disturbances, and it can also monitor the land use decisions made by humans in ecosystems undergoing constant minor changes. It can also tease out the historical events and political, social, and economic processes that lead to landscape changes. The application of historical ecology theory and methods to any field site can show that virtually no habitable place on earth has been left untouched by humans.

Political Ecology of Conservation

Political ecology stresses the dialectical relationship between human social and political systems and the ways that resources are defined and used by different groups of people (Blaikie

and Brookfield 1987; Greenberg and Park 1994). It seeks to unravel the complex political forces that determine access to land and natural resources, processes of resource management, and the transformations of resource management systems in response to changing political and economic circumstances (Pelling 2003; Robbins 2004). A central tenet of political ecology is careful attention to issues of scale and scalar politics (Brown and Purcell 2005; Swyngedouw and Heynen 2003; Adger et al. 2001; Brown and Purcell 2005). Common themes in the field of political ecology include: environmental degradation (Blaikie and Brookfield 1987; Blaikie 1989; Black 1990; Batterbury and Bebbington 1999), political marginalization (Bassett 1988; Sheridan 1988; Grossman 1993), access to and control of resources and conflicts over them (Schmink and Wood 1987; Blaikie 1989; Bryant 1991; Peluso 1992), analysis of different modes of production and the dynamics between them (Roseberry 1988; Moore 1996), and ethnic identity and social movements to promote cultural autonomy (Colchester 1992; Escobar 1998; Robbins 2004). Political ecology can serve as both a way to critique the dominant discourses of modernization and development (Shiva 1991; Bryant 1992; Escobar 1995; Gupta 1995; Scott 1998) and a way to propose more ecologically sustainable and socially just alternatives to these dominant models and discourses (Colchester 1992; Bebbington et al. 1993; Escobar 1999; Gibson et al. 2000; Robbins 2004). Recognizing that there are many forms of knowledge leads to the conclusion that there are in fact "plural political ecologies" (Escobar 1996) that can lead to many different strategies for examining political, economic, and social underlying changes in resource management systems.

Political ecology has been criticized for placing too much emphasis on political and economic forces as determinants for social and ecological change, as well as for being "analytically weak" and having a "dogmatic research trajectory" that generalizes the impacts of

modernization or government intervention in the lives of local peoples (Vayda and Walters 1999). Some scholars say that market integration and development schemes are not universally bad, as some political ecologists propose, and it is necessary to "unlink" political marginalization and ecological degradation, to examine each case individually, and to seek site-specific solutions to real (as opposed to merely perceived) problems of unsustainability or inequity (Schmink and Wood 1987; Black 1990; Grossman 1993; Vayda and Walters 1999). Zimmerer and Bassett (2003) suggest that in order to rectify some of the problems with political ecology, it is necessary to create more balanced emphases on politics and ecology, to apply political ecology to Northern societies as well as Southern ones, to expand the geographical scale of political ecology studies and to study the relations between different scales, to combine quantitative and qualitative data for more thorough analysis of the political ecology of specific areas, and to apply multi-disciplinary political ecology research to policy decisions.

In the context of conservation, political ecology examines the roles of various cultural institutions in determining environmental policies (Neumann 1992; Sheridan 1988). There are many different organizations (governmental and nongovernmental) dedicated to preserving biodiversity and ecological functions, and these organizations have different (and sometimes conflicting) conservation goals (Igoe 2002; Jepson and Whittaker 2002; Redford et al. 2003). Political ecology can add valuable insights into how non-governmental environmental groups interact with one another, with local communities, and with regional and national governments. Anthropological studies can add insights into these local and translocal networks, technologies of control over natural resources, and the definitions of "conservation" and "community" (Western and Wright 1994; Dwivedi 1997; Fischer 1997; Horta 2000). There is great need for various conservation actors to accept and respect their differences and to create specific conservation

goals for particular areas, especially when addressing the big questions about how conservation should be done and how much area needs to be protected to reach these goals (Redford and Richter 1999; Redford et al. 2003).

The scale at which conservation is practiced is an important political, as well as ecological, question. Large-scale conservation, which can include bioregional / ecoregional conservation and transboundary protected areas, presents a more holistic vision of functional landscapes that must be protected at greater spatial and temporal scales if conservation plans are to be effective at all (Soulé and Terborgh 1999; Noss 2002; Younge 2002). Small protected areas are necessary, but are not always sufficient for broader conservation goals; aside from the fact that some species need a lot of space to survive, sometimes plans to enhance local biodiversity can have the opposite effect on a regional or global scale (Noss 2002). Ecoregional conservation requires cooperation across many political scales and academic disciplines; it combines methods from many fields, including landscape ecology, ecosystem management, sociology and anthropology, and policy development (Brunkhorst 2000). However, ecoregional conservation plans are often criticized for being top-down and superimposed on existing land management systems (Brosius and Russell 2003; Wolmer 2004), thus negating the roles that local peoples play in maintaining or enhancing biodiversity and ecological function.

The politicized framing of the loss of biodiversity as a global environmental crisis (Soulé and Terborgh 1999) has led to numerous policies that restrict the livelihoods of people in areas with high levels of biodiversity (Colchester 1992; Peluso 1994; Brown 1998; Escobar 1998; Chapin 2004). Local communities have developed local land use and resource management systems that have worked for many generations (Berkes 1985; Appell 1986; McKay and Jentoft 1987; Cramb and Wills 1990; Schlager and Ostrom 1992; Folke and Berkes 1995; Rudel 1995),

and these systems are often either ignored or banned in areas deemed to be of conservation importance (Redford and Stearman 1993; Colchester 2000; Schwartzman et al. 2000; Alcorn 2005). When parks and protected areas are created on lands inhabited by indigenous peoples, those peoples often lose their rights to the land and essentially become "squatters" on state land; their traditional subsistence or income activities also often become considered criminal activities (Horowitz 1998; Colchester 2000). Rural peoples are often displaced or further marginalized by such types of "coercive conservation" (Lynch and Alcorn 1994; Pimbert and Pretty 1997).

However, community-based conservation (CBC) projects have attempted to both counterbalance the inequities that marginalized peoples have faced in biologically diverse regions and to improve conservation practices by incorporating local knowledge and land use systems into science-based conservation plans (Colchester 1994; Fairhead and Leach 1994; Western and Wright 1994; Colfer and Soedjito 1996; Colfer, Peluso, and Chin 1997; Horowitz 1998; Russell and Harshbarger 2003). A problem with many "participatory" conservation plans is that they are not truly participatory; the rhetoric appears on paper but is not practiced on the ground (Murphree 1994; Goodwin 1998; Pimbert and Pretty 1997; Brosius and Russell 2003; Sheil and Lawrence 2004; Wolmer 2004). For CBC to be successful, communities need to have the capacity to act as equal partners, which includes self-representation, self-determination, and secure tenurial rights (Lynch and Alcorn 1994; Goodwin 1998; Brosius and Russell 2003; Wolmer 2004). Further, CBC plans should be site-specific and tailored to the current economic, political, social, and cultural realities of the communities involved (Sheil and Lawrence 2004; Coward 2005), as well as flexible and self-adaptive (Murphree 1994).

Political ecology in the context of conservation serves as a useful theoretical framework in which to examine issues of equity and justice for local communities when their lands are

incorporated into conservation plans, as well as a way to explore the linkages between conservation actors in governmental institutions, non-governmental organizations, and conservation finance agencies. It can also serve as a methodology for research related to conservation, as it provides a concrete set of questions from which to build: what is being conserved and why, whom does this conservation benefit, who is bearing the costs or burdens of this conservation, (how) are communities participating in "community-based conservation," and many others. Conservation often takes place in areas of highly contested natural resources, and it is essential to understand the political, economic, and social factors that will affect the success or failure of protecting desired species and landscapes in socially just manners.

Collaborative Ethnographic Methods

One of the main challenges for anthropologists working with local peoples, especially those living in biologically diverse and highly contested areas, has been moving beyond purely extractive research toward inquiry that is more relevant to the community being studied. Chambers (1992:204) notes that:

> The standard practice is for outsiders to come in and do *their* research *on* people, after which they take away *their* data for analysis *elsewhere*. Ethically and methodologically, this practice is suspect.

The challenge to move beyond extractive research coincides with the growing necessity to address critiques by local peoples that anthropological ethnographies do not adequately represent them (Escobar 1998; O'Neill 2001; Peters 1996; Orlove 1991). The "politics of representation" reveal the problematic nature of the terms and concepts of "local" and "community," the use of which often simplifies complex social realities (Scott 1998; Li 1996; Peters 1996) and also portrays traditional communities as homogenous and stable when they are neither (Murphree

1994; Zerner 1994; Goodwin 1998). Also, many subgroups of a population are not represented in ethnographies or in studies done to assess socioeconomic conditions of communities; some subgroups that are commonly neglected are women, peasants, minorities, migrants, or other marginalized peoples (O'Neill 2001).

To address these issues, many scholars have called for extractive research methods to be discontinued and for fieldworkers to conduct projects that make anthropology more relevant to the world, lest the discipline become extinct or overly fragmented (Westbrook 2008; Lassiter 2005; Peacock 1997; Chambers 1992; Hymes 1969; Singer 2000). These authors argue instead that researchers should initiate participatory and collaborative research that allows local community members to identify the research priorities, own the information collected during the research process, analyze their own findings, and share those findings in ways that are relevant to them (Pottier 1997; Chambers 1992). Lassiter (2005, 2004a, 2004b, 2002, 2001, 2000, 1999, 1998) makes a distinction between ethnographic fieldwork, which he says is inherently collaborative, and collaborative ethnography, which more explicitly and systematically links collaborative fieldwork and ethnographic writing. He notes that there is a long history of "the co-production of ethnographic texts," and current collaborative ethnographic research efforts stem from these earlier collaborations. Since then, he says, "feminist and postmodernist efforts to re-center ethnography along dialogical lines further contextualize this historically situated collaborative practice" and that "the goals of collaborative ethnography (both historical and contemporary) are now powerfully converging with those of a public anthropology that pulls together academic and applied anthropology in a common effort to serve humankind more directly and immediately" (Lassiter 2005:85).

Given the critiques of extractive research and the difficulties posed by the politics of representation, anthropologists and ethnographic fieldworkers today are confronted by several dilemmas which force increased introspection and reflexivity on our own goals and methods. Researchers have noted that there are many degrees of reflexivity (Davies 1999; Gergen and Gergen 1991; Woolgar 1988; Babcock, 1980), and that this self-interrogation by anthropologists was quite possibly prompted by the realization that community members create traditions that reflect upon the culture. Anthropological inquiry into social reflexivity as portrayed through ritual and performance often cites Geertz's prominent work on Balinese cockfights, in which he describes the cockfights as "a Balinese reading of Balinese experience, a story they tell about themselves" (Geertz 1973:448, quoted by Davies 1999:8). Geertz, in his "thick description" of the Balinese cockfights as "text-analogues" in turn spurred the theoretical and methodological development of symbolic anthropology, to which Geertz responded: "But I, regarding the whole thing as an essentially hermeneutic enterprise, a bringing to light and definition, not a metaphrase or a decoding, and uncomfortable with the mysterian, cabalistic overtones of 'symbol,' preferred 'interpretive anthropology'" (Geertz 2000:17). But despite its name, the new movement in anthropology fomented by Geertz had lasting implications for the ways that cultural meanings were expressed in ethnographies and for the ways that cultures were observed by ethnographers. Around that time, beginning in the late 1960s, anthropologists had already begun the process of questioning their own practices, prompted by ethical debates over researchers using ethnography as a cover for intelligence gathering activities or in a way indicative of complicity in colonialism (Davies 1999; Pels 1997; Asad, 1973; Scholte 1969; Hymes 1969; Berreman 1969). This perhaps began the process of turning the reflexive gaze onto themselves and their own production of

knowledge(s) (Sletto 2008; Mathews 2008; Barth 2002; Moore 1996; Nader 1996; Gibbons et al. 1994), or even of cultures.

Rubenstein and Fine-Dare (2009:300) claim that Edward Said's *Orientalism* (1978) initiated anthropology's own "crisis of representation" by raising "the possibility that we did not research cultures, but rather that our research actually constituted its own object of study, that is, created cultures." This process of "othering" led some critics to question whether ethnographers ever could accurately represent the experiences of members of other cultures, and some questioned the ethics of those attempting to do so (Wolf 1992:5). Later, anthropologists such as Clifford, Marcus, Fisher, Tyler, and Cushman (Clifford 1986, Marcus 1992, 1999; Tyler 1987; Clifford and Marcus 1986; Marcus and Cushman 1982) began to deconstruct ethnographic texts, promulgating them as a distinct literary genre, one that fostered the production of anthropological and ethnographic discourse, and as texts that often oversimplify the complexity of social reality and that over-objectify both the observers and the observed (and Stocking's book *Observers Observed* [1983] unpacks the experience of ethnographic fieldwork in the context of the history of the academic discipline of anthropology). Many anthropologists have pointed out that ethnographers, with their own inherent biases, cannot authoritatively represent the point of view of the people being studied (Marcus and Fischer 1986, Clifford and Marcus 1986; Peacock 1986; Clifford 1988; Rosaldo 1989; Pottier 1997; Keesing 1990; Long and Long 1992). Some researchers have complained that the postmodern focus on reflexivity to the point of "self-absorption" (which, according to Geertz [1988:1], can be perceived as "time-wasting at best, hypochondriacal at worst"), in which "boundaries between subject and object disappear, the one becomes the other, a process that effectively denies the possibility of social research," can prove

to be "essentially destructive of the enterprise of social research" (Davies 1999:5). Other scholars simply questioned the "end of anthropology" (Worsley 1970). Davies (1999:5) suggests that:

> Nevertheless ethnographers must seek to utilize creatively the insights of these postmodernist perspectives – insights that encourage incorporation of varying standpoints, exposure of the intellectual tyranny of meta-narratives and recognition of the authority that inheres in the authorial voice – while at the same time rejecting the extreme pessimism of the epistemological critiques.

To address the concerns raised by postmodern critiques, while not losing focus of the strengths of ethnography to expose hegemony and provide much-needed contextual analysis of current social realities, Lassiter (2005:93) claims that ethnography is now often conducted in an "ever-changing, shifting, and multisited field in which dichotomies such as West/East and local/global have lost their methodological utility," making it necessary for current ethnographies to involve "a critical and reflexive process whereby ethnographers and their interlocutors regularly assess not only how their collaborative work engenders the dialogic emergence of culture (and the veracity of their shared understandings) but also the goals and the audiences of the ethnographic products these collaborative relationships produce."

The role of the anthropologist and ethnographer working in these "ever-changing, shifting, and multisited" field sites is also changing; no longer is it sufficient for anthropologists to simply prove that "communities" (local, global, or even intentional or imaginary) are not monolithic but rather represent a highly diversified group with multiple perspectives, experiences, and agendas and to merely record the plurality of voices within the community and among various actors affecting these communities. Instead, they should focus on the *process* of research and not just its *products* (Pottier 1997:219), while continuing their commitment to the

conventional ethnographic tasks of contextualizing places and events, and also reflecting on how knowledge is produced in these contexts. Pottier (1997:223) also says that anthropologists must relinquish their claims to authoritative authorship of ethnographic texts, as they can "no longer claim to be the sole creators of their data and analyses."

The acceptance of this focus on process instead of product, as well as the acceptance that ethnography is inherently collaborative, also leads to what Pottier (1997:223) calls a paradox. He explains:

> When committed to participatory appraisal and research, anthropologists will become aware that someone must also reflect on the total context of the research process. I am not implying that only anthropologists can do this (see Garber and Jenden 1993), although, for the time being, they are comparatively well-placed to take on the job of providing context to collaborative, participatory research activities. The paradox, then, is that in the act of giving up authoritative authorship, the anthropologist rediscovers the importance of holism and reflexivity, the familiar roles that give the anthropologist a distinctive voice.

Working with a local community that is rapidly changing and highly multivocal, in forests that are highly contested, and within a politically restrictive milieu, I lived this paradox while conducting fieldwork and while writing about the experiences and findings of myself and my local collaborators. I have endeavored to provide the appropriate contextual analysis of my field site and show how the historical and cultural context of the Kelabit Highlands (see Chapter 2) and the wider region of island Southeast Asia (as described earlier in this chapter) affects current and ongoing Kelabit engagements with conservation and development. In the next section I will describe the methodologies that I used, reflect upon their successes and shortcomings, explain

how the collaborative nature of my work influenced my research agenda, and present the structure of the dissertation.

Methodology and Dissertation Structure

Two months of preliminary fieldwork in 2005 in Sarawak allowed me to discuss with the Kelabit what kind of project would be most beneficial and relevant to the community, and also allowed me to initiate relationships with the institutions in Sarawak with whom I would also be collaborating. I then conducted fieldwork in the Kelabit Highlands from September 2006 to July 2009. During the course of my fieldwork, I applied an array of complementary ethnographic methods, including archival research, participant observation in daily life and special events in the Kelabit Highlands, unstructured and semi-structured interviews that include oral history collection and individual and group sketch mapping exercises, the transfer of GPS knowledge and training for participatory and community mapping purposes, and guided visits to cultural sites. As many Kelabit (especially those under the age of 50 or so) are proficient in English, many of my interviews and discussions were conducted in English. However, I learned to speak Kelabit and improved my Bahasa Malaysia[9]; some discussions and interviews were in these languages as well. Often, I did as the Kelabit do, and mixed these three languages freely during conversations.

I spent most of my time in the remote village of Pa' Lungan (a four-hour walk from Bario, the administrative center of the Kelabit Highlands, as no road yet reaches it) with my adoptive Kelabit parents, Supang Galih@Sinah Nabun Aran and Audie Chew@Nabun Aran. As their main occupation is the operation of a lodge for tourists, I met many backpackers from all over the world, as well as the guides from Bario that brought them there. And as Pa' Lungan is a

[9] In 2004, I attended the Southeast Asian Summer Studies Institute in at the University of Wisconsin and spent eight weeks learning Bahasa Indonesia, which is mutually intelligible with Bahasa Malaysia.

very small village with a total population of around eighty, I knew everyone and formally or informally interviewed all adults (about fifty). My research was originally focused on the village of Pa' Lungan, but over the course of the fieldwork, my focus expanded to include much of the northern Kelabit Highlands, and to a lesser extent, also the southern Kelabit Highlands. I realized rather quickly that it would be impossible to study the history of one village in isolation of the others. I was also continually asked by members of other villages to help with recording their oral histories and documenting their cultural sites. Trying to please everyone was at times exhausting and complicated my original research goals (and even strained my relationships with people in Pa' Lungan), but led to a much more complete understanding of the history of the Kelabit Highlands and the ways that this history is embedded within the landscape. Local Kelabit guides and I collected GPS[10] points for over 230 cultural sites (including burial sites, megaliths, landscape modifications, and old settlement sites) throughout the Kelabit Highlands (see Chapter 3). In both the villages of the Kelabit Highlands as well as the coastal cities to which many Kelabit have migrated, I conducted unstructured and semi-structured interviews that included the collection of oral histories and individual and group sketch mapping exercises (see Chapters 2 and 3). I worked closely with guides from all over the Kelabit Highlands, and assisted with the establishment of the Bario-Ba' Kelalan Guide Association, attended their inaugural meetings, and co-wrote an article about transboundary community-based ecotourism with several guides in Sarawak and Kalimantan (see Chapter 5).

I taught guides and other interested community members in each village in the Kelabit Highlands to use GPS units, and distributed six GPS units to community members to support not only my project, but also their ongoing efforts to map their own landscape (see Chapters 3 and 4). This transfer of technology and technological skills to community members was problematic

[10] GPS: Global Positioning System

at times due to a lack of an institutionalized social mechanism to assure the sharing and the upkeep of the units; the dedication of several key people in various villages of the Kelabit Highlands was immensely useful and appreciated, but the situation did occasionally cause conflict which those individuals had to try to resolve. Perhaps this could have been avoided by clearer agreements at the outset of the research project regarding who was responsible for the units and how they were to be distributed and shared among community members and for what purposes. Many of the GPS training sessions were held in Bario, where the majority of social activities (including meetings, festivals, communal dinners, workshops and conferences, visits by political representatives, etc.) took place. I attended most of these social functions, participating in many as a member of the Pa' Lungan community (and usually resident photographer or note-taker as well). I was invited to many (but not all) of the community meetings regarding conservation, including the workshops held by WWF-Malaysia, the International Tropical Timber Organization, the Sarawak Forest Department, and the transboundary multi-ethnic social group called FORMADAT (see Chapters 5 and 6), as well as several meetings that included community discussions on logging and infrastructural development issues facing the Kelabit community and landscape. I also served as the Resident Research Coordinator at the e-Bario Telecentre, beginning in 2006 (see Chapter 4).

I regularly visited the coastal cities of Miri and Kuching to attend meetings there, and to spend time writing (with a constant power supply and some privacy) and communicating via email and telephone. For the last five months in Sarawak, I lived in a dormitory at Universiti Malaysia Sarawak (UNIMAS), where I collected archival data, had numerous meetings with Kelabit living in Kuching, and conducted telephone and email interviews with people around the world who are knowledgeable about conservation in Sarawak. I occasionally left Sarawak to visit

communities on the Indonesian side of the border (in the Kerayan Highlands, which are adjacent to and contiguous with the Kelabit Highlands), to have meetings and conduct interviews with conservation practitioners in the Malaysian capital of Kuala Lumpur and the Indonesian capital of Jakarta (and other cities in Indonesia) regarding the Heart of Borneo conservation initiative (see Chapter 6), to attend the World Conservation Congress in Barcelona in October 2008 in order to conduct interviews with conservation practitioners from all over the world who have been involved in the Heart of Borneo initiative (see Chapter 6), and to visit the U. S. occasionally to attend committee meetings and receive assistance on the GIS[11]-related aspects of my work.

I codified and incorporated many of the ethnographic, ecological, and historical data into a GIS database that also includes GPS locations of landscape features and layers of regional geospatial data from existing maps, satellite images, and aerial photographs. The database and map now belong to the Kelabit community; out of respect for the wishes of the community to keep the GPS data and cultural site map private, they are not included in any publications, including this dissertation. This confidentiality is the result of numerous discussions I had with community members, particularly the leaders of *Rurum Kelabit Sarawak* (the Kelabit Association of Sarawak). I worked closely with those leaders throughout my time in Sarawak, as well as with several community members who are also academics. I was particularly guided by Dr. Poline Bala, an anthropologist originally from the village of Pa' Umor in the Kelabit Highlands who recently received her Ph.D. from Cambridge University and is now a lecturer at the University of Sarawak Malaysia (UNIMAS) in Kuching, and by Dr. Ramy Bulan, also originally from Pa' Umor and now a professor of law and head of the Centre for Legal Pluralism and Indigenous Law at the University of Malaya in Kuala Lumpur. They and other community members well versed in the processes of research, either through having conducted their own

[11] GIS: Geographic Information System

research or working closely with other researchers, often read drafts of these chapters as they were written in Sarawak and provided feedback. They also asked me to assist them in setting up a community research steering committee, and together we drafted several policies that articulate the rights and responsibilities of the researchers, committee members, and community members (in a community research agreement). Much of the impetus for this was what Bala (2002:4-5) described as the Kelabit community's own "crisis of representation" in which many community members felt they had been misrepresented by an anthropologist in a way that was detrimental to their relations with another ethnic group, the Penan. Also among many community members was the general feeling that many researchers had come and gone, taking their ("their") data and photographs with them, and not sharing the results with the community, much less incorporating community members into the research design from the beginning or being responsive to community needs and requests throughout the research process.

I tried continually to address these concerns throughout my time in Sarawak, and even before designing my research project, by discussing community concerns during my two months of preliminary fieldwork in 2005. I also confronted these issues when choosing how to write about the research. Multiple versions of the list of cultural sites in Appendix 3 were circulated in villages throughout the Kelabit Highlands and to urban-based Kelabit community members over a period of two years, and numerous people added many sites to the list. There were also numerous discussions among community members over the names of some sites and the histories behind them (I describe this process in Chapter 3). Much of the ethnographic data about the cultural sites is incorporated into Chapter 3, and other ethnographic data, as well as reflexive analysis on both the data and the processes inherent in their collection, are present in all chapters. Archival and historical data about Kelabit history and culture and the landscape of the Kelabit

Highlands are presented mainly in Chapters 2 and 3, and ethnographic information from the interviews with urban Kelabit is incorporated into all of the chapters.

I chose the article format for the dissertation partly because I found it to be more conducive to the restrictive political climate of Sarawak, as some chapters present criticisms of the state government, and also because articles are more accessible and useful to community members and local institutions. The chapter that will probably prove to be the most relevant to the community (Chapter 3) will be published in Sarawak, and the other chapters can be emailed or distributed in hard copy form with greater ease and less cost than a thick book could be. Finally, the article format allowed me to separate to some extent the theoretical literature reviews present in this chapter from the information more relevant and interesting to the Kelabit community which is presented in the other chapters. I was asked time and again by community members to write something that would be useful for them, both in terms of collating the historical and cultural knowledge of many Kelabit and corroborating this knowledge in a way that could assist with the community's negotiations with state agencies, logging companies, development planners, and conservation organizations over ownership and management of the land in the Kelabit Highlands that the Kelabit have historically occupied. It is my hope that the interdisciplinary and collaborative methods I employed during my research can be replicated in research projects that extend beyond ethnography. Conceptually, I hope that my analysis of the process of conducting this particular research project in a collaborative manner will further understanding of the challenges of doing participatory and collaborative research in areas that are politically restrictive, ecologically threatened, and highly contested.

Cross-Cutting Research Themes

Although the chapters of this dissertation address a variety of topics, they are empirically and theoretically related by their emphasis on how Kelabit culture and the Kelabit Highlands landscape are currently in a state of transition, and how the Kelabit community is simultaneously responding to and driving these transitions. Three main themes have emerged during the process of conducting this research and subsequently writing about it: (1) the challenges of collaborative research, (2) local agency, and (3) different mappings of the Kelabit Highlands. New research questions emanated from these themes as the focus of my research shifted somewhat from the *products* that I ultimately aimed to produce (i.e. the database and digital map) to more reflexive analysis of the *process* of conducting this project in this place at this time.

As discussed in this chapter and address in following chapters, the collaborative nature of this research project presented several unique challenges in this context. Though I was well-versed in the literature about and theoretical components of collaborative methodologies, I had not yet experienced collaborating with multiple people and institutions in a research setting on the ground. So I faced the question: what does collaboration mean in practice, especially when addressing politically sensitive issues with a multi-sited and multi-vocal community in a landscape that is highly contested? Several of the chapters (especially Chapters 3 and 4) address this process of collaboration directly; in others, the collaborative process is less explicit. Chapter 5 is the only one that was co-authored, though I distributed drafts of the other chapters to community members for their feedback before submission. The knowledge that Kelabit community members would critically read the articles influenced both what I wrote and how I wrote it.

Second, the theme of Kelabit agency permeates this dissertation, as every chapter discusses ways in which members of the Kelabit community are negotiating changes that are occurring within the community itself and between the community and other agents of change in Sarawak and the Kelabit Highlands. There is a high level of competence and a wide variety of expertise within the community upon which community leaders can draw in their negotiations with outside actors. The Kelabit are not simply reacting to past, ongoing, and potential future changes in the community and the landscape; they are instead often proactive drivers of these changes. The following chapters provide examples of how the community has initiated and continues to initiate conservation and development by engaging with transboundary conservation projects, promoting inter-community transboundary ecotourism and other sustainable development initiatives, and establishing ICTs[12] in this remote area. They are also designing and managing their own projects aimed at cultural revitalization and documentation of their cultural heritage.

Finally, there are clearly a number of different mappings, both visual representations of, and imagined scenarios for, the present and the future of the Kelabit Highlands landscape. As I tried to obtain maps of the area, I quickly realized how closely these are guarded by the state government, and how little access community members and foreign researchers alike have to these various mappings. It is also clear that many of these mappings are contradictory in nature, and that even different state agencies have different maps (imagined futures) for the same area. Maps including the Kelabit Highlands are also being made on an ecoregional scale by conservation practitioners, especially in relation to the WWF-led Heart of Borneo initiative (see Chapter 6). There are a plethora of maps of the Kelabit Highlands, but what is not clear is: (1) which people and agencies are creating these different visualizations of the Kelabit Highlands

[12] ICTs: Information and Communication Technologies

and for what purposes, and (2) what the implications of these various mappings are for the Kelabit community. These questions were difficult to both answer and to discuss in writing, due mainly to the political sensitivity of the issues. Nevertheless they guided many aspects of the research. As with any ethnographic account, there is much that is *not* written in this dissertation, and many of these omissions are strategic and also a reflection of my long-term commitment to both the Kelabit community and the state of Sarawak.

References Cited


Adams, Jonathon and Thomas McShane
1992 The Myth of Wild Africa. Berkeley: University of California Press.

Adas, Michael
1992 From Avoidance to Confrontation: Peasant Protest in Precolonial and Colonial Southeast Asia. *In* Colonialism and Culture. Nicholas B. Dirks, ed. Pp. 89-126. Ann Arbor: University of Michigan Press.

Agrawal, Arun
1995 Dismantling the Divide between Indigenous and Scientific Knowledge. Development and Change 26:413-439.

Amster, Matthew
2008 Where Spirit and Bulldozer Roam: Environment and Anxiety in Highland Borneo. Journal for the Study of Religion, Nature and Culture 2(1):74-92.

Amster, Matthew
2005 Cross-border Marriage in the Kelabit Highlands of Borneo. Anthropological Forum 15(2):131-150.

Amster, Matthew
2003 Gender Complementarity and Death among the Kelabit. *In* Journeys of the Soul: Anthropological Studies of Death, Burial, and Reburial Practices in Borneo. William D. Wilder, ed. Pp. 251-307. Kuching: Borneo Research Council, Inc.

Anderson, B.
1983 Old State, New Society: Indonesia's New Order in Comparative Historical Perspective. Journal of Asian Studies 42:477-496.

Angelsen, A.
1995 Shifting Cultivation and "Deforestation": A Study from Indonesia. World Development 23:1713-1729.

Appell, George N.
1986 Kayan Land Tenure and the Distribution of Devolvable Usufruct in Borneo. Borneo Research Bulletin 18(2):1-24.

Aeria, Andrew
2005 Gloablization, Inequitable Development and Disenfranchisement in Sarawak. In Southeast Asian Responses to Globalization: Restructuring Governance and Deepening Democracy. Francis Loh Kok Wah and Joakim Öjendal, eds. Pp. 173-200. Copenhagen: Nordic Institute of Asian Studies Press.

Asad, T., ed.
1973 Anthropology and the Colonial Encounter. London: Ithaca Press.

Bala, Poline
2002 Changing Borders and Identities in the Kelabit Highlands: Anthropological Reflections of Growing Up in a Kelabit Village near the International Border. Dayak Studies Contemporary Society Series, No. 1. Institute of East Asian Studies. Kuching: Unit Penerbitan Universiti Malaysia Sarawak.

Balée, William
1992 People of the Fallow: A Historical Ecology of Foraging in Lowland South America. *In* Conservation of Neotropical Forests: Working from Traditional Resource Use. Kent H. Redford and Christine Padoch, eds. Pp. 35-57. New York: Columbia University Press.

Balée, William and David G. Campbell
1990 Evidence for the Successional Status of Liana Forest (Xingu River Basin, Amazonian Brazil). Biotropica 22(1):36-47.

Bahre, Conrad J.
1991 A Legacy of Change: Historic Human Impact on Vegetation of the Arizona Backlands. Tucson: University of Arizona Press.

Barker, Graeme
2002 Prehistoric Foragers and Farmers in South-East Asia: Renewed Investigations at Niah Cave, Sarawak. Proceedings of the Prehistoric Society 68:147-164.

Barker, Graeme, Huw Barton, Michael Bird, Patrick Daly, Ipoi Datan, Alan Dykes, Lucy Farr, David Gilbertson, Barbara Harrisson, Chris Hunt, Tom Higham, Lisa Kealhofer, John Krigbaum, Helen Lewis, Sue McLaren, Victor Paz, Alistair Pike, Phil Piper, Brian Pyatt, Ryan Rabett, Tim Reynolds, Jim Rose, Garry Rushworth, Mark Stephens, Chris Stringer, Jill Thompson, and Chris Turney
2007 The 'Human Revolution' in Lowland Tropical Southeast Asia: The Antiquity and Behavior of Anatomically Modern Humans at Niah Cave (Sarawak, Borneo). Journal of Human Evolution 52(3):243-261.

Barth, Fredrik
2002 An Anthropology of Knowledge. Current Anthropology 43(1):1-18.

Basch, Linda G., Lucie Wood Saunders, Jagna Wojcicka Sharf, and James L. Peacock. eds.
1999 Transforming Academia. Washington, D.C: American Anthropological Association.

Bassett, Thomas J.
1988 The Political Ecology of Peasant-Herder Conflicts in the Northern Ivory Coast. Annals of the Association of American Geographers 78(3): 453-472.

Batterbury, Simon and Anthony Bebbington
1999 Environmental Histories, Access to Resources, and Landscape Change: An Introduction. Land Degradation and Development 10(4):279-289.

Bebbington, Anthony J.; Hernan Carrasco; Lourdes Peralbo; Galo Ramon; Jorge Trujillo; Victor Torres
1993 Fragile Lands, Fragile Organizations: Indian Organizations and the Politics of Sustainability in Ecuador. Transactions of the Institute of British Geographers, New Series 18(2): 179-196.

Bellwood, Peter
1985 Prehistory of the Indonesian Archipelago. Orlando: Academic Press.

Berkes, Fikret
1999 Sacred Ecology: Traditional Ecological Knowledge and Resource Management. Philadelphia: Taylor and Francis.

Berkes, Fikret
1985 The Common Property Resource Problem and the Creation of Limited Property Rights. Human Ecology 13:187-208.

Berkes, Fikret, Johan Colding, and Carl Folke
2000 Rediscovery of Traditional Ecological Knowledge as Adaptive Management. Ecological Applications 10(5):1251-1262.

Bevis, William W.
1995 Borneo Log: The Struggle for Sarawak's Forests. Seattle: University of Washington Press.

Black, Richard
1990 'Regional Political Ecology' in Theory and Practice: A Case Study from Northern Portugal. Transactions of the Institute of British Geographers. New Series 15 (1): 35-47.

Blaikie, Piers
1989 Environment and Access to Resources. Africa 59:41-55.

Blaike, Piers and Harold Brookfield
1987 Land Degradation and Society. London: Methuen.

Borgerhoff-Mulder, Monique and Peter Coppolillo
2005 Conservation: Linking Ecology, Economics and Culture. Princeton: Princeton University Press.

Brockington, Dan
2002 Fortress Conservation: The Preservation of the Mkomazi Game Reserve, Tanzania. Bloomington: Indiana University Press.

Brosius, J. Peter
1997a Endangered Forest, Endangered People: Environmentalist Representations of Indigenous Knowledge. Human Ecology 25(1):47-69.

Brosius, J. Peter
1997b Prior Transcripts, Divergent Paths: Resistance and Acquiescence to Logging in Sarawak, East Malaysia. Comparative Studies in Society and History 39(3):468-510.

Brosius, J. Peter
1999 Green Dots, Pink Hearts: Displacing Politics from the Malaysian Rainforest. *In* Ecologies for Tomorrow: Reading Rappaport Today, special issue of American Anthropologist 101(1):36-57.

Brosius, J. Peter
2003 Voices for the Borneo Rainforest: Writing the History of an Environmental Campaign. *In* Nature in the Global South. P. Greenough and Anna Tsing, eds. Pp. 319-346. Durham: Duke University Press.

Brosius, J. Peter and Diane Russell
2003 Conservation from Above: An Anthropological Perspective on Transboundary Protected Areas and Ecoregional Planning. Journal of Sustainable Forestry. 17(1/2):39-65.

Brown, Katrina
1998 The Political Ecology of Biodiversity, Conservation, and Development in Nepal's Terai: Confused Meanings, Means, and Ends. Ecological Economics 24(1):73-87.

Bruckhorst, David J.
2000 Bioregional Planning: Resource Management Beyond the New Millennium. London: Taylor and Francis Publishing.

Bryant, Raymond L.
1998 Resource Politics in Colonial South-East Asia: A Conceptual Analysis. I*n* Environmental Challenges in South-East Asia. Victor T. King, ed. Surrey: Curzon Press.

Bryant, Raymond L.
1993 Forest Problems in Colonial Burma: Historical Variations on Contemporary Themes. Global Ecology and Biogeography Letters 3(4-6):122-137.

Bryant, Raymond
1991 Putting Politics First: The Political Ecology of Sustainable Development. Global Ecology and Biogeography Letters 1.

Bryant, Raymond and M. J. G. Parnwell
1996 Introduction: Politics, Sustainable Development and Environmental Change in South-East Asia. *In* Environmental Change in South-East Asia. M. J. G. Parnwell and R. L. Bryant, eds. Pp. 1-20. London: Routledge.

Bulan, Ramy with Amy Locklear
2008 Legal Perspectives on Native Customary Land Rights in Sarawak. Kuala Lumpur: Human Rights Commission of Malaysia (SUHAKAM).

Chambers, Robert
1992 Participatory Rural Appraisal: Past, Present and Future. Forests, Trees and People Newsletter 15/16:1-9.

Chapin, Mark
2004 Losing Touch: Conservationist NGOs and Indigenous and Traditional Peoples. World Watch.

Cleary, Mark and Peter Eaton
1992 Borneo: Transition and Development. Singapore: Oxford University Press.

Clifford, James
1988 The Predicament of Culture: Twentieth-Century ethnography, Literature, and Art. Cambridge: Harvard University Press.

Clifford, James and George E. Marcus, eds.
1986 Writing Culture: The Poetics and Politics of Ethnography. Berkeley: University Of California Press.

Colchester, Marcus
2005 Maps, Power and Defense of Territory: The Upper Mazaruni Land Claim in Guyana. *In* Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management. J. Peter Brosius, Anna Tsing and Charles Zerner, eds. Pp. 271-304. Walnut Creek, CA: Altamira Press.

Colchester, Marcus
2000 Self-Determination or Environmental Determinism for Indigenous Peoples in Tropical Forest Conservation. Conservation Biology 14(5):1365-1367.

Colchester, Marcus
1994 Sustaining the Forests: The Community-Based Approach in South and South-East Asia. Development and Change 25:69-100.

Colchester, Marcus
1992 Pirates, Squatters and Poachers: The Political Ecology of Dispossession of the Native Peoples of Sarawak. Global Ecology and Biogeography Letters 3 (4/6):58-179.

Colchester, Marcus, Wee Aik Pang, Wong Meng Chuo, and Thomas Jalong
2007 Land is Life: Land Rights and Oil Palm Development in Sarawak. Bogor and Moreton-in-Marsh: Perkumpulan Sawit Watch and Forest Peoples Programme.

Colfer, Carol J. Pierce
1980 Change and Indigenous Agroforestry in East Kalimantan. *In* Whose Trees? Proprietary Dimensions of Forestry. Louise Fortmann and John W. Bruce, eds. Pp. 306-309. Boulder: Westview Press.

Colfer, Carol J. Pierce and Herwasono Soedjito
1996 Food, Forests, and Fields in a Bornean Rain Forest: Toward Appropriate Agroforestry Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, eds. Pp. 162-186. Oxford: Oxford University Press.

Colfer, Carol J. Pierce, with Nancy Peluso and Chin See Ching
1997 Beyond Slash and Burn: Building on Indigenous Management of Borneo's Tropical Rain Forests. Bronx: New York Botanical Garden.

Conklin, Harold
1954 An Ethnoecological Approach to Shifting Agriculture. Transactions of the New York Academy of Science 66:20-28.

Cooke, Fadzilah Majid
2006 Expanding State Spaces Using 'Idle' Native Customary Land in Sarawak. *In* State, Communities and Forests in Contemporary Borneo. Fadzilah Majid Cooke, ed. Pp. 25-44. Canberra: Australian National University Press.

Cooke, Fadzilah Majid
2003 Maps and Counter-Maps: Globalised Imaginings and Local Realities of Sarawak's Plantation Agriculture. Journal of Southeast Asian Studies 3/4(2):265-284.

Cooke, Fadzilah Majid
1999 The Challenge of Sustainable Forests: Forest Resource Policy in Malaysia, 1970-1995. Asian Studies Association of Australia.

Coward, Walter
2005 Building Models of Community-Based Natural Resource Management: A Personal Narrative. *In* Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management. J. Peter Brosius, Anna Tsing and Charles Zerner, eds. Pp.91-104. Walnut Creek, CA: Altamira Press.

Cramb, Robert A.
2007 Reinventing Dualism: Policy Narratives and Modes of Oil Palm Expansion in Sarawak. Paper presented to Conference of Canadian Council of Southeast Asian Studies, Laval University, Quebec City, 19-21 October 2007.

Cramb, Robert A. and I. R. Wills
1990 The Role of Traditional Institutions in Rural Development: Community-Based Land Tenure and Government Land Policy in Sarawak, Malaysia. World Development 18(3): 347-360.

Cronon, William
1995 The Trouble with Wilderness, or Getting Back to the Wrong Nature. *In* Uncommon Ground: Toward Reinventing Nature. William Cronon, ed. Pp. 69-90. New York: W.W. Norton and Co.

Crumley, Carole L.
1994 Historical Ecology: A Multidimensional Ecological Orientation. *In* Historical Ecology: Cultural Knowledge and Changing Landscapes. Carole Crumley, ed. Pp. 1-13. Santa Fe: School of American Research Press.

Dahlberg, Annika C.
2000 Landscape(s) in Transition: An Environmental History of a Village in North-East Botswana. Journal of Southern African Studies 26(4), Special issue (African Environments: Past and Present):759-782.

Davies, Charlotte Aull
1999 Reflexive Ethnographies: A Guide to Researching Selves and Others. London: Routledge.

Denevan, William
1992 The Pristine Myth: The Landscape of the Americas in 1492. Annals of the Association of American Geographers 82(3):369-385.

Dentan, Robert Knox, Kirk Endicott, Alberto G. Gomes, and M.B. Hooker
1997 Malaysia and the Original People: A Case Study of the Impact of Development on Indigenous Peoples. Boston: Allyn and Bacon Publishers.

Douglas, Ian, Tony Greer, Kai Bidin, and Mike Spilsbury
1993 Impacts of Rainforest Logging on River Systems and Communities in Malaysia and Kalimantan. Global Ecology and Biogeography Letters 3(4/6):245-252.

Dove, Michael
1999 The Agronomy of Memory and the Memory of Agronomy: Ritual Conservation of Archaic Cultigens in Contemporary Farming Systems. *In* Ethnoecology: Situated Knowledge/Located Lives. Virginia Nazarea, ed. Tucson: University of Arizona Press.

Dove, Michael
1996 So Far From Power, So Near to the Forest: A Structural Analysis of Gain and Blame in Tropical Forest Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Edited by Christine Padoch and Nancy L. Peluso, eds. Pp. 41-58. Kuala Lumpur: Oxford University Press.

Dove, Michael
1985 Swidden Agriculture in Indonesia: Subsistence Strategies of the Kalimantan Kantu'. New York: Mouton.

Dunn, F. L.
1975 Rain-Forest Collectors and Traders: A Study of Resource Utilization in Modern and Ancient Malaya. Monographs of the Malaysian Branch Royal Asiatic Society #5. Kuala Lumpur.

Dwivedi, Ranjit
1997 Parks, People and Protest: The Mediating Role of Environmental Action Groups. Sociological Bulletin 46(2).

Eghenter, Cristina and Jayl Langub
2008 Past Meets Future: A Trans-Border Forum for a Sustainable Future for the Highlands of Borneo. Borneo Research Bulletin.

Escobar, Arturo
1999 After Nature: Steps to an Antiessentialist Political Ecology. Current Anthropology 40(1):1-30.

Escobar, Arturo
1998 Whose Knowledge, Whose Nature? Biodiversity, Conservation, and the Political Ecology of Social Movements. Journal of Political Ecology 5:53-82.

Escobar, Arturo
1996 Constructing Nature: Elements for a Poststructural Political Ecology. *In* Liberation Ecologies: Environment, Development, Social Movements. Richard Peet and Michael Watts, eds. London: Routledge.

Fairhead, James and Melissa Leach
1996 Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic. Cambridge: Cambridge University Press.

Fisher, William
1997 Doing Good? The Politics and Antipolitics of NGO Practices. Annual Review of Anthropology 26:439-64.

Folke, Carl and Fikret Berkes
1995 Mechanisms that Link Property Rights to Ecological Systems. *In* Property Rights and the Environment. S. Hanna and M. Munashinghe, ed. Washington, DC: Beijer International Institute of Ecological Economics and Work Bank.

Foster, D., F. Swanson, J. Aber, I. Burke, N. Brokaw, D. Tilman and A. Knapp
2003 The Importance of Land-Use Legacies to Ecology and Conservation. Bioscience 53(1):77-88.

Gadgil, Madhav and Ramachandra Guha
1992 This Fissured Land: An Ecological History of India. London: Routledge.

Garber, B. and P. Jenden
1993 Anthropologists or Anthropology? The Band Aid Perspective on Development Projects. *In* Practicing Development: Social Science Perspectives. J. Pottier, ed. Pp. 50-70. London: Routledge.

Gergen, K. J. and Gergen, M. M.
1991 Toward Reflexive Methodologies. *In* Research and Reflexivity F. Steier, ed. Pp. 76-95. London: Sage.

Geertz, Clifford
2001 Available Light: Anthropological Reflections on Philosophical Topics. Princeton: Princeton University Press.

Geertz, Clifford
1988 Works and Lives: The Anthropologist as Author. Stanford: Stanford University Press.

Geertz, Clifford
1963 Agricultural Involution: The Process of Ecological Change in Indonesia. Berkeley: University of California Press.

Gibbons, Michael, Camille Limoges, Helga Nowotny, Simon Schwartzman, Peter Scott, and Martin Trow
1994 The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies. London: Sage Publications.

Gibson, Clark C., Elinor Ostrom, and Margaret McKean
2000 Forests, People, and Governance: Some Initial Theoretical Lessons. People and Forests; Communities, Institutions, and Governance. Clark Gibson, Margaret McKean, and Elinor Ostrom, eds. Pp. 227-242. Cambridge: MIT Press.

Gladwin, Christina
1989 Indigenous Knowledge Systems, the Cognitive Revolution, and Agricultural Decision-Making. Agriculture and Human Values (Summer): 32-41.

Glover, Ian C. and Charles F. W. Higham
1996 New Evidence for Early Rice Cultivation in South, Southeast and East Asia. *In* The Origins and Spread of Agriculture and Pastoralism in Eurasia. David R. Harris, ed. Pp.413-439. London: University College London Press.

Gomez-Pompa, Arturo and Andrea Kaus
1992 Taming the Wilderness Myth. BioScience 42(4):271-279.

Goodwin, Philip
1998 'Hired Hands' or 'Local Voice': Understandings and Experience of Local Participation in Conservation. Transactions of the Institute of British Geographers, New Series 23(4): 481-499.

Gray, Matthew Adam
2008 The Traditional Wilderness Conception, Postmodern Cultural Constructionism and the Importance of Physical Environments. Unpublished MA, Department of Philosophy, University of Montana.

Greenberg, James and Thomas Park
1994 Political Ecology. Journal of Political Ecology 1(1):1-12.

Greider, Thomas and Lorraine Garkovich
1994 Landscapes: The Social Construction of Nature and the Environment. Rural Sociology 59(1):1-24.

Grossman, Lawrence S.
1993 The Political Ecology of Banana Exports and Local Food Production in St. Vincent, Eastern Caribbean. Annals of the Association of American Geographers 83(2): 347-367.

Guha, Ramachandra
1989 Radical American Environmentalism and Wilderness Preservation: A Third World Critique. Environmental Ethics 11(1):71-83.

Gupta, Anil K.
1995 Blurred Boundaries: The Discourses of Corruption, the Culture of Politics and the Imagined State. American Ethnologist 22(2):375-402.

Guyer, Jane and Paul Richards
1996 The Invention of Biodiversity: Social Perspectives on the Management of Biological Diversity in Africa. Africa: Journal of the International African Institute 66(1): The Social Shaping of Biodiversity: Perspectives on the Management of Biological Diversity in Africa: 1-13.

Hall, Kenneth R.
1985 Maritime Trade and State Development in Early Southeast Asia. Sydney: George Allen and Unwin.

Harrisson, Tom
1970 The Prehistory of Borneo I*n* Prehistoric Indonesia: A Reader. Van de Velde, Pieter, ed. Dordrecht, Holland: Foris Publications.

Harrisson, Tom and Penghulu Balang Siran
1959 World Within: A Borneo Story. Singapore: Oxford University Press.

Hecht, Susanna and Alexander Cockburn
1990 The Fate of the Forest: Developers, Destroyers and Defenders of the Amazon. New York: Harper Collins Publishers.

Higham, Charles
1996 The Bronze Age of Southeast Asia. Cambridge: Cambridge University Press.

Hill, Carole E.
2000 Strategic Issues for Rebuilding A Theory And Practice Synthesis. *In* The Unity of Theory and Practice in Anthropology. Carole E. Hill and Marietta L. Baba, eds. Pp. 1-16. Napa Bulletin 18. Washington, D.C: American Anthropological Association.

Hirsch, Philip and Carol Warren
1998 Introduction: Through the Environmental Looking Glass: The Politics of Resources and Resistance in Southeast Asia. *In* The Politics of Environment in Southeast Asia: Resources and Resistance. Philip Hirsch and Carol Warren, eds. Pp. 1-25. London: Routledge.

Hirt, Paul
1989 The Transformation of a Landscape: Culture and Ecology in Southeastern Arizona. Environmental Review 13(3-4):167-189.

Hoare, Alison L.
2001 Cooking the Wild: The Role of the Lundayeh of the Ulu Padas (Sabah, Malaysia) in Managing Forest Foods and Shaping the Landscape. Ph.D. dissertation, Department of Anthropology, University of Kent at Canterbury.

Hong, Evelyn
1987 Natives of Sarawak: Survival in Borneo's Vanishing Forest. Pulau Pinang: Institut Masyarakat.

Horowitz, Leah Sophie
1998 Integrating Indigenous Resource Management with Wildlife Conservation: A Case Study of Batang Ai National Park, Sarawak, Malaysia. Human Ecology 26(3):371-403.

Horta, Korinna
2000 Rainforest: Biodiversity Conservation and the Political Economy of International Financial Institutions. *In* Political Ecology; Science, Myth, and Power. Philip Stott and Sian Sullivan, eds. Pp. 179-202. New York: Oxford University Press.

Hutterer, Karl L.
1983 The Natural and Cultural History of Southeast Asian Agriculture: Ecological and Evolutionary Considerations. Anthropos 78:169-212.

Hymes, Dell, ed.
1969 Reinventing Anthropology. New York: Pantheon Books.

IDEAL
1999 *Tanah Pengidup Kitai*: Our Land is Our Livelihood. Sibu: IDEAL Time Sdn. Bhd.

Igoe, Jim
2002 Conservation and Globalization: A Study of National Parks and Indigenous Communities from East Africa to South Dakota. Wadsworth Publishing.

International Tropical Timber Organization (ITTO) and Government of Malaysia
2003 Transboundary Biodiversity and Conservation: The Pulong Tau National Park, Sarawak State, Malaysia. ITTO Project Document, Serial number PD 224/03 Rev. 1 (F).

International Tropical Timber Organization (ITTO) and Government of Malaysia
2007 Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia – Phase II. ITTO Project Document, Serial number PD 451/07 Rev. 1 (F).

Janowski, Monica
1995 The Hearth-Group, the Conjugal Couple and the Symbolism of the Rice Meal among the Kelabit of Sarawak. *In* About the House: Lévi-Strauss and Beyond. Pp. 84- 104. Janet Carsten and Stephen Hugh-Jones, eds. Cambridge: Cambridge University Press.

Janowski, Monica
1988 The Motivating Forces behind Recent Changes in the Wet Rice Agricultural System in the Kelabit Highlands. Sarawak Gazette 114(1504):9-21.

Jepson, Paul and Robert Whittaker
2002 Ecoregions in Context: A Critique with Special Reference to Indonesia. Conservation Biology 16(1):42-57.

Johnson, Allen
1974 Ethnoecology and Planting Practices in a Swidden Agricultural System. American Ethnologist 1(1):87-102.

Kartodirdjo, Sartono
1984 Modern Indonesia Tradition and Transformation: A Socio-Historical Perspective. Yogyakarta: Gadjah Mada University Press.

Kaur, Amarjit
1998a A History of Forestry in Sarawak. Modern Asian Studies 32:117-147.

Kaur, Amarjit
1998b Economic Change in East Malaysia: Sabah and Sarawak since 1850. New York: St. Martin's Press.

Keesing, Roger M.
1990 Development Planning: An Anthropological Perspective. *In* The Human Dimension of Development: Perspectives from Anthropology. M. H. Mathur, ed. New Delhi: Ashok Kumar Mittal Concept Publishing Company.

King, Victor T.
1993a *Politik Pembangunan*: The Political Economy of Rainforest Exploitation and Development in Sarawak, East Malaysia. Global Ecology and Biogeography Letters 3(4/6):235-244.

King, Victor T.
1993b The Peoples of Borneo. Oxford: Blackwell Publishers.

King, Victor T.
1988 Models and Realities: National Planning and East Malaysian Development Problems. Modern Asian Studies 22(2):263-298.

Knapen, Hans
2001 Forests of Fortune: The Environmental History of South East Borneo, 1600-1880. Leiden, Netherlands: KITLV Press.

Langub, Jayl
1987 Ethnic Self-labeling of the Murut or Lun Bawang of Sarawak. Sojourn 2(2):289-99.

Lassiter, Luke Eric
2005 Collaborative Ethnography and Public Anthropology. Current Anthropology 46(1):83-106.

Lassiter, Luke Eric
2004a Introduction: The Story of a Collaborative Project. *In* The Other Side of Middletown: Exploring Muncie's African American Community. Luke Eric Lassiter, Hurley Goodall, Elizabeth Campbell, And Michelle Natasya Johnson, eds. Pp. 1-24. Walnut Creek: Altamira Press.

Lassiter, Luke Eric
2004b Collaborative Ethnography. Anthronotes 25(1):1-9.

Lassiter, Luke Eric
2002 Kiowa: On Song and Memory. *In* Social Memory and History: Anthropological Perspectives. Jacob J. Climo and Maria G. Cattell, eds. Pp. 131-141. Walnut Creek: Altamira Press.

Lassiter, Luke Eric
2001 From "Reading over the Shoulders of Natives" to "Reading Alongside Natives," Literally: Toward a Collaborative and Reciprocal Ethnography. Journal of Anthropological Research 57:137-49.

Lassiter, Luke Eric
2000 Authoritative Texts, Collaborative Ethnography, and Native American Studies. American Indian Quarterly 24:601-14.

Lassiter, Luke Eric
1999 We Keep What We Have By Giving It Away. Anthropology News 40(1):3, 7.

Lassiter, Luke Eric
1998 Introduction. *In* The Power of Kiowa Song: A Collaborative Ethnography, Pp. 3-14. Tucson: University Of Arizona Press.

Leach, Melissa and James Fairhead
2000 Challenging Neo-Malthusian Deforestation Analyses in West Africa's Dynamic Forest Landscapes. Population and Development Review 26(1):17-43.

Leach, Edmund
1954 Political Systems of Highland Burma. Cambridge: Harvard University Press.

Li, Tania M.
1999 Marginality, Power and Production: Analyzing Upland Transformations. *In* Transforming the Indonesian Uplands. Tania M. Li, ed. Pp. 1-44. Amsterdam: Harwood Academic Publishers.

Lizarralde, Manuel
2004 Indigenous Knowledge and Conservation of the Rain Forest: Ethnobotany of the Bari of Venezuela. *In* Ethnobotany and the Conservation of Biocultural Diversity. Advances in Economic Botany, Volume 15. Pp. 113-132. Bronx: New York Botanical Garden Press.

Long, N. and A. Long, eds.
1992 Battlefields of Knowledge: The Interlocking of Theory and Practice in Social Research and Development. London: Routledge.

Lynch, Owen J. and Janis B. Alcorn
1994 Tenurial Rights and Community-Based Conservation. *In N*atural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Washington, D.C.: Island Press.

MacDonald, Malcolm
1956 Borneo People. London: Jonathon Cape Limited.

Maclean, Kirsten
2009 Re-Conceptualizing Desert Landscapes: Unpacking Historical Narratives and Contemporary Realities for Sustainable Livelihood Development in Central Australia. GeoJournal 74(5):451-463.

Maffi, Luisa
2005 Maintaining and Restoring Biocultural Diversity: The Evolution of a Role for Ethnobiology. *In* Ethnobotany and the Conservation of Biocultural Diversity. Advances in Economic Botany, Volume 15. Pp. 9-36. Bronx: New York Botanical Garden Press.

Marcus, George E. and Michael M. J. Fischer.
1986 Anthropology as Cultural Critique: An Experimental Moment in the Human Sciences. Chicago: University Of Chicago Press.

Marcus, George E.
1998 Ethnography Through Thick and Thin. Princeton: Princeton University Press.

Marcus, George E., ed.
1999 Critical Anthropology Now: Unexpected Contexts, Shifting Constituencies, Changing Agendas. Santa Fe: School Of American Research Press.

Marjokorpi, Antti and Kalle Ruokolainen
2003 The Role of Traditional Forest Gardens in the Conservation of Tree Species in West Kalimantan, Indonesia. Biodiversity and Conservation 12:799-822.

Martin, Karen L.
2003 Ways of Knowing, Ways of Being and Ways of Doing: A Theoretical Framework and Methods for Indigenous Re-Search and Indigenist Research. Journal of Australian Studies 76:203-214.

Martínez Alier, Juan
1995 Political Ecology, Distributional Conflicts, and Ecological Incommensurability. New Left Review 211:70-88.

Mathews, Andrew S.
2008 State Making, Knowledge, and Ignorance: Translation and Concealment in Mexican Forestry Institutions. American Anthropologist 110(4):484-494.

McCarthy, John F. and Robert A. Cramb
2009 Policy Narratives, Landholder Engagement, and Oil Palm Expansion on the Malaysian and Indonesian Frontiers. The Geographical Journal 175(2):112-123.

McCay, Bonnie and S. Jentoft
1987 The Question of the Commons: The Culture and Ecology of Communal Resources. Tucson: University of Arizona Press.

Michon, Geneviève and Hubert de Foresta
1995 The Indonesian Agroforest Model. *In* Conserving Biodiversity Outside Protected Areas. P. Halliday and D. A. Gilmour, eds. Pp. 90–106. World Conservation Union, Gland, Switzerland.

Michon, Geneviève, Hubert de Foresta, Kusoro, and Patrice Levang
2000 The Damar Agroforests of Krui, Indonesia: Justice for Forest Farmers. *In* People, Plants, and Justice. Charles Zerner, ed. Pp. 159-203. New York: Columbia University Press.

Moock, J. L. and Robert E. Rhoades, eds
1992 Diversity, Farmer Knowledge, and Sustainability. Ithaca: Cornell University Press.

Moore, Donald S.
1996 Marxism, Culture, and Political Ecology. *In* Liberation Ecologies. Richard and Michael Watts, eds. Pp. 125-147. London: Routledge.

Moore, Henrietta L.
1996 The Changing Nature of Anthropological Knowledge: An Introduction. *In* The Future of Anthropological Knowledge. Henrietta L. Moore, ed. Pp. 1-15. London: Routledge.

Murphree, Marshall W.
1994 The Role of Institutions in Community-Based Conservation. *In* Natural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Pp. 403-427. Washington, D.C.: Island Press.

Nader, Laura, ed.
1996 Anthropological Inquiries into Boundaries, Power, and Knowledge. New York: Routledge.

Nazarea, Virginia
1998 Cultural Memory and Biodiversity. Tucson: University of Arizona Press.

Netting, Robert
1993 Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture. Stanford: Stanford University Press.

Neumann, Roderick P.
1992 Political Ecology of Wildlife Conservation in The Mt. Meru Area of Northeast Tanzania. Land Degradation and Rehabilitation 3:85-98.

Nicolaisen, Ida
1997 Timber, Culture, and Ethnicity: The Concept of Power and the Politicization of Ethnic Identity among the Punan Bah of Sarawak. *In* Indigenous Peoples and the State: Politics, Land and Ethnicity in the Malayan Peninsula and Borneo. Robert L. Winzeler, ed. Pp. 228-260. New Haven, CI: Yale University Southeast Asian Studies.

Noss, Reed
2002 Context Matters: Considerations for Large-Scale Conservation. Conservation in Practice 3(3):10-19.

Nyerges, Endre
1996 Ethnography in the Reconstruction of African Land Use Histories: A Sierra Leone Example, Africa: Journal of the International African Institute, 66(1): 122-144.

Oelschlager, Max
1991 The Idea of Wilderness: From Prehistory to the Age of Ecology, New Haven: Yale University Press.

Oelschlager, Max, ed.
1992 The Wilderness Condition: Essays on Environment and Civilization. Washington, D.C.: Island Press.

Ooi, Keat Gin
1997 Of Free Trade and Native Interests: The Brookes and the Economic Development of Sarawak, 1841-1941. Oxford: Oxford University Press.

O'Neill, John
2001 Representing People, Representing Nature, Representing the World. Environment and Planning C: Government and Policy 19: 483-500.

Ong, Aihwa
1987 Spirits of Resistance and capitalist Discipline: Factory Women in Malaysia. Albany: State University of New York Press.

Orlove, Benjamin S.
1991 Mapping Reeds and Reading Maps: The Politics of Representation in Lake Titicaca. American Ethnologist 18(1):3-38.

Padoch, Christine, E. Harwell, and A. Susanto
1998 Swidden, Sawah, and In-Between: Agricultural Transformation in Borneo. Human Ecology 26:3-20.

Peacock, James L.
1997 The Future of Anthropology. American Anthropologist. 99:9-29.

Peacock, James L.
1986 The Anthropological Lens: Harsh Light, Soft Focus. Cambridge: Cambridge University Press.

Pelling, Mark
2003 Toward a Political Ecology of Urban Environmental Risk: The Case of Guyana. *In* Political Ecology: An Integrated Approach to Geography and Environment-Development Studies. Zimmerer, Karl and Thomas Bassett, eds. Pp. 73-93. New York: The Guilford Press.

Pels, Peter
1997 The Anthropology of Colonialism: Culture, History and the Emergence of Western Governmentality. Annual Review of Anthropology 26:163-183.

Peluso, Nancy Lee
1996 Fruit Trees and Family Trees in an Anthropogenic Forest: Ethics of Access, Property Zones, and Environmental Change in Indonesia. Comparative Studies in Society and History 38:510-547.

Peluso, Nancy Lee
1995 Whose Woods Are These? Counter-Mapping Forest Territories in Kalimantan, Indonesia. Antipode 27(4): 383-406.

Peluso, Nancy Lee
1994 Rich Forests, Poor People: Resource Control and Resistance in Java. Berkeley: University of California Press.

Peluso, Nancy Lee
1992 The Political Ecology of Extraction and Extractive Reserves in East Kalimantan, Indonesia. Development and Change 23(4):49-74.

Peluso, Nancy Lee and Christine Padoch
1996 Changing Resource Rights in Managed Forests of West Kalimantan. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, editors. Pp. 121-136. Kuala Lampur: Oxford University Press.

Pemberton, John
1994 On the Subject of Java. Ithaca: Cornell University Press.

Peña, Devon G.
1999 Cultural Landscapes and Biodiversity: The Ethnoecology of an Upper Rio Grande Watershed Commons. *In* Ethnoecology: Situated Knowledge/ Located Lives. Virginia Nazarea, ed. Pp. 107-132. Tucson: University of Arizona Press.

Peters, Pauline
1996 Who's Local Here? The Politics of Participation in Development. Cultural Survival Quarterly 20(3):22-25.

Pickerill, Jenny
2008 From Wilderness to WildCountry: The Power of Language in Environmental Campaigns in Australia. Environmental Politics 17(1):95-104.

Pimbert, Michele and J. Pretty
1997 Parks, People and Professionals: Putting 'Participation' into Protected Area Management. *In* Social Change and Conservation: Environmental Politics and Impacts of National Parks and Protected Areas. K. Ghimire & M. Pimbert, eds. London: Earthscan.

Poffenberger, Mark
1990 The Evolution of Forest Management Systems in Southeast Asia. *In* Keepers of the Forest. Mark Poffenberger, ed. Pp. 7-26. West Hartford: Kumarian Press.

Potter, Leslie
1991 Environmental and Social Aspects of Timber Exploitation in Kalimantan, 1967-1989. *In* Indonesia: Resources, Ecology, and Environment. Joan Hardjono, ed. Oxford: Oxford University Press.

Potter, Leslie
1996 Forest Degradation, Deforestation, and Reforestation in Kalimantan: Towards a Sustainable Land Use. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, eds. Pp. 13-40. Kuala Lumpur: Oxford University Press.

Pottier, Johan
1997 Towards an Ethnography of Participatory Appraisal and Research. *In* Discourses of Development: Anthropological Perspectives. Pp. 203-228. Oxford: Berg Publishers.

Primack, Richard B.
1991 Species Diversity Research in Bornean Forests with Implications for Conservation Biology and Silviculture. Tropics 1(2-3):91-111.

Primack, Richard B. and Pamela Hall
1992 Biodiversity and Forest Change in Malaysian Borneo. Bioscience 42(11):1-13.

Pringle, Robert
1970 Rajahs and Rebels: The Ibans of Sarawak under Brooke Rule, 1841-1941. Ithaca: Cornell University Press.

Proctor, James and Stephanie Pincetl
1996 Nature and the Reproduction of Endangered Space: The Spotted Owl in the Pacific Northwest and southern California. Environment and Planning D: Society and Space 14: 683-708.

Purcell, Trevor
1998 Indigenous Knowledge and Applied Anthropology: Questions of Definition and Direction. Human Organization 57(3):258-272.

Putz, Grancis E., Kent H. Redford, John G. Robinson, Robert Fimbel, and Geoffrey M. Blate
2000 Biodiversity Conservation in the Context of Tropical Forest Management. Environment Department Paper no. 75. Washington, D.C.: World Bank.

Raffles, Hugh
1999 Exploring the Anthropogenic Amazon: Estuarine Landscape Transformations in Ampa, Brazil. *In* Varzea: Diversity, Development and Conservation of Amazonia's Whitewater Floodplains. Christine Padoch, ed. Pp. 355-370, Bronx: New York Botanical Garden Press.

Rambo, A. Terry and Percy E. Sajise, eds.
1984 An Introduction to Human Ecology Research on Agricultural Systems in Southeast Asia. Laguna, Philippines: East West Environment and Policy Institute and University of Philippines at Los Baños.

Redford, Kent, Peter Coppolillo, Eric W. Sanderson, Gustavo A. B. Da Fonseca, Eric Dinerstein, Craig Groves, Georgina Mace, Stewart Maginnis, Russell A. Mittermeier, Reed Noss, David Olson, John G. Robinson, Amy Vedder, and Michael Wright
2003 Mapping the Conservation Landscape. Conservation Biology 17(1): 116-131.

Redford, Kent & B. Richter
1999 Conservation of Biodiversity in a World of Use. Conservation Biology 13(6):1246-1256.

Redford, Kent and Allyn Maclean Stearman
1993 Forest-Dwelling Native Amazonians and the Conservation of Biodiversity: Interests in Common or in Conflict? Conservation Biology 7(2):248-255.

Reid, Anthony
1990 An "Age of Commerce" in Southeast Asian History. Modern Asian Studies 24:1-30.

Riswan, Soedarsono and Lies Hartanti
1995 Human Impacts on Tropical Forest Dynamics. Vegetatio 121:41-52.

Robbins, Paul
2004 Political Ecology: A Critical Introduction. London: Blackwell.

Roosevelt, A.
1989 Resource Management in Amazonia Before the Conquest: Beyond Ethnographic Projection. *In* Resource Management in Amazonia: Indigenous and Folk Strategies. D. Posey and William Baleé, eds. Bronx: New York Botanical Gardens.

Rosaldo, Renato, ed.
2003 Cultural Citizenship in Island Southeast Asia: Nation and Belonging in the Hinterlands. Berkeley: University of California Press.

Rosaldo, Renato
1989 Culture and Truth: The Remaking of Social Analysis. Boston: Beacon Press.

Rosaldo, Renato
1980 Ilongot Headhunting, 1883-1974: A Study in Society and History. Stanford: Stanford University Press.

Roseberry, William
1988 Political Economy. Annual Review of Anthropology 17:161-185.

Roseman, Marina
1996 Singers of the Landscape: Song, History, and Property Rights in the Malaysian Rain Forest. American Anthropologist 100(1):106-21.

Rousseau, Jérôme
1990 Central Borneo: Ethnic Identity and Social Life in a Stratified Society. Oxford: Clarendon Press.

Rubenstein, Steven L. and Kathleen S. Fine-Dare
2009 The Lizard's Dream. *In* Border Crossings: Transnational Americanist Anthropology. Kathleen S. Fine-Dare and Steven L. Rubenstein, eds. Pp. 289-330. Lincoln: University of Nebraska Press.

Rudel, Timothy K.
1995 When Do Property Rights Matter: Open Access, Informal Social Controls, and Deforestation in the Ecuadorian Amazon. Human Organization 54(2):187-194.

Russell, Diane and Camilla Harshbarger
2003 Groundwork for Community-Based Conservation: Strategies for Social Research. Walnut Creek: Altamira Press.

Saging, Robert Lian
1979 An Ethno-History of the Kelabit Tribe in Sarawak: A Brief Look at the Kelabit Tribe Before World War II and After. Borneo Research Bulletin 2(1):14-19.

Saging, Robert Lian
1976/77 An Ethno-History of the Kelabit Tribe in Sarawak: A Brief Look at the Kelabit Tribe Before World War II and After. Unpublished thesis submitted to the Jabatan Sejarah, University of Malaya for Degree in Bachelor of Arts. Kuala Lumpur.

Said, Edward
1978 Orientalism. New York: Vintage Books.

Salafsky, Nicholas
1994 Forest Gardens in the Gunung-Palung Region of West Kalimantan, Indonesia: Defining a Locally-Developed, Market-Oriented Agroforestry System. Agroforestry Systems 28(3): 237-268.

Sheil, Douglas and Anna Lawrence
2004 Tropical Biologists, Local People, and Conservation: New Opportunities for Collaboration. TRENDS in Ecology and Evolution.

Schlager, Edella and Elinor Ostrom
1992 Property Rights Regimes and Natural Resources: A Conceptual Analysis. Land Economics 68(3):249-262.

Schmink, Marianne and Charles Wood
1987 The Political Ecology of Amazonia. *In* Lands at Risk in the Third World. Peter Little and Michael Horowitz, eds. Pp. 38-57. Boulder: Westview Press.

Schwartzman, Stephen, Daniel Nepstad and Adriana Moreira
2000 Arguing Tropical Forest Conservation: People Versus Parks. Conservation Biology 14(5):1270-1374.

Scott, James C.
1998 Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed. New Haven: Yale University Press.

Scott, James C.
1987 Weapons of the Weak: Everyday Forms of Peasant Resistance. New Haven: Yale University Press.

Scott, James C. and Benedict Tria Kerkvliet
1986 Everyday Forms of Peasant Resistance in Southeast Asia. London: Frank Cass Press.

Sellato, Bernard
1994 Nomads of the Borneo Rainforest: The Economics, Politics, and Ideology of Settling Down. Honolulu, University of Hawaii Press.

Shaffer, Lynda Norene
1996 Maritime Southeast Asia to 1500. Armonk, NY: M.E. Sharpe, Inc.

Sheridan, Thomas E.
1988 Where the Dove Calls: The Political Ecology of a Peasant Corporate Community in Northwestern Mexico. Tucson: University of Arizona Press.

Shiva, Vandana
1991 Ecology and the Politics of Survival: Conflicts over Natural Resources in India. London: Sage Publications.

Sillitoe, Paul
1998 The Development of Indigenous Knowledge: A New Applied Anthropology. Current Anthropology 39(2):223-252.

Slater, Candace
1995 Amazonia as Edenic Narrative. *In* Uncommon Ground: Toward Reinventing Nature. William Cronon, ed. Pp. 114-131. New York: W.W. Norton & Co.

Singer, Merrill
2000 Why I Am Not a Public Anthropologist. Anthropology News 41(6):6-7.

Sletto, Bjørn Ingmunn
2009 'We Drew What We Imagined': Participatory Mapping, Performance, and the Arts of Landscape Making. Current Anthropology 50(4):443-476.

Sletto, Bjørn
2008 The Knowledge that Counts: Institutional Identities, Policy Science, and the Conflict over Fire Management in the Gran Sabana, Venezuela. World Development 36(10):1938-1955.

Smith, Linda Tuhiwai
1999 Decolonizing Methodologies: Research and Indigenous Peoples. New York: Zed Books.

Soong, Kua Kia, ed.
2001 People Before Profits: The Rights of Malaysian Communities in Development. Selangor: Strategic Info Research Development (SIRD) and Suara Rakyat Malaysia (SUARAM).

Soulé, Michael and Gary Lease, eds.
1995 Reinventing Nature? Responses to Postmodern Deconstruction. Washington, D.C.: Island Press.

Soulé, Michael and John Terborgh
1999 The Policy and Science of Regional Conservation. *In* Continental Conservation: Scientific Foundations of Regional Reserve Networks. Michael Soulé and John Terborgh, eds. Washington, D.C.: Island Press.

Southwell, Hudson C.
1999 Uncharted Waters. Calgary: Astana Publishing.

Spencer, J. E.
1966 Shifting Cultivation in Southeastern Asia. Berkeley: University of California Press.

Stocking, George W., ed.
1983 Observers Observed: Essays on Ethnographic Fieldwork. Madison: University of Wisconsin Press.

Stewart, Mart A.
1998 Environmental History: Profile of a Developing Field. The History Teacher 31(3):351-368.

Stoler, Ann
1985 Capitalism and Confrontation in Sumatra's Plantation Belt, 1870-1979. New Haven: Yale University Press.

Stull, Donald D. and Jean J. Schensul, eds.
1987 Collaborative Research and Social Change: Applied Anthropology in Action. Hartford: The Institute for Community Research.

Talib, Naimah S.
1999 Administrators and Their Service: The Sarawak Administrative Service under the Brooke Rajahs and British Colonial Rule. New York: Oxford University Press.

Talla, Yahya
1978 The Kelabit of the Kelabit Highlands, Sarawak Report No. 9. Clifford Sather, ed. Pulau Pinang: Universiti Sains Malaysia.

Tan, Chee-Bing
1997 Indigenous People, the State and Ethnogenesis: A Study of the Communal Associations of the 'Dayak' Communities in Sarawak, Malaysia. Journal of Southeast Asian Studies (28)2.

Tan, Gabriel
2008 Indonesian Confrontation and Sarawak Communist Insurgency 1963-1966: Experiences of a Local Reporter. Kuching: Penerbitan Sehati Sdn. Bhd.

Tê-K'un, Chêng
1969 Archaeology in Sarawak. Cambridge: University of Toronto Press.

Terborgh, John
1999 Requiem for Nature. Washington, D.C.: Island Press.

Tyler, Stephen A.
1987 The Unspeakable: Discourse, Dialogue, and Rhetoric in the Postmodern World. Madison: University Of Wisconsin Press.

Tsing, Anna L.
1993 In the Realm of the Diamond Queen. Princeton: Princeton University Press.

Turton, Andrew
1989 Local Powers and Rural Differentiation. *In* Agrarian Transformations: Local Processes and the State in Southeast Asia. Gary Hart, Andrew Turton, and B. White, eds. Pp. 70-97. Berkeley, CA: University of California Press.

Vayda, Andrew P. and Brad B. Walters
1999 Against Political Ecology. Human Ecology 27(1):167-179.

Vermeylen, Saskla
2009 The Struggle for Indigenous Peoples' Land Rights: The Case of Namibia. *In* Indigenous Peoples, Consent and Benefit Sharing: Lessons from the San-Hoodia Case. Rachel Wynberg, Doris Schroeder, and Roger Chennells, eds. Pp. 143-162. New York: Springer.

Wainwright, Joel and Joe Bryan
2009 Cartography, Territory, Property: Postcolonial Reflections on Indigenous Counter-Mapping in Nicaragua and Belize. Cultural Geographies 16:153-178.

Walker, J. H.
2002 Power and Prowess: The Origins of Brooke Kingship in Sarawak. Honolulu: University of Hawai'i Press.

Westbrook, David A.
2008 Navigators of the Contemporary: Why Ethnography Matters. Chicago: University of Chicago Press.

Western, David and R. Michael Wright
1994 The Background to Community-based Conservation. *In* Natural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Washington, D.C.: Island Press.

Whitehead, Neil
1998 Ecological History and Historical Ecology: Diachronic Modeling versus Historical Explanation. *In* Advances in Historical Ecology. William Balée, ed. New York: Columbia University Press.

Whitmore, John K.
1977 The Opening of Southeast Asia: Trading Patterns through the Centuries. *In* Economic Exchange and Social Interaction in Southeast Asia: Perspectives from Prehistory, History, and Ethnography. Karl L. Hutterer, ed. Pp. 139-153. Ann Arbor: University of Michigan.

Wilshusen, Peter, Steven Brechin, Crystal Fortwangler, and Patrick West
2002 Reinventing a Square Wheel: Critique of a Resurgent "Protection Paradigm" in International Biodiversity Conservation. Society and Natural Resources 15(1):17-40.

Winichakul, Thongchai
1994 Siam Mapped. Honolulu: University of Hawaii Press.

Winterhalder, Bruce
1994 Concepts in Historical Ecology: The View from Evolutionary Ecology. *In* Historical Ecology: Cultural Knowledge and Changing Landscapes. Carole Crumley, ed. Pp. 17-41. Santa Fe: School of American Research Press.

Winzeler, Robert L.
1976 Ecology, Culture, and Social Organization and State Formation in Southeast Asia. Current Anthropology 17:623-640.

Wolf, Margery
1992 A Thrice Told Tale: Feminism, Postmodernism and Ethnographic Responsibility. Stanford: Stanford University Press.

Wolmer, William
2004 Tensions and Paradoxes in the Management of Transboundary Protected Areas. Policy Matters 13:137-147.

Woolgar, Steve
1988 Reflexivity is the ethnographer of the text. *In* Knowledge and Reflexivity: New Frontiers in the Sociology of Knowledge. Steve Woolgar, ed. London: Sage Publications.

Worsley, Peter
1970 The End of Anthropology? Transactions of the Sixth World Congress of Sociology 3:121-129.

Wright, S. D., G. Nugent and H.G. Parata
1995 Customary Management of Indigenous Species: A Maori Perspective. New England Journal of Ecology 19(1):83-86.

Younge, Amanda
2002 An Ecoregional Approach to Biodiversity Conservation in the Cape Floral Kingdom, South Africa. *In* Biodiversity, Sustainability and Human Communities: Protecting Beyond the Protected. T. O'Riordan and S. Stoll-Kleemann, eds. Cambridge: Cambridge University Press.

Zent, Stanford
1999 The Quandary of Conserving Ethnoecological Knowledge: A Piara Example. *In* Ethnoecology: Knowledge, Sources, and Rights. Ted L. Gragson and Ben G. Blount, eds. Pp. 90-124. Athens: University of Georgia Press.

Zerner, Charles
1995 Telling Stories about Biodiversity. I*n* Valuing Local Knowledge: Indigenous People and Intellectual Property Rights. Stephen Brush and Doreen Stabinsky, eds. Washington, D.C.: Island Press.

Zimmerer, Karl S. and Thomas J. Bassett
2003 Future Directions in Political Ecology: Nature-Society Fusions and Scales of Interaction. *In* Political Ecology: An Integrated Approach to Geography and Environment-Development Studies. Karl Zimmerer and Thomas Bassett, eds. Pp. 274-296. New York: The Guilford Press.

# CHAPTER 2

# RAIN FOREST IN TRANSITION: CHANGING DYNAMICS OF THE CULTURAL AND PHYSICAL LANDSCAPES OF THE KELABIT HIGHLANDS[1]

[1] Hitchner, S. L. To be submitted to Institute of East Asian Studies, Universiti Sarawak Malaysia.

Introduction

In 1999, six years before I arrived, the only way to communicate with the world beyond the remote Kelabit Highlands in the interior of northeastern Sarawak was by old-fashioned snail mail, passed to the pilots or to Kelabit traveling to the cities by plane, or by a public ham radio in one of the shops. Now Bario, the largest village in and the administrative center of the Kelabit Highlands, is the home base of e-Bario (Gatuman@Bario), an internet telecentre that is run by solar power and the recipient of numerous prestigious awards for the establishment of ICTs[2] in remote places[3] (Bala et al. 2003; Gnaniah et al. 2004; Harris 2001; Songan et al. 2004). Local residents use it to confirm bookings with tourists for their homestays and guiding services, communicate with Kelabit students at overseas universities, access online medical and educational information, read news from around the world, and participate in online social networking systems such as Multiply, MySpace, and Facebook. Seven months ago, to make a telephone call from the village of Bario, it was necessary to stand in line at one of the five public telephones (at any given time, one or two might be working) and, weather permitting, make a call. Now that the Celcom cellular phone tower has arrived (about eleven years late, according to many Bario residents), the Kelabit can chat with family in Kuching or Kuala Lumpur or Australia while riding their motorbikes, or text each other in the cluster of villages in and around Bario to organize the afternoon badminton games. A few years ago, the only way for people or goods to reach the Kelabit Highlands (that didn't involve weeks or months of trekking or dangerous helicopter rides) was by twice-daily 19-seater Twin Otter airplanes; then the logging road reached the southern Kelabit Highlands, which was linked to Bario by river. Just before I left the Kelabit Highlands two months ago (in late July 2009), the road reached Bario,

[2] ICTs: Information and Communication Technologies
[3] Chapter 4 gives a detailed description of the history and accomplishments of the eBario Telecentre.

connecting it directly to the coastal cities and opening up the northern Kelabit Highlands for more efficient timber extraction. These changes in the technological, infrastructural, and ecological landscape of the Kelabit Highlands are affecting daily life in even the most remote areas.

But these changes, though drastic, are only the latest in a long line of developments in the Kelabit Highlands that have affected both the physical landscape and the cultural identity of the Kelabit people. Since written history of the Kelabit Highlands began (the earliest written references to "Kelabit" or "Kalabit" people were in the late 1880s [*Sarawak Gazette* 1887, 1889; Hose 1893, 1894; Roth 1896]), the Kelabit Highlands and the Kelabit people have been in a state of multiple and overlapping transitions. Anthropologist Matthew Amster, who conducted fieldwork in Pa' Ukat, a village situated between Bario and Pa' Lungan, from October 1993 to July 1995, has written extensively on Kelabit ethnic identity, particularly on the role that Christianity has played in shaping modern Kelabit identity (Amster 2008, 1998). Several Kelabit scholars and prominent community members, including Poline Bala, Ramy Bulan, Yahya Talla, Robert Lian Saging, Solomon Bulan, Lillian Bulan-Dorai, Lucy Bulan, and David Labang (Bala 2008, 2007, 2002; R. Bulan 2008, 2003; Bulan and Bulan-Dorai 2004; L. Bulan and Labang 1979; Talla 1979; Saging 1979, 1976/77) have also written about Kelabit ethnic identity from an insider's perspective, and about the ways that historic events have influenced contemporary Kelabit identity and society.

In this chapter, I first describe several of the historic, cultural, religious, economic, political, and social changes that have taken place over roughly the past seventy years that have had the strongest impact on Kelabit life and ethnic identity. Second, I describe changes in the landscape of the Kelabit Highlands, the traditional and self-proclaimed homeland of the Kelabit

people. This section includes discussion of several ways that Kelabit people have actively and intentionally modified the landscape, including alterations to the landscape resulting from several historic events: changes in traditional agriculture systems, wars fought in the Kelabit Highlands (which resulted in the reconfiguration of the villages seen today), the influences of very different types of Western people (colonialists, soldiers, and missionaries), and more recently, the introduction of new technologies and large-scale alteration of the Kelabit landscape by logging activities. Third, discussion of this background information will revolve around the observation that while the Kelabit community has been in a continual state of transition for many years, the scale and pace of landscape change now is unprecedented, as is the level of uncertainty about the future of the Kelabit Highlands. This uncertainty leads to high levels of anxiety (as described well by Amster 2008), and has strong impacts on Kelabit people's perceptions of and connections to the physical landscape.

## The Kelabit Community

### "Traditional" "Kelabit" "Culture"

The Kelabit are a small ethnic group from the interior of Borneo in northeastern Sarawak. They number about 5000 total, though only about 1200 live in the Kelabit Highlands today[4]. The Kelabit are closely related linguistically and culturally to the Lun[5] Bawang, Lun Berian, and Lun Kerayan (Eghenter and Langub 2008; Bala 2002; Yusof 1998; Langub 1987). Bala notes that these groups share a common history but were separated by sociopolitical processes. "For instance," she writes, "oral traditions indicate that the Lun Kelabit, Lun Kerayan and Lun Bawang were one people, but were separated and then labeled with different names for

[4] Bala (2002:51) notes that a 1999 Population Census counted 906 people, but this figure did not include members of several of the southern-most villages; the number of people residing in the area also fluctuates seasonally, as more people leave the area from February to May, when the rice harvest is over and the fields are left to fallow.
[5] *Lun* is short for *lemulun*, meaning "people."

administrative convenience by the colonialists" (Bala 2002:19). Bala (2002:22) explains the distinctions that the Kelabit currently make regarding these terms and these ethnic groups: "It is noteworthy to mention that today the name *Lun Bawang* is used by the people in the Trusan area of Sarawak and the Berian area in East Kalimantan. But officially, the people in the Berian area are classified by the Indonesian government as *Lun Dayeh-Kerayan* (Amster 1998:30). Among the Kelabit, "the people from the Berian area are referred to as *Lun Berian*, and the people from the Kerayan as *Lun Kerayan*, while the people from the Trusan, Ba' Kelalan, Lawas areas as *Lun Bawang*" (Bala 2002:22).

The Kelabit are also included within the larger cultural umbrella of Orang Ulu peoples ("upriver people" or "people from the headwaters"), a designation comprising various ethnic groups found in interior, upland Sarawak such as the Penan, Kayan, Kenyah, Lun Bawang, Tagal, Potok, Berau, Milau, Saban, Kelabit, and the Kerayan people (Bala 2002:16), as well as the Bisaya, various Kajang groups (Sekapan, Lahanan and Punan Bah), Bhuket, Sihan, Seping, and Punan Busang (Tan 1997). Some of the groups within this ethnic category are closely related to one another, but as a whole, Orang Ulu groups are very diverse culturally and linguistically.

It is important to note that before the time of first writings about the people now known as "Kelabit," different villages in what is now known as "the Kelabit Highlands" called themselves by the name of the river to which they were closest and did not see themselves as necessarily related to people living in other nearby villages. Rather, the villages were relatively autonomous. The story goes, as related by Amster (1998), Bala (2002), Saging (1976/77), Omar (1983), and others, that people living near the Pa' Labid River[6] (north of the current village of Long Lellang) came to the Baram District Officer Charles Hose in Marudi in the late 1800s, and

[6] The terms "Pa'" and "Ba'" mean "river" in various indigenous languages in interior Borneo. The names of almost all the villages in the Kelabit Highlands now include the word "Pa'" which is "river" in the Kelabit language, and refers to the river or stream the village is situated on or near.

introduced themselves as the Pa' Labid people; Hose heard "Kelabit" and recorded their name as such. Saging, a Kelabit, says that this story "was related by Galih Balang, who heard it from his grandfather Penghulu Tinggang, one of the first Penghulu of the Kelabit" (Saging 1976/77:5).

Prior to the alleged coining of the term "Kelabit" by Charles Hose, there are mentions in the *Sarawak Gazette* of native groups with similar names. In an entry dated 22 April 1882, Resident Officer Claude C. de Crespigny mentions "Belabits," (*Sarawak Gazette*, 1 June 1882:43), another entry by him in April 1883 mentions the "Belabiets" (*Sarawak Gazette*, 2 April 1883:37); a third by him in 1884 again mentions the "Belabits" (*Sarawak Gazette*, 1 May 1884:45); finally, a fourth by him in 1884 mentions the "Blabits" (*Sarawak Gazette*, 1 September 1884:94). An entry dated 19 March 1882 from H. B. Low's trip up the Rejang River (far south of the Kelabit Highlands) mentions the "Klabits" (*Sarawak Gazette*, 1 August 1882:65). In an 1886 report by Officer in Charge Charles W. Daubeny, there is mention of a murder "in Belabit" (*Sarawak Gazette*, 1 April 1886:60), and later the same year, he updated his report on the murder, this time using the word "Kelabit" referring to the place of the murder (*Sarawak Gazette*, 1 December:194-5). In 1887, Daubeny discusses "the murder done on a Murit chief by Kelabits just lately," marking the earliest use of the current spelling of the word "Kelabit" (*Sarawak Gazette*, 1 March 1887:46). Later in 1887 are several mentions of "the Kelabit country," a phrase often used thereafter to describe the upland homeland of the Kelabit (*Sarawak Gazette*, 12 May 1887:89, 90; 1 August 1887:138). Hose began his career as a colonial administrator in Sarawak in 1884, and in the Baram district report he wrote in May 1889 mentions the "Kalabits" (*Sarawak Gazette* 1 July 1889:103), and it is probable that he heard the term "Kelabit" or a variant of it from an earlier colonial officer.

Amster also discusses another possible origin of the word "Kelabit"; an informant of his "offered an elaborate theory (told to him by his father) of an alternate explanation for the origin of the name. According to this theory, the name was not introduced by the colonial authorities, but rather derived from the Kelabit phrase '*doo' inan ngabit*', which can be glossed as 'good to be indebted' (to one another)." Amster also quotes Carol Rubenstein (1991), who wrote that "according to Museum Assistant Lian Labang, one of the true and little-known origins of the name Kelabit is '*doh inan ngabit*' or '*Ngabit*,' meaning 'people of good quality from whom one may readily borrow' or 'generous in lending'" (144, quoted by Amster 1998:28). '*Ngabit*,' Amster explains, "refers specifically to the debt created between people through the exchange of goods and labor," which "is another way to describe community cohesion and interdependence" (Amster 1998:28).

In any case, colonialists lumped many villages together under the new umbrella term "Kelabit," and eventually the people themselves adopted it. Saging, a Kelabit, describes how the name was imposed on the people, who did not like it because of its similarity to the Kelabit word '*kelabet,'* meaning "gibbon". They accepted it grudgingly because they wanted to be respectful of the government of the Rajah (whose protection they needed from threatening neighbors), and this led unexpectedly to the unity of the people. According to Saging (1976/77:9), "however unorthodox, the name Kelabit has been imposed on the people now known as Kelabit. In fact this very name had played an important role in bringing about Kelabit unity." Saging, Amster, and others describe how the naming of the people by the colonialists was a catalyst for forging a cohesive Kelabit ethnic identity out of the disparate groups. Though usually considered an exonym, Kelabit today have embraced this designation with pride. Amster (1998:30) notes that:

> There appears to be no interest in the Kelabit community in using a name other than Kelabit. The name Kelabit has largely positive associations, perhaps because of the fact that the Kelabit have attained a good reputation as successful, industrious, and a devoutly Christian people. The name also distinguishes them from the much more numerous Lun Bawang.

The Kelabit have strategically used the term "Kelabit" to strengthen their community and reinforce ethnic identity. As noted, there are several good written accounts of this process of "becoming Kelabit," and this chapter will not go into detail about that history. Instead it takes as a starting point the relative cohesiveness of the ethnic identity marker "Kelabit."

Early written accounts of the Kelabit people, which began in the late 1800s and early 1900s (mainly published in the *Sarawak Gazette* in the Baram District reports by colonial District Officers and Residents), reveal much about the lifestyles of the people living in the interior at that time. There are numerous references to inter-tribal warfare and murder, and to forces assembled by the colonial government to punish the warring tribes, including the Kelabit (see Douglas 1912 for a description of a government-led expedition that led to the destruction of 30 Kelabit villages and the killing of over 200 Kelabit). These early colonial accounts also offer many comments on the physical characteristics of the Kelabit. Being tall and muscular, they were often characterized as being physically superior to other native Sarawakian groups. For example, R.S. Douglas, then Resident of the Baram District, wrote in 1912 that "they are fine big strapping men, and the women are very strong" (Douglas 1912:28). Their physical fitness was due in part to especially plentiful food from a variety of sources, including hunting and gathering in the forests and rice cultivation in irrigated fields (Douglas 1912). There are also numerous salt springs in the Kelabit Highlands, which provide abundant salt that naturally contains iodine. This

prevented goiter and led to good health (Banks 1937; Harrisson 1959; Hose 1900), and possession of this salt was also a form of wealth, which served as currency with which the Kelabit could trade for material goods with neighboring groups. Goods traded included practical items like steel blades for making machetes, and also status or prestige items like Chinese porcelain jars used for storage of food and drink, for secondary burials and for collection by elite families, or beads from as far away as Venice (Bala 2002). Though the Kelabit have always been small in number compared to neighboring groups like the Kayan, Kenyah, and Lun Bawang, to whom they are culturally and linguistically related, the combination of their physical and economic power helped cement outsiders' perceptions of Kelabit as strong, innovative, and independent.

Kelabit were also known for active participation in headhunting expeditions, in which they were both aggressors and victims. Some of these expeditions occurred between different Kelabit villages, or often between the Kelabit and the Lun Bawang, a closely related ethnic group now concentrated in what is now Indonesian Kalimantan, just across the border from Malaysian Sarawak and Sabah. Numerous instances of inter-community headhunting expeditions among Kelabit from nearby villages and between Kelabit and Lun Bawang or Murut within a day's walk of each other have been recorded in the *Sarawak Gazette* and by early colonial officers such as R. S. Douglas who went to the "Kelabit country" in 1908 and again in 1911, Limbang Resident D.A. Owen, who went in 1913, District Officer C.D. Adams, who went in 1914[7], Eric Mjöberg, who went in 1925, and others. Some Kelabit and scholars of Borneo history say that the Kelabit people now occupy the highlands because they were originally from lowland areas and were pushed there by other ethnic groups. One of the earliest written

[7] Also in 1914, Sarawak Museum curator J.C. Moulton attempted a scientific exploration of Mount Murud, but had to tun back at the first Kelabit village at the headwaters of the Akar River (Mjöberg 1925:415). Earlier, in 1911, Moulton had traveled up the Limbang River to explore Batu Lawi (Mjöberg 1925:413).

references to the Kelabit states that they formerly inhabited "the country now occupied by the Kayans" and that they "were separated from the low country people and driven out by the Kayans who came back from the Balungan and Koti Rivers some eight generations back" (Hose 1894:157). In 1940, Edward Banks, colonial officer and curator of the Sarawak Museum stated that:

> A third invasion of pagan rice cultivators from the interior fell on the same aboriginal sago eating stock living up-country and in the subcoastal belt, distinctly a warlike invasion involving the destruction of many tribes until the invaders settled down and incorporated or were incorporated by the very people they had overcome. Remains only the Murut of the upper Trusan and the Kelabit of the Baram Rivers, people of the old aboriginal stock who seem to have been chastised by everyone until they drifted off into a sago-less, inaccessible highland which nobody else wanted and where they were left to their own devices comparatively uncontaminated by foreign influence.

In the late 1800s, there are numerous references in the *Sarawak Gazette* of Kelabit traveling to the upriver colonial headquarters and requesting to be "taken under the flag" of the government. These accounts also reveal that at least some Kelabit originally inhabited lowland areas. For example, in the December 1890 edition of the *Sarawak Gazette*, the Baram District Report by Charles Hose (160) stated that:

> On the 19th a party of Kalabits from the interior came down to the Fort, their chiefs being Taman Busan, and Taman Sibut, they express a wish to move into Baram waters, and say that they have not done so before because they were afraid of the Kyans, who are their enemies. They now see that the whole of the Kyans in the Baram are under the Government and they are therefore no longer afraid of being attacked by them. These

> Kalabits formerly inhabited the head water of the Baram, but were driven out by the Kyans. They now wish to return to their own country. I have told them that they will be received provided, they pay the regular door tax two years after they have removed; that they must abide by the laws which regulate the Baram people, and that in course of time a Penghulu will be appointed for them, from one of their own chiefs.

More recently, Asmah Haji Omar discussed the variety of opinions on the original territory of the Kelabit, and the debate over whether they were pushed to the highlands by other tribes or whether they originally occupied the area. Omar writes:

> The Kelabit do not seem to have myths about their origin. This could point to the fact that they have always been in the Kelabit highlands for as long as they can remember. One of their stories that has been handed down relates how their ancestors Yassai and Burene drained a lake (Pa' Rayah) through the Bangkuar mountain, to enable the people to farm the land. This all goes to show that that irrigation and wet-rice cultivation have been a feature of the Kelabit life on the Kelabit plateau and the Bario Valley for a very long time. However, the Kelabit who inhabit the Lower Baram do not seem to practice wet-rice cultivation. There are two possible conclusions on this.
>
> First, the homeland of the Sarawak Kelabit was the Kelabit plateau and from here some of them migrated to Baram. The fact that they did not practice the type of cultivation they were already familiar with could have been due to the topographical features of that area. The second possibility left for conjecture is that the Kelabit were originally in the Baram Valley but were pushed to the Kelabit Plateau by later immigrants, like the Kayan and the Kenyah. Their skill in irrigation and wet-rice cultivation was acquired later when they were already settled on the plateau. This

> hypothesis seems more feasible than the first one, since it is quite hard to imagine that a people already skilled in agriculture do not show any trace of their knowledge in their new surroundings (Omar 1983:543).

Other references put the origins of the Kelabit people in what is now Indonesian Kalimantan (Mjöberg 1925; Douglas 1912). Kelabit scholar Yahya Talla (1979:17-18) provides evidence from Kelabit oral histories, legends and songs "which relate the origin of the Kelabit to the Brunei and Brunut valleys of present-day Brunei." He suggests that some Kelabit "migrated from Brunei up the Limbang River and into the Adang Valley:" then, as a result of the Brunei Malays allowing them to be victimized by the Kayans, some Kelabit migrated to the Leliu Plains, some to the Kayan and Mentarang valleys, some to Sabah and the Trusan valley, and some to the Tinjar and Tutoh Rivers. He also claims that the Kelabit introduced secondary burial rituals using jars and megalith-making activities to some of these areas, but that the "Patah valley was occupied by Kelabit in the past and megalithic monuments may still be seen there" (Talla 1979:18).

But many Kelabit say that they have always occupied the Kelabit Highlands area, even relating stories about how all humans originated in the Kelabit Highlands. Kelabit scholars have collected and analyzed their own oral histories, and the conception of the Kelabit Highlands as the ancestral homeland of the Kelabit people is central. Bulan and Labang (1979:43), for instance, state that "The Kelabits are a small tribe of people inhabiting an isolated highland area of about 1000 sq. miles known as the Kelabit Highlands. From the information gathered from their native legends and epic poems, this tribe appears to have been isolated for the past 500 years from all their neighbouring tribes." Talla (1979:13) notes that "The origin of the Kelabit is a matter of anthropological speculation. The Kelabit themselves believe that they have roamed

the Highlands from time immemorial." Talla (1979:13-15) goes on to present the full Kelabit legend of the Great Flood, in which the Kelabit built the sturdiest rafts and clung to the highest peaks, while the other ethnic groups floated downstream towards the coast; this legend could possibly relate to the story mentioned by Omar (1983). The first colonial administrator to visit the Kelabit[8], Resident R.S. Douglas, noted that: "Also very noticeable was the very small amount of dead wood lying about, as owning to the fact of these Kalabits having lived on this tableland for generations and farming to a large extent by irrigation, nearly the whole of the jungle has been cleared away and fuel therefore is very precious" (report in *Sarawak Gazette* 1 March 1909:53).

Saging (1976/77:89) discusses the various possibilities of Kelabit origin (the Kelabit Highlands, Brunei, lower Baram River area, Kalimantan) and merges them into a final explanation, that:

> The Kelabits first migrated from the Kalimantan side into the Kelabit highlands bringing with them their Kalimantan cultures including the practice of wet padi cultivation and megalithic activities. They settled on the highland plateau for a long time and established themselves there. As they came into contact with Brunei, some of them moved on down to the lowland behind the Brunei Bay. Here they remained until the beginning of the 19th century when the wave of the migrating Kayans, themselves pushed by the Ibans, drove the Kelabits back up hill into the highlands and its fringes once again. This time they resettled with their relations who had stayed in the highlands all along. This return of some Kelabits back into the highlands to join those already there as a result of the Kayan

[8] In 1862, Spenser St. John, an explorer, first mentioned Mount Murud, which lies in the north of the Kelabit Highlands (St. John 1862).

push must have been of little significance to the main Kelabit body. This is why they are intent on their always have [sic] existed on the plateau.

It is likely that historically, Kelabit groups inhabited a much larger area than the Kelabit Highlands, and that there were (and still are) "Kelabit" villages in both upland and lowland areas. Ongoing research in the southern Kelabit Highlands suggests that "there seems every reason to believe that human occupation in the Kelabit Highlands stretches far beyond the Metal Age, the beginning of which in Borneo is commonly dates to between c. 500 BC and AD 0" (Barker et. al. 2008:179). Whether those humans were all people that would now be considered Kelabit is also a source of speculation; it is possible that they were Ngurik (or Ngurek or Murik), a small subgroup of Kenyah (Jalong 1989), though Rousseau says that "the ancestors of the present-day Murik were Kelabitic" and that their language is considered Kayanic (Blust 1974)[9]. What is not contested is that Kelabit now consider the Kelabit Highlands to be their homeland, despite the sometimes conflicting speculations on their origin.

Besides their association with the remote uplands, Kelabit were known as well for their large feasts (*irau*) in which vast quantities of rice wine were drunk, testifying to the surplus of rice produced in their fertile fields, as well as to the communal nature of their longhouse lifestyle (relative to other Orang Ulu longhouses) and their fondness for drinking and social gatherings. These *irau* served several important social functions, including the organization of communal labor for large scale megalithic endeavors and other modifications to the landscape. These practices, which will be described in detail in the next chapter, are a strong marker of Kelabit identity, and these practices reinforce the importance of cultural cohesion, as well as emphasize

[9] Jalong notes that the majority of the Ngurek now reside in Kalimantan, along the Batang Kayan, the Mentarang, and the Upper Mahakam rivers (1989:157). He also says (1989:167) that: "The Ngurek are closely related to the Kelabit and the Saban. Ther are certain similarities with the Kelabit as in the case of the practice of erecting stone monoliths."

the clever innovations of the Kelabit people, and also portray and reinforce the hierarchical nature of the community.

Like the Kayan, Kenyah, Lun Bawang, and other related ethnic groups in central Borneo, the Kelabit practiced an elaborate hierarchical class system (Rousseau 1990; King 1993, 1991, 1985; Whittier 1973), in which leadership generally remained within the bloodlines of the elite. This class system was represented spatially in the layout of families within the longhouse, as the interior rooms or sections were occupied by the higher classes, with the headman's family in the direct center, and the lower class families spread towards the ends with decreasing class status. There were four main categories of class, and the literal translations of these classes do not leave any room for confusion about the order of the hierarchy (though, as several ethnographers note, there is not total agreement on the specific aspects of this hierarchy) (Bala 2002, Janowski 2003). In descending order of rank, these are: "the *Lun Merar* (literally Big People), which includes the *Lun Paran* (Mighty People) and *Lun Doo'* (Good People), *Lun Pupa* (Half People), *Lun Da'at* (Bad People) and *Demulun* (Slaves)" (Bala 2002:47). Lower class families, although they were not leaders, were considered important members of the community, and elites were expected to demonstrate their industriousness and earn the people's respect through hard work. Bulan and Saging (1979:112) note that the *Lun Merar* were responsible for defending the community, acting as mediators with neighboring villages, and sponsoring ritual celebrations.

Recent Changes in the Kelabit Community

In the past hundred years or so, the Kelabit community has experienced many historical events which have had multiple and interwoven impacts on community social, political, and economic structure, values and religious beliefs, and identity, as well as on the physical landscape of the Kelabit Highlands. Several of the more obvious of these include:

1) the shift from the production of the staple food, rice, using swidden techniques and temporary swamp plots to permanent wet rice fields (Janowski 1995, 1988);

2) changes in political power in Sarawak: the hundred-year rule of the Brooke family, British colonialism, and then independence of Malaysia and incorporation of Sarawak into Malaysia (Walker 2002; Talib 1999; Ooi 1997; Pringle 1970);

3) World War II, which led to a resurgence of headhunting in Sarawak and to the first sustained contact of Europeans with the Kelabit;

4) the post-World War II beginnings of education for the Kelabit and the establishment of schools in the Kelabit Highlands (Bala 2002; Saging 1976/77);

5) the spread of Christianity in interior Borneo and the mass conversion of the Kelabit to Christianity (Amster 2003; Bala 2002; Harrisson 1984 [1959]; Southwell 1999);

6) the demarcation of the political boundary between Malaysia and Indonesia, which influenced the travel and marriage patterns between Kelabit in Malaysia and related ethnic groups in Indonesia (Amster 2005; Bala 2002);

7) the subsequent war of Confrontation (*Konfrontasi*) between Malaysia and Indonesia, which was fought in the mid-1960s in the Kelabit Highlands and elsewhere (Tan 2008; Bala 2002; Saging and Bulan 1989);

8) the establishment of Bario as the administrative center of the Kelabit Highlands and subsequent infrastructural developments there;

9) the outmigration of young Kelabit seeking work in the cities outside the Kelabit Highlands, leading to the highly diasporic nature of the community today;

10) the advent of industrial logging in the Kelabit Highlands;

11) the promise or potential for conservation in the Kelabit Highlands; and

12) numerous different proposals for the future of the Kelabit Highlands, leading to confusion and anxiety over the uncertainty of the future of the area.

There are other events which have influenced the Kelabit community, which may or may not fit into any of the categories just named; many, but not all, of these have been documented, mostly by Kelabit writers and scholars. These events and subsequent changes, all of which have had profound impacts on Kelabit culture and self-identification, are complex and interrelated, and it is impossible to discuss any of them in isolation from the others.

Traditionally, Kelabit communities lived in shared longhouses (*ruma' kadang*) along rivers. They grew rice by shifting cultivation methods, both on hillsides and in the fertile areas near the river. They also grew wet rice in areas that were naturally swampy, or they modified areas to be swampy by creating oxbows by straightening the courses of rivers. They would generally farm these areas for a few seasons, and then move the longhouse to another site along the river or along another tributary with fresh land. Often they would later return to an area previously farmed, after it had lain fallow for a few years. Other reasons that communities would move included safety from their enemies, epidemics, destruction of a longhouse by fire or storm, or divisions of families within the longhouse. Saging (1976/77:83-89) provides several accounts that illustrate specific incidents of longhouse resettlements. Most Kelabit longhouses were hardwood structures made of long-lasting planks that were difficult to make, so when the people decided to move, they would often dismantle the longhouse and take it piece by piece to a new site. At each place, unless they knew it was just a temporary site (*lubung*), they would plant fruit trees, from which they would continue to harvest fruit after they moved to a new site. Many of these old sites are evidenced today by the fruit trees that are still alive and bearing fruit; in many

cases, descendents of the original planters of these trees continue to collect the fruit of the longer-lived species like breadfruit (*bua' kiran* and *bua' tarap*) and durian (*bua' bindalah* and *bua' datu'*). These patterns in longhouse migrations left ecological marks in the landscape that are still obvious (in varying degrees) today, most obviously in the form of secondary forests (*amug*) in areas that were farmed and then abandoned, and in modified species composition through the intentional planting of fruit trees.

Historically, the Kelabit have practiced both wet and dry rice cultivation using temporary plots in a "shifting" manner (Janowski 1995:86). Now, they are much more dependent on permanent wet rice fields similar to the *sawah* rice cultivation systems in Java and Bali (Janowski 1995:86). According to oral histories, the Kelabit began practicing wet rice agriculture in permanent plots using techniques learned from people living in what is now Indonesian Kalimantan. These techniques included specific types of irrigation, and the tools needed to create these fields and irrigation systems, and also contributed to the introduction of water buffalo (*kerubau*) to the Kelabit Highlands, which were used mostly to eat the old rice stalks after harvests, till the soil in the harvested padi fields by wallowing in them, and fertilizing the fields with their excrement (buffalo also became incorporated into the Kelabit socio-economic system as symbols of wealth and status, and were slaughtered during *irau* by wealthy Kelabit to feed the guests). Early accounts of Kelabit agriculture in colonial documents and the *Sarawak Gazette* demonstrate that their highly sophisticated systems of irrigation were unique in Sarawak, and resulted in high yields of rice and often surpluses (Douglas 1912; Mjöberg 1925; Hose 1900). Much has been written about the history of rice cultivation in Sarawak (Hansen and Mertz 2006; Wadley and Mertz 2005; Kaur 1998a; Mertz and Christensen 1997; Gover and Higham 1996; Cramb 1993; Sather 1990; Cramb 1985; Padoch 1985; Appell 1971; Freeman 1955), and about

different types of rice cultivation in the Kelabit Highlands (Barton 2009; Kevin et al. 2007; Amster 2003; Bala 2002; Christensen 2002; Janowski 1995, 1988; Padoch 1985; Harrisson 1959). I will not review all that research (and speculation) here, but will note that the shift from dry rice cultivation and temporary wet rice cultivation to more permanent wet rice fields was a gradual process, and in parts of the Kelabit Highlands, a diversification of methods is still practiced. In the southern Kelabit Highlands, around the villages of Pa' Dalih and Ramudu, some families still practice swidden agriculture in areas not suitable for wet rice fields. Other areas of the Kelabit Highlands, such as my focal village of Pa' Lungan in the northern Kelabit Highlands, now rely entirely on permanent wet rice plots.

The general shift to permanent wet rice fields led to the establishment of more permanent villages and thus effectively ended the era of frequent longhouse migrations. This in turn led to increasing territorialization of land between villages and to inter-village agreements on boundaries between villages. These traditional agreements on village boundaries were passed on orally through the generations before the Kelabit became literate, and they are of utmost importance to Kelabit headmen today as they try to obtain legal recognition of these boundaries now (mostly in response to timber compensation agreements between the logging company and the community leaders).

Traditionally, the Kelabit have been relatively politically autonomous and did not feel the effects of outside government policies very strongly until the mid-1900s. This was due in large part to Sarawak's unique colonial history. It was ruled by three generations of the English Brooke family, known collectively as "The White Rajahs," beginning in 1841 when a British adventurer named James Brooke was given land near Kuching by Prince Hassim and his powerful relative, the sultan of Brunei, in exchange for his assistance with indigenous uprisings

against the sultanate and for attacking the pirates that had been terrorizing the northern Borneo coasts (Walker 2002; Talib 1999; Southwell 1999; Ooi 1997; Pringle 1970; MacDonald 1956). James Brooke passed laws requiring free trade, the abolition of slavery, and an equitable tax system, which were remarkable in this context (Southwell 1999; Ooi 1997). Over time, he acquired more and more land from the Brunei sultanate until he passed the territory on to his nephew Charles Brooke in 1868 (who had already been acting as the ruler for many years due to James's ill health). Charles greatly expanded the territory of Sarawak and vastly improved its infrastructure. His son Vyner joined the Sarawak Civil Service in 1897 and was named successor to his father in 1904. Upon Charles's death in 1917, Vyner became the third White Rajah and led Sarawak until 1946[10]. At that time, he ceded it to the British colonial office following WWII, thus ending one hundred years of rule by the Brooke family. The "Brooke Era" was characterized by its policies regarding cessation of violence between local communities and the non-interference of the colonial administrators into the lives and traditions of those local communities (Walker 2002; Talib 1999; Southwell 1999; Ooi 1997; Kaur 1998b; Pringle 1970).

The Brooke-led colonial government did succeed gradually in eliminating headhunting between the native groups (except for occasional incidents afterwards, especially during the Japanese occupation of Borneo during World War II). As mentioned, the Kelabit were traditionally involved in headhunting as both aggressors and victims, and the cessation of headhunting influenced changes in their lifestyle in ways similar to other groups. As a result, other cultural practices became incorporated into the culture as substitutes or symbols of headhunting. Success in other types of endeavors filled the requirements for manhood and respect that headhunting used to fill. At this time, the Kelabit were still "pagans," with such

[10] Borneo was occupied by the Japanese from 1941-1946, so Vyner Brooke essentially ruled until 1941.

practices as secondary burials and other complex mortuary practices[11] such as the construction of megaliths for the deceased, animal sacrifices (oaths and promises were often solidified by the killing of a dog, for example), infanticide (in the case of multiple births, for example), belief in, respect for, and fear in powers and spirits of the forest (*lalud*), and a heavy emphasis on omens, usually demonstrated by specific animal behaviors (such as the direction a bird flies overhead) (Saging and Bulan 1989; Bulan and Labang 1979; Talla 1979). These omens heavily influenced the everyday lives of the Kelabit, determining the timing of hunts, journeys, longhouse migrations, and harvests. While headhunting ceased, these other practices continued.

As mentioned, the colonial administrators did occasionally visit the Kelabit Highlands in the first few decades of the 1900s, and Kelabits did occasionally travel to Marudi to pay taxes and meet the colonial officers. As the Kelabit became more well-known to the colonial government, references to them increased in the government records, and more detailed information about legal cases and other social issues affecting the Kelabit was included in the *Sarawak Gazette* (often amounting to gossip and complicated inter- and intra-family problems that colonial administrators were expected to resolve). But unlike many colonial experiences, in Sarawak, the rule of the Brooke "rajahs" was paternalistic and relatively non-intrusive into most aspects of the lives of its subjects. Many native people greatly appreciated their presence, as they were protected from the heavy taxation of the Brunei sultanate and the headhunting and raids of their neighbors. Charles Hose wrote about the "famous utterance" of James Brooke: "We aim at the development of the native countries through native agency" (quoted by Hose 1900:55). Hose further elucidates the colonial position with regard to the native populations:

[11] Other scholars have written about similar secondary burial practices among other groups in interior Borneo (Schiller 1997; Bernstein 1997; King 1993; Metcalf and Huntington 1991; Bloch and Parry 1982; Metcalf 1987, 1982,1981; Miles 1965; Hertz 1960).

> The various races of Sarawak are for the most part gifted with considerable intelligence, and it did not take them long to discover that the main object of the State's solicitude was not the commercial exploitation of the country or the amassing of colossal revenues, but the preservation and well-being of the people themselves, and that coercion was a dead letter save the disturbers of the general peace and the enemies of the commonwealth. Since that belief was firmly established, native public opinion has always been on the side of the Government, and it is on the moral force of that public opinion that the whole framework of the system rests. So appreciative are the natives generally of the peace and security enjoyed by the Rajah's subjects, that many of the border tribes, and even the tribes definitely beyond the confines of the territory, have from time to time petitioned to be allowed to take up they their abode under his flag.
>
> It is the Government policy – once a respect for law and order is instilled into the native's mind – to interfere with him as little as possible as regards to his (harmless) customs, habits, and beliefs, and no attempt is made to foist Western civilization on a people for whose needs it is utterly unsuited (Hose 1900:55-56).

Even now, among many groups, there is "nostalgia" among many people in Sarawak for the Brookes and the British colonial rulers and their policies of protectionism and general non-interference, though this sentiment is not expressed by Kelabit today. Perhaps this is mainly due to the fact that "the Kelabits in their settlements in the highlands of the Baram headwaters barely had any effective contact with the Brooke administration" (Ooi 1997:242). Bala notes also that "the Highlands of Borneo and its people were mainly invisible in any national or state discourse prior to World War II" (2002:58).

Somewhat reluctantly, due to their tendencies to leave the natives alone as much as possible, the colonialists did finally agree to allow Christian missionaries to come to Sarawak in 1928, though they were not allowed yet to visit the interior of Sarawak (Lees 1979:23). These missionaries were advised to steer clear of the Kelabit and especially the closely related Murut/Lun Bawang, as they were seen as incorrigible drunks, and told that their efforts would be better rewarded somewhere else (Southwell 1999; Lees 1979)[12]. But the Borneo Evangelical Mission (BEM) did persist in their efforts to evangelize the Kelabit and the Murut. The Kelabit at first were resistant to their message, but gradually began inviting preachers, missionaries, and believers to speak to the people to spread the message, especially after several members of the Kelabit community attended Bible classes East Kalimantan, and returned to teach the gospel in the Kelabit Highlands (Bala 2002:50). Many writers, Kelabit and others, have written about the Kelabit experience of conversion to Christianity (Bulan and Bulan-Dorai 2004; Bala 2002; Southwell 1999; Amster 1998; Talla 1979; Bulan and Labang 1979; Saging 1979, 1976; Lees 1979), particularly emphasizing the Revival of 1973 during which "the whole tribe was converted to Christianity" (Bala 2002:50). There are several underlying reasons for such an enthusiastic response. Many Kelabit acknowledge that following the Christian beliefs freed them from the power of the omens to dictate their lives. They also believe that that time the Kelabit were ready to receive the love of Jesus Christ and that their community was a good vehicle for passing that love on to others. This conversion to Christianity had profound effects on Kelabit culture and daily life. In 1976, Robert Lian Saging, a Kelabit, wrote that the conversion to

[12] Hudson Southwell, co-founder of the Borneo Evangelical Mission (BEM), requested permission from the colonial government to work with the tribes in the Trusan-Lawas area, but the District Officers continually refused to grant this permission due to the reputation of the Murut and for fear of the safety of the missionaries. Southwell describes a conversation he had with the Resident of the Fourth and Fifth Divisions, J. B. Archer in which Archer told him that "the Muruts are alcoholics, dying out.. . it's no use talking to them" and "we couldn't let you live among them. They're dangerous. We wouldn't be able to guarantee your safety" (Southwell 1999:83). In 1937, Southwell and the other BEM missionaries were finally given permission to go to the Trusan area.

Christianity was "the greatest thing to have happened in the history of the Kelabit people" (244). It included not just the lifting of the omens and other practices seen as "pagan," but also led to a hunger for education and literacy so that they could read the Bible themselves. It also contributed to a feeling of connectedness with Christians around the world, solidarity with outsiders that they had not felt before. They especially came to embrace a small group of missionaries led by Hudson Southwell, who wrote a book called *Uncharted Waters* (1999) that provides many details about the Kelabit experience of conversion (see also Bulan and Bulan-Dorai 2004 and Lees 1979).

The missionaries in Sarawak faced difficulties during the Japanese occupation of Borneo during World War II, as did many expatriates of European descent, including businessmen, missionaries, and Allied soldiers. Many were killed outright or interred as prisoners in Japanese war camps. There were a series of death marches, often referred to as the Sandakan Death Marches, beginning in 1942, in which more than 6000 Indonesian laborers (mostly Javanese) and Allied prisoners of war (mostly Australian and British) died en route to Ranau, about 160 miles away. Missionary Hudson Southwell and his wife Winsome Southwell were among the POWs; they were placed under house arrest for eight weeks in Brunei in 1942, and were then transferred to the internment camp at Batu Lintang in Kuching for three years (Southwell 1999:132-133). Some *orang putih* (literally "white people" in Malay), including missionaries and Allied soldiers were protected in the interior of Sarawak, including in the Kelabit Highlands (see Fong 2008; Heimann 2007). One American evangelist, Reverend Willsfinger, retreated to the interior of Sarawak when the Japanese arrived and preached to the Murut tribes. The Japanese heard about

him, and threatened to bomb the Murut village unless he surrendered. Not wanting to endanger the people, he surrendered and was later beheaded (Fong 2008:343).[13]

The area now known as the Kelabit Highlands and the adjacent Kerayan Highlands in what is now Indonesian Kalimantan became a base for a guerilla mission against the Japanese. This was in large part the result of the initiative of an enigmatic major named Tom Harrisson, who changed the course of Kelabit history in myriad ways. Harrisson and a few others parachuted into Bario in 1945, an event that many older Kelabit people remember witnessing (with fear and amazement). Harrisson, who spoke some Malay, befriended many Kelabit headmen and eventually married two different Kelabit women (one of whom is still alive in Bario), led war operations there and enlisted the help of Kelabit people. His book *World Within* (1959) describes his experiences there and the culture of the people at that time. After the war, he became curator of the Sarawak Museum and became famous in Sarawak. He was interested in many aspects of the human and natural worlds, and was an extremely prolific writer about numerous topics of social and natural history. He also pioneered education in the Kelabit Highlands by helping to start the first school in the village of Pa' Main, which opened on 2 February 1946. This was followed by schools in Long Lellang in 1952, Kubaan in 1957, Long Lamai in 1960, Long Seridan in 1960, Pa' Lungan in 1962, Long Balong in 1962, Pa' Dalih in 1964, as well as primary school in Bario in 1962 and a secondary school in Bario in 1967 (Saging 1976/77).[14] Harrisson also brought several Kelabit to Kuching, the capital of Sarawak, and provided them with educations in city schools and employment with the Sarawak Museum.

[13] The recently released novel, *Rainforest Tears* by Paul Leslie Smith (2008), gives a fairly accurate description of some of the battles fought in interior Sarawak near the Kelabit Highlands.

[14] It is important to note, though, that Harrisson did not introduce literacy to the Kelabit; in 1940 three men from the Pa' Trap longhouse (abandoned now, but near the present village of Pa' Lungan) named Galih Balang (Agan Raja), Balang Riwat, and Tama Ingan went to a Christian missionary school in Belawit, in what is now Indonesian Kalimantan. They became literate in Malay and were converted to Christianity at this time, and brought their new

Harrisson was notorious for his very strong personality which many found infuriatingly domineering, and he was also overly romantic in that he never wanted the Kelabit people to change their traditional lifestyles. He particularly disliked missionaries, and was the antithesis of a model Christian, being a fan instead of parties and drinking and pagan rituals. His ultimate legacy in the Kelabit Highlands, in the opinion of Kelabit today, is very mixed; they acknowledge that he did do a lot to document the history of the Kelabit and to introduce them to education and the world outside the highlands, but many personally disliked and distrusted him, and were offended by his criticisms of Christianity and his efforts to preserve them as "museum pieces." Judith Heimann's biography of him is tellingly titled *The Most Offending Soul Alive* (1999). Several writers have noted the profound differences between the different *orang putih* ("white people") to visit the Kelabit in the first half of the 20th century: a handful of colonial administrators, and then the vastly different characters of Hudson Southwell and Tom Harrisson[15]. As a result of being exposed to such different types of *orang putih*, Kelabit people have known for a long time that Westerners are not all the same. This is in contrast to other groups that were only exposed to one subset of Westerners.

In 1941, the last "White Rajah," Vyner Brooke absolved the absolute power of the Brooke Dynasty by granting many governmental powers to the Parliament (Council Negri[16]). In 1946, after the Japanese Occupation of Borneo during World War II, he ceded Sarawak to the

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skills and beliefs back to the Kelabit Highlands (Saging 1976/77:279). As Saging notes, the Pa' Trap people initially were not happy with Galih Balang's decision to sell part of their inheritance as aristocrats to finance his education (and they were also initially resistant to Christianity), though later he was asked to start a school at Pa' Trap, which he did (Saging 1976/77:283).

[15] Harrisson seems almost to gloat when discussing the influence of himself and his men on the Kelabits, who had recently converted to Christianity when he writes: "The incompleteness of Kelabit Christian belief was partly due to the spread into this area of eight individuals, including the present writer, who were dropped on to the plateau by parachute early in 1945. The uplands subsequently became a base for extensive guerilla operations against the Japanese, with numerous white personnel, an airfield, hospital, several wireless posts, and frequent supply drops. This gave the Kelabits a new slant on Christian culture, as previously interpreted to them by the missionaries and their trainees. They heard hard-living Australian and New Zealand paratroopers on the subject of teetotalism!" (Harrisson 1954)

[16] In 1976, the Council Negri was renamed the Dewan Undangan Negeri, or DUN (www.sarawak.gov.my).

British Colonial Office in exchange for a large pension. The Federation of Malaya officially gained independence from the British on 31 August 1957 (due to an effort spearheaded by the country's first Prime Minister, Tunku Abdul Rahman Putra Al-Haj), and in 1963, the Bornean states of Sabah and Sarawak, as well as Singapore, entered the federation, resulting in the renaming of the country as the Federation of Malaysia. (Singapore later became an independent republic in 1965.) However, the government of Indonesia, led by President Sukarno (or Soekarno, born Kusno Sosrodiharjo), claimed that the inclusion of Sabah and Sarawak into the Malaysian Federation infringed on the territory of Kalimantan and was just a guise for neo-colonialism; the Philippine government also opposed the formation of Malaysia. The United Nations and the Cobbold Commission led inquiries to determine whether or not the indigenous peoples of Sarawak and Sabah wanted to join the Federation as part of the Malaysia Plan, and as Tan notes, the Kelabit were active participants in this commission. He notes that on:

> March 13, 1963 a Kelabit chief Penghulu Lawai Besra [Besara] made a special trip from Bario to meet the Commission in Miri. He asked for more time to think it over as his people were still in the dark over the proposed Malaysia Plan. Despite failing health he made the arduous journey from the Kelabit Highlands (Tan 2008:59-60).

When the Federation of Malaysia was officially declared, it met with resistance from the Sukarno government, which organized military conflicts that turned into the war between Indonesia and the newly formed Malaysia, called Confrontation, or *Konfrontasi*. On the ground the war was fought mostly between British and Gurkha soldiers (with assistance from some soldiers also from Australia and New Zealand) on the Malaysian side and Indonesian soldiers on the Indonesian side.

Several *Konfrontasi* battles occurred in the Kelabit Highlands, and several Kelabit villages were targets of bombing by Indonesian forces, including my focal village of Pa' Lungan. It was attacked on 2 August 1964 with five mortar bombs thrown at the Security Forces post; the troops stationed there then retaliated, killing six "Indonesian terrorists" at Pa' Lungan that night and two more the following day (Tan 2008:119-120). My adoptive mother in Pa' Lungan, Sinah Nabun Aran, remembers that day, as she and her family hid in their farmhouse, a few kilometers from the village. A nearby village, Pa' Umor, was attacked from the air on 25 August 1965. Though there were no casualties and no serious damage was done to the longhouse, it terrified the villagers, and the Chief Minister, Dato' Stephen Kalong Ningkan called the air raid "a disgraceful act of terrorizing local civilians" (quoted by Tan 2008:101). About 150 Kelabit men (and about 160 more men in villages not far from the Kelabit Highlands) were trained by the British troopers from the Special Air Service as Border Scouts or members of the Jungle Squad (Bala 2002:74); now elderly men, they still wear and display the medals they earned then with pride.

Aside from direct assaults on longhouses, *Konfrontasi* had numerous implications for Kelabit society and the physical layout of the Kelabit Highlands; it was a truly pivotal moment in Kelabit history. Poline Bala, a Kelabit and an anthropologist, writes about how the creation of the international boundary changed Kelabit society in both obvious and subtle ways (Bala 2002). The Kelabit are very closely related to the Lun Bawang, and there was (and continues to be) a great deal of intermarriage between the groups. Before *Konfrontasi*, there was free movement between the groups, only about one or two days' walk apart; the creation of a political boundary between the two groups led to ideological changes in ethnic identity for both the Kelabit and the Lun Bawang. The inclusion of Sarawak and Sabah in the Federation of Malaysia also formed the

starting point for the Kelabit to think of themselves as Malaysians, as the government promoted this idea to all native groups. As Bala describes, the Kelabit began to see themselves as separate from the Lun Berian, thinking of them more as Indonesians than their own relatives (Bala 2002:95). The creation of an international boundary that divided previously fluid and interconnected ethnic groups has resulted in unequal development on either side of the border. Bala considers "this situation to be arbitrarily imposed upon the people concerned since they did not ask for the boundary to be constructed. Rather, it was constructed out of the colonialists' and nationalists' competition for sovereignty" (2002:94). This process of citizen-making and formation of Malaysian national identity intersects today with self-identified ethnic labels today among the indigenous peoples of Malaysia, including the Kelabit (Bala 2002: 95).

During *Konfrontasi*, the British soldiers encouraged all the people living in outlying villages to settle in Bario, a central location in a large flat, fertile valley that was a bit farther from the border area where much of the fighting was taking place. Previously, Bario was one of the smallest longhouses, and arrangements were made between the headmen of other villages to distribute land for new longhouses and new rice fields in the valley. Almost all the families from the other villages moved to Bario; as a result, Bario became the most populated village (or amalgamation of villages) in the Kelabit Highlands. The largest Kelabit settlement before *Konfrontasi* was the village of Pa' Main, site of the first school in the Kelabit Highlands, and it was abandoned entirely at this time[17]. Pa' Lungan was also mostly abandoned (and repopulated after the war). Again, one family, headed by Galih Balang (the father of my adoptive Kelabit mother), decided to remain in Pa' Lungan, against the will of the British soldiers. Despite these

[17] The headman then, Ngimet Ayu, and his wife did stay there for awhile, but later moved to Bario – he later became the Pemanca, or paramount chief of the Kelabit.

few exceptions, most everyone moved to Bario. Bario served as the base of operations for *Konfrontasi* and was well-protected by the soldiers.

Bario gained infrastructural developments unseen in other villages, including improvements to the airstrip built by Tom Harrisson in the 1950s and the creation of several roads between the villages within Bario that were accessible by the trucks brought in by the armies in pieces (reassembled in Bario) and motorbikes. The original longhouse in Bario became known as Bario Asal ("*asal*" meaning "original" in Bahasa Malaysia) to distinguish it from the newly established longhouses built by people from other villages outside the valley. Now Bario has about 1000 inhabitants and is by far the most populous Kelabit area in the interior of Sarawak. It also serves as the administrative center of the Kelabit Highlands, containing the medical clinic, the largest primary and secondary schools in the Kelabit Highlands, police and military headquarters, offices for immigration, agriculture, and forestry, an airport, a community hall, as well as shops, homestays, cafes, bars, public telephones, and a public internet and computer facility. All major meetings are held in Bario, and important guests are received and entertained in Bario.

Like many rural areas in Sarawak (Thompson 2007) and around the world, there is a high level of outmigration from the Kelabit Highlands, as younger people leave the villages to find employment or pursue higher education in coastal cities, especially Miri and Kuching. Compared with other ethnic groups in Malaysia, the Kelabit have one of the highest rates of success in higher education, with many Kelabit receiving advanced degrees at universities in Malaysia and around the world. Quite a few now hold doctorates from universities abroad. The Kelabit have been equally successful in obtaining well-paid and highly respected positions in governmental and business sectors. To name just a few, one is the head of the Sarawak state immigration

department (Robert Lian-Saging@Balangalibun); another is the CEO of Malaysia Airlines (Idris Jalla, son of the current Pemanca in Bario), another is an associate professor and the head of the Centre for Legal Pluralism and Indigenous Law at the University of Malaya (Ramy Bulan). Others are lawyers, professors, or employed in other competitive careers. But to attain these achievements, the Kelabit must leave the Kelabit Highlands; those who choose to stay are very limited in the options they can pursue. As most of the governmental positions in Bario (with the police, military, immigration office, or medical clinic) are filled by outsiders, usually from Peninsular Malaysia, there are very few opportunities for regular employment. Some people are self-employed as café or shop owners, tourist guides, artists or handicraft makers, transportation providers, hunters, or homestay operators, but most people live a subsistence lifestyle, based on the production of their own rice fields and gardens. Some receive money or goods from relatives living in the cities, and some are retirees who receive pension money.

High levels of outmigration of young and middle-aged adults result in a skewed demographic in which most inhabitants of the Kelabit Highlands are either quite young or quite old. This has emotional impacts both on the people who stay and on those who go. Anthropologist Poline Bala (2002) describes the sadness that mothers feel when their children leave them, as well as the loneliness that young people often feel in the cites away from their homes, and the growing "emotional and intellectual gap between the two generations" (53). Speaking from her own experience as a Kelabit who has left the Kelabit Highlands to pursue a career, she says:

> It is not only the old people who are experiencing pain at the increasing [emotional and intellectual] gap [between the two generations]; the younger generation of Kelabit, including myself, who are the intersections of a pluralistic society, long for the lifestyle

> of the past, too. Some of us are worried that the Kelabit community will lose its cultural identity. At the same time we feel helpless about bridging the gap between the two generations (Bala 2002:53).

In an economic sense, the relative lack of young and middle-aged adults requires that the people that do live in the villages must often hire outsiders (usually Lun Bawangs from Kalimantan) to plant and harvest their rice crops. Most young Kelabit do not wish to become rice farmers as their parents were; however, many also struggle with employment and financial difficulties in the cities (Amster 1998).

Another consequence of the highly diasporic nature of the Kelabit community (which includes outmigration from the Kelabit Highlands and high rates of intermarriage with other ethnic groups) is the loss of many aspects of traditional Kelabit culture, such as knowledge of Kelabit history and folklore and the ability to perform traditional dances, play traditional games, cook traditional foods, create traditional handicrafts, perform traditional skills, and even speak the Kelabit language (children are educated in schools in English and Bahasa Malaysia, and often one of these languages is spoken in homes of couples from different ethnic groups). As will be discussed in the next section, this loss of Kelabit traditional culture among the youth is a primary concern of many middle-aged and older Kelabit, and there are currently efforts within the community to help preserve Kelabit culture and language.

Recent events such as the advent of industrial logging activities in the Kelabit Highlands and the concurrent efforts to promote conservation through (1) the establishment of a new national park (Pulong Tau National Park) in 2005, (2) the inclusion of the Kelabit Highlands in a plan to possibly extend the borders of the park, and (3) the inclusion of the area within the larger tri-national Heart of Borneo project led by the World Wide Fund for Nature, have also deeply

affected the Kelabit community. The ongoing logging of the area has had particularly strong political, social, economic, and emotional impacts on the community. It has already had detrimental effects on community-based ecotourism in the area (Hitchner et al. 2009; Rodger 2005), though some members of the community have profited. It has also led to numerous discussions among community members and negotiations with representatives of the timber contractors and license-holders. Conservation efforts in the Kelabit Highlands have mostly been delegated to the Sarawak Forest Department and the Sarawak Forestry Corporation, working in conjunction with the International Tropical Timber Organization (ITTO).

These issues will be discussed in more detail later in the chapter, as will the uncertainty regarding the future of the Kelabit Highlands. Numerous contradictory proposals have been submitted by various governmental departments about how to best "develop" Bario. Several of these include the establishment of large-scale agricultural plantations (rice, cinnamon, acacia) as corporate owned entities or joint venture schemes between wealthy investors and local community members, the expansion of smallholder agriculture, the possible development of high-end tourism facilities (such as hotels, spas, golf courses, etc.), construction of housing developments for both the Kelabit and outsiders, the possible (but unlikely) gazettement of land in and around the Kelabit Highlands as protected areas or multiple-zoned conservation areas, which would be a boon both for wildlife (much of which is endemic and threatened) and for ecotourism. It is rumored that a school for older children could be built in Bario, and also that the airstrip will be extended to accommodate planes larger than the 17-seater Twin Otters that land there now. But no one seems to know which of these scenarios is most likely to actually occur, or who is most likely to profit if any of these projects proceed. This uncertainty leads to much apprehension in the community.

Modern Kelabit Ethnic Identity

As mentioned earlier, it was likely the error of a colonial administrator that coined the term "Kelabit" in the first place; previously smaller groups identified themselves according the river or tributary they inhabited, and as evidenced by the warfare between groups that would now be lumped together as "Kelabit," solidarity among the "Kelabit" people was historically constructed and which developed over time. Likewise, as discussed earlier, the separation of the "Kelabit" from their neighbors the "Lun Bawang" also developed as a result of historical circumstance (in this case, mainly the formation of the nations of Indonesia and Malaysia and the inclusion of Sarawak into Malaysia, and the subsequent war of *Konfrontasi*). Keeping in mind that "identity" is fluid and ever-changing, not static or fixed in time (Nagel 1994; Friedman 1992), Kelabit ethnic identity is in a state of transition now. It is being constantly negotiated and re-negotiated by various actors. Many, but not all, of these actors consider themselves to be Kelabit.

In some cases, there are uncertainties over who is "really" Kelabit or discrepancies over who is "more" Kelabit. This is often a struggle for children whose parents are members of different ethnic groups; most of these children grow up in the cities, away from the Kelabit Highlands. They may visit the Kelabit village of their father or mother, and they may or may not have learned to speak the Kelabit language or learned traditional Kelabit dances or games. The same can also be true of children born to two Kelabit parents but raised away from the Kelabit Highlands, although these children are more likely to speak Kelabit and be familiar with Kelabit culture. Nevertheless, all children of mixed parentage were equally welcomed into the Kelabit community, both in the Kelabit Highlands and at Kelabit functions in the cities. Sometimes they were teased or chided for not speaking Kelabit, but they were included as members of the

community and encouraged to participate in Kelabit activities. In some cases, especially for children with one Kelabit parent and one parent belonging to one of the main non-native (according to the state) ethnic groups in Sarawak (Chinese or Indian), there are legal incentives for them to be identified by the state as native, or "*bumiputra*," literally "prince of the soil". Due to a national ethnicity-based quota system, or affirmative action program, people identified as *bumiputra* (also spelled *bumiputera* and more commonly shortened to "*bumi*") have better access to certain educational and employment opportunities. This can naturally sway some parents to emphasize their "Kelabitness" for the sake of their children, or for some adult children of mixed marriages to emphasize their own indigenous roots[18]. Similarly, "pure" Kelabit also emphasize their indigeneity in cases where being "native" can benefit them. This is a clear example of the power of the state influencing an individual's ethnic identity and the agency of individuals to focus on their personal ethnicity in a strategic manner.

This is not to argue that Kelabit only view their ethnic identity strategically, or that they try capitalize on it. As noted, early descriptions of Kelabit personalities emphasized pride, and Kelabit today are still a proud people. As a group, they have accomplished much in a very short time, especially given their remoteness and the obstacles they have had to overcome. As noted, they have attained high levels of higher education and powerful positions in government and business; they are well-respected in Sarawak by members of other ethnic groups, and even touted by the government as examples of a highly successful and entrepreneurial people that should be emulated by members of other indigenous communities. They are generally also well-organized and politically savvy; they have established several institutions over the past several decades

[18] In early November 2009, Deputy Chief Minister of Sarawak, Tan Sri Alfred Jabu, sent a written request to the Prime Minister of Malaysia, Datuk Seri Najib Tun Razak to help clarify the issue of children of mixed parentage who have allegedly been denied *bumiputra* status. According to the Federal Constitution, both parents must be *bumiputra*s for the child to be considered *bumiputra*, but in Sarawak, only one parents needs to be a *bumiputra* (Wong 2009).

that serve as vehicles to promote solidarity within the group, to promote political agendas that benefit their people, and to link their power with that of other indigenous groups in Sarawak. As Tan (1994: 136) notes, "the formation of Kelabit associations was at first due to the concern about local development, especially the consequences of logging."

*Rurum Kelabit Sarawak* (RKS) is a local institution working on community and state levels dedicated to representing Kelabit people and improving the lives of both urban and rural Kelabit. It was formed in early 1991 as a response to the multiplicity of Kelabit associations functioning simultaneously throughout Sarawak. Tan (1994:134) suggests that while the "emergence of six Kelabit associations" reflected the "internal differentiation and alignment" of urban Kelabit, it also showed "a certain lack of unity among the Kelabit." RKS was formed as an umbrella organization in the hopes of unifying the Kelabit. Consisting mostly of urban, wealthy, well-educated Kelabit, RKS is responsible for many of the processes of negotiations regarding the current situation in the Kelabit Highlands and the possible futures for it. RKS members are the prime negotiators with the timber companies currently logging the Kelabit Highlands, and they also work closely with government agencies planning projects for the Kelabit Highlands regarding conservation, agriculture, and development. The current president of RKS, Gerawat Gala, a lawyer based in the capital city of Kuching, has been particularly active in leading these negotiations and also in consulting and negotiating with Kelabit residing in the Kelabit Highlands. Unifying the Kelabit is a difficult task, due to several factors, the most obvious being the diasporic nature of the community, given that only about one-fifth of the Kelabit people live in the Kelabit Highlands today. Many people now based in the cities grew up in one of the villages of the Kelabit Highlands; however, many of the younger generation did not grow up there, and some have yet to even visit the Kelabit Highlands. As will be discussed later, there are

sometimes great differences of opinion between urban and rural Kelabit about what the future of the Kelabit Highlands should be, and there can be animosity and feelings of distrust among the groups. The RKS leadership is often given the weighty task of serving as a link between the urban and rural populations, or as a literal and metaphorical conduit of information and opinions between the coast and the interior.

The social events organized by RKS in the coastal cities, usually rather elaborate and expensive to attend (often at fancy restaurants or hotel convention centers), are usually conducted in a mixture of English, Malay, and Kelabit languages (for the benefit of the Kelabit who do not speak the Kelabit language or for guests, often politically powerful Malays), but always contain elements of traditional Kelabit culture such as dances performed in traditional dress or songs performed on the *sape* (guitar-like instrument of the Orang Ulu groups of interior Borneo). Kelabit who attend these functions wear Western or Malay-style clothes, but almost everyone also wears Kelabit beads. Amster (1998) describes these RKS functions in detail. Here I would simply like to make the point that RKS serves as a solidifying structure that reinforces the identity of "the Kelabit" and promotes ethnic pride, mostly among urban Kelabit, as well as initiating and managing projects that directly benefit Kelabit people.

The Kelabit today, both urban and rural, take much pride in their ethnic identity and are generally proud to be known as "Kelabit." As mentioned, many fear the loss of traditional skills and knowledge in the younger generations, and so in recent years there have been a number of cultural revitalization projects initiated by the community. These include: a preschool for Kelabit children in the village of Pa' Ukat to learn the Kelabit language (though recognized that the need is far greater in urban areas than in the villages, this is a pilot project managed by people in Pa' Ukat); a proposal for a "holiday camp" for urban schoolchildren to come to Bario to learn

Kelabit skills, dances, and language; a long process of standardizing a written version of the Kelabit language (there are several dialects) and efforts to create a Kelabit dictionary (based on the glossary created by anthropologist Matthew Amster in 1995); and plans to translate the Bible into the newly standardized written Kelabit language (Kelabit currently use the Lun Bawang version or an English version). Another project recently initiated to preserve the cultural heritage of the Kelabit people and the Kelabit Highlands is the RKS-led Cultural Heritage Audit Project, which includes the GPS documentation of various cultural sites and their histories in each village, as well as village boundaries, water catchment areas, and communal forest reserves. This project was funded in 2008 by the United States Cultural Foundation (through the U.S. Embassy) and the U.K.-based Oxbridge Society. This project is ongoing. In addition to these organized projects, there is also a proliferation of media produced by young Kelabit, including films, websites, and musical recordings. In 2003, Universiti Malaysia Sarawak helped organize the digital collection of *laku* (songs traditionally composed and sung by women). Also, a group of Kelabit teenagers formed a musical group called *Kan'id* (which translates as "cousin" in Kelabit); they sing mostly in Kelabit, but also in English, and their sound likewise fuses elements of different musical styles. Websites such as www.ebario.com and www.kelabit.net, provide information about Kelabit culture and landscape to tourists, and also serve as an electronic link within the Kelabit community. There are also numerous personal websites and blogs by Kelabit, and many Kelabit are linked to online social networking sites such as Facebook, Multiply, and MySpace. All of these manifestations of modern Kelabit culture reinforce ethnic pride and identity.

In addition to their shared Kelabit culture, there are two main signifiers of modern Kelabit identity; the first and probably the most important of which is Christianity. Every social

function, from a black tie dinner in Kuching to a birthday party in Bario Asal to a campfire barbeque at the base of Mount Murud, begins and ends with a prayer. Many villagers in the Kelabit Highlands attend church every morning at 5:30 a.m., in addition to services on Wednesday nights and Sundays. The church plays an important function in organizing the *gotung-royung* (communal) labor in the villages as well, and the church treasury funds social welfare programs. Disputes between people are often mediated by a church deacon, and some of the most conspicuous and expensive construction activities have been the building of new churches or restoration of older ones. Most Kelabit say that they aspire to follow the teachings of Jesus in their daily lives. As mentioned previously, Kelabit today feel that Christianity freed them from the oppression of omens, and they claim that is has allowed them to live more meaningful spiritual lives. Lucy Bulan and her husband David Labang, both Kelabit, write that after conversion to Christianity, Kelabit people:

> basked in the absolute freedom from preliminary rituals and ceremonies involved in the harvesting activities of the old days…. But far more significantly, the nature of the relationship between Kelabits and their God had also changed. In place of the relationship of power and fear, it was not of mutual love, of reverence and blessing. It is this new faith, the belief in Jesus Christ, that today characterizes the modern Kelabits. It is this new faith that has been instrumental in bringing about rapid economic, social and educational progress within the Kelabit tribe. As long as the Kelabits adhere faithfully to their present faith, they can hope to avoid the many dangers and pitfalls which infest the modern affluent society (Bulan and Labang 1979:51).

Most Kelabit, whether based in the Kelabit Highlands or in cities outside the Highlands, are members of the SIB church (*Sidang Injil Borneo*), formerly known as the Borneo Evangelical

Mission, which was officially established on 31 August 1928 by ten founding members including Hudson Southwell (Southwell 1999:63).

The second main signifier of Kelabit identity is a connection with the physical landscape of the Kelabit Highlands, no matter where the Kelabit people currently live. This area is viewed by Kelabit and non-Kelabit alike as the "homeland" of the Kelabit people. Many urban Kelabit have plans to retire there, and many urban parents of young children prioritize taking their children to visit the Kelabit Highlands so that they will know where they came from. The landscape itself, which will be described in the next section, is steeped in Kelabit culture and in many ways modified by many generations of Kelabit. Perhaps the main challenges brought by the development that is rapidly changing the face of the Kelabit Highland landscape will be to preserve the cultural aspects of the landscape and to maintain Kelabit control over the area.

## The Kelabit Landscape

### Geographical and Ecological Features of the Kelabit Highlands

The area generally known as the Kelabit Highlands is situated on a plateau[19], and includes about 2500 km² of land (Sidu 2007:2; Lee and Bahrin 1993:117). The Kelabit Highlands are bounded by the Tama Abu[20] mountain range on the west and northwest, which include a series of ranges running north-south (Singh 1998:5), and on the east by the Apad Wat (literally "*apad*," meaning "mountain range," and "*wat*," meaning "tree roots[21]"), which divides the Kelabit Highlands of Sarawak from the Kerayan (also spelled Krayan) Highlands of Kalimantan (Bulan 2003; Langub 2004:1). The Kelabit Highlands includes the headwaters for several of the major rivers of Borneo, including the Baram, Limbang, and Kerayan (Bulan 2003).

[19] Hedda Morrison (1957:286) says this is technically incorrect and that the area should properly be called a "vale," but I will use the more commonly used term of plateau.
[20] This is also called the Tamabu or Tamabo Range.
[21] The Apad Wat is sometimes mistakenly referred to as the Apo Duat mountain range.

The southern area of the Kelabit Highlands is more open and flat, north of the Kenyah village of Lio Mato up to the now-abandoned village of Batu Patong. Mount Murud, the highest peak in Sarawak at 2423m, lies in the northwestern corner of the highlands, and the northern-most Kelabit village that is still inhabited is Pa' Lungan. Just south of Pa' Lungan is the village of Pa' Umor and, closer, to the southwest is Pa' Ukat; about four kilometers southwest of Pa' Ukat is Bario[22]. The southernmost Kelabit villages are Pa' Dalih and Ramudu (though further south there are the villages of Long Banga and Long Peluan, which are inhabited by both Kelabit and Saba'an people), and just north of Pa' Dalih is Pa' Mada. Between Pa' Mada and Bario are the locations of the now-abandoned villages of Pa' Main, once the largest settlement in the highlands, Long Dano, and Pa' Bengar. West of the Kelabit Highlands are two former Kelabit settlement sites, Pa' Tik and Kubaan, which are now inhabited by Penan. Scattered throughout this landscape are numerous old longhouse sites (*ruma' ma'un*) (see Chapter 3). There are three main rivers in this area: the Pa' Merariu' near Bario, the Pa' Debpur that runs south toward the Indonesian border, and the Pa' Kelapang in the southern Kelabit Highlands; the villages are included within these watersheds. There are many smaller tributaries off these main rivers, which bear the names of many of the villages today (such as Pa' Mada, Pa' Umor, Pa' Lungan, and Pa' Ukat).

In addition to the communities in the Kelabit Highlands, there are several other Kelabit villages that lie outside this plateau: Long Lellang, southeast of Bario on the Akah River, and Long Seridan on the Magoh River in the Ulu Tutoh, and Long Napir, in the Limbang (Bulan 2008:158; Yusof 1998:331). Some Kelabit claim that these villages are also part of the Kelabit Highlands, and that the area within the Apad Wat and Tamabu ranges should be called the Bario

[22] Bario now consists of nine longhouses: Padang Pasir, Kampung Baru, Ulung Palang A and B (also called Bued Main Baruh A and B), Arur Dalan, Arur Layun, Bario Asal (formerly known as Lem Baa'), Pa Ramapuh Beneh, and Pa' Ramapuh Dita'.

Highlands to distinguish it from the more extensive Kelabit Highlands. But it is most common among the Kelabit to refer to the area from Pa' Lungan in the north to Pa' Dalih and possibly south to Long Peluan as the Kelabit Highlands, acknowledging that Long Lellang, Long Napir, and Long Seridan are also Kelabit villages. So I will also refer to the area in this way. Historically the range of Kelabit villages extended further in all directions from the currently occupied area. To the north there was a village between the present village of Pa' Lungan called Long Rebpun; to the east Kelabit and Lun Bawang villages were interspersed before being separated by the international border in the 1960s; to the southwest, Kelabit lived along the Akah River; and to the northwest, Kelabit inhabited areas in the Tutoh River Basin and areas along the Magoh and Puak Rivers, tributaries of the Tutoh River, and areas along the Limbang River and its tributary the Madihit (Langub 2004:1). One main element of my research was to document the hundreds of old longhouse settlements, both by creating lists and by taking photographs and GPS points of the sites. I did not visit the outlying villages of Long Lellang, Long Napir, and Long Seridan, or any of the old settlement sites (*ruma' ma'un*) in the Tutoh, Akah, or Limbang River areas or areas south of Batuh Patong, but my list of settlement sites included over one hundred sites between Pa' Lungan and Batu Patong (see Chapter 3 for more details).

The Kelabit Highlands is an intermontane plateau, situated at an average of around 1000m above sea level, surrounded by mountain ranges or higher ground on three sides (Singh 1998:5). It is often referred to as a "bowl." Due to its elevation, the area is cooler than lowland areas, and nights are chilly; daytime temperatures average between 19˚C and 22˚C (Seng et al. 1998:21). Rainfall averages around 2000-2500 mm per year, less than in other parts of Sarawak (Christensen 2002:34; Ipor et al. 1998:113). The area includes encased alluvial plains, as it contains the headwaters of the aforementioned rivers, in addition to the Libun, a tributary of the

Tutoh, and the Debpur, the northernmost tributary of the Baram (Singh 1998:5). The Kelabit Highlands plateau consists of Tertiary sedimentary rocks, and is formed of two main geological formations, the Miocene Meligan Formation (mostly quartzose sandstones) and the Kelabit Formation (mostly mudstone, sandstone, and limestone), with the Oligocene-Miocene Setap Shale Formation adjacent the Meligan Formation to the west (Singh 1998:7; Beaman et al. 1998:86). Smaller geological formations in the Kelabit Highlands include the Oligocene Kelabit Formation, the Eocene Pelagas Formation, and the Paleocene-Eocene Kelalan Formation (Beaman 1998:86). There are several limestone and white sandstone outcroppings in and around the Kelabit Highlands, the most iconic of which is a double pillar known as Batu Lawi (Latiff 1998:30).

Flood plains of rivers and streams in the Kelabit Highlands contain large amounts of alluvial and residual soils, and the soils of the forested hills are comprised of red-yellow inceptisols/ultisols (Christensen 2002:34). In general, the soils of the Kelabit Highlands are mostly poorly drained clays (accreting and non-accreting alluvium), podzolic sands, and 'climatogenic' organic soils (Seng et al. 1998:22). Drainage in the Kelabit Highlands plateau is often poor, so there are areas that remain continually waterlogged, and the area is prone to flash floods due to the steepness of the surrounding slopes. However, the soils are suitable for rice cultivation, and the better-drained soils are conducive to vegetables, citrus fruits, and other domesticated crops (Seng et al. 1998:22).

The Kelabit Highlands consist mostly of montane and tropical submontane mixed dipterocarp forest, with frequent patches of *keranagas*[23] (heath) forest and riparian vegetations along the undisturbed rivers and streams (Latiff et al. 1998:30; Ipor et al. 1998:113). Upper

[23] According to Beaman et al. (1998:86), *kerangas* is an Iban word for land that is unsuitable for hill-rice cultivation, and the word *kerangas* is used widely in Sarawak to describe heath forest.

montane mossy and scrub forests are found on high ridges and mountain tops (Beaman et al. 1998:87). These forests serve as water catchment areas for the villages in the Kelabit Highlands, and sufficient water supply is necessary for the sustainable production of rice in the Kelabit Highlands (Ipor et al. 1998:126). The forests around the villages are a mosaic of dry and wet *kerangas* forests, large tracts of secondary forests and patches of primary forest, and current and abandoned orchards of wild and domesticated fruit trees (Jaman et al. 1998:141). The Kelabit Highlands area is rich in biodiversity of flora and fauna (Ipor et al. 1998:126), and especially well-known for its large variety of orchids, pitcher plants, and rhododendron species. These rich ecosystems are now in danger of the consequences of economic development. Professor Ghazally Ismail, Deputy Vice-Chancellor of Research Sciences at Universiti Malaysia Sarawak (1998:iii) writes that:

> Now a distinct possibility exists that Bario, as the last custodian to a rich enclave of lush tropical forested area, will, in the not too distant future, be subject to rapid clearance for unsustainable exploitations of forest resources and infrastructural developments like roads and new townships…. The result will be the disappearance of many natural ecosystems accompanied by a mass extinction of millions of tropical plant and animal species that are yet to be discovered by science.

Ismail describes how in 1995, a team of about 100 local and foreign scientists with expertise in water quality, geology, ecology, ethnobotany, anthropology, climate, and other fields went to Bario to document the rich natural and cultural heritage of the Kelabit Highlands (Ismail and Din 1998).

Place Names in the Kelabit Highlands

As in many culturally rich landscapes, memories about historical events, social customs, and specific people are embedded in the landscape of the Kelabit Highlands. These cultural phenomena will be discussed briefly in the next section of this chapter and at length in the next chapter, but here it is important to emphasize that the Kelabit landscape is saturated in history and culture. This is evident in the names that Kelabit people have given to particular sites, such as megaliths or intentionally modified areas, or landscape features such as rivers and mountain peaks (see Appendix C for an extensive list of place names in the Kelabit Highlands, and see Appendix A for a translated list of many of the place names). Chapter 3 provides ethnographic details about the cultural sites in the Kelabit Highlands.

In some cases, a historical event is immortalized during the process of name-making. Often places in the Kelabit Highlands are named after specific people. As will be explained in detail later, the Kelabit people are known as one of the most actively megalithic peoples in Southeast Asia. A great deal of my time in the field was spent documenting many of these megaliths, by collecting the names of the sites, and by personally visiting as many as possible and recording their locations using GPS. Most of the megalithic sites were named after the people who made or sponsored the making of the megaliths. The Kelabit people also modified the landscape in various ways, and these modifications were also often named for the person responsible for their creation; they were also named after relatives or ancestors of their creators. Kelabit mythology, folklore, and pre-Christian beliefs are also recorded in place names. Names of places in the Kelabit Highlands also often reflect certain cultural practices or social customs. Physical descriptions of landscape features also often feature prominently in place names. Kelabit people, for example, have many names to describe certain features of rivers, so that they

could describe to someone else fairly accurately a location along a river using descriptor words, as well as context clues regarding nearby flora or fauna or past historical events that happened in the area (see Appendix A). Place names are often a reflection of a community's long-term engagement with the landscape, and in the context of the Kelabit Highlands, they demonstrate the myriad ways that Kelabit people have interacted with the forests, rivers, and mountains around them over many generations.

Cultural Sites and Landscape Modifications

Chapter 3 describes the various types of cultural sites and landscape modifications found in the Kelabit Highlands: megaliths such as *batuh sinuped* (menhirs or erected stones), *batuh narit* (carved stones), *batuh nangan* (dolmens or stone "tables"), and *perupun* (large rock piles); *binatuh* (graveyards); *lungun belanai* (grave sites with Chinese burial jars); *batuh nawi* (hollowed stone burial urns); landscape modifications such as *kawang* (notches cut into tree lines on ridge tops), *nabang* (ditches cut into the ground or through ridge tops), *taka* (oxbows of rivers); *ruma' ma'un* (old longhouse sites); and other areas of cultural importance such as *main tudtu'* (salt springs), *rupan* (swampy areas where animals come to drink), *ra'an* (mountain passes), and *lubang* (caves). Many of these sites have mythological, genealogical, historical, or cultural significance, and although the Kelabit are now enthusiastic Christians, they are anxious to preserve these sites for future generations.

Historical Landscape Changes

The Kelabit landscape today is the result of many generations of alteration by the Kelabit people, and of natural processes of regeneration following these alterations. Changes in the Kelabit lifestyle have had significant effects on the cultural identity of the people, and these same changes have also had significant effects on the landscape. Several changes have had relatively

smaller impacts on the landscape, such as the cessation of the creation of megalithic structures and landscape modifications like *kawang* and *nabang* soon after the Kelabit converted en masse to Christianity and the construction of larger trails between villages to accommodate goods-laden sleds pulled by water buffaloes. But two main events in recent Kelabit history have had particularly significant impacts on the physical landscape of the Kelabit Highlands: (1) the virtual replacement of migratory agricultural patterns (including swidden cultivation in dry plots and temporary farming of swampy areas) with wet-rice agriculture in permanent plots, and (2) *Konfrontasi*, which led to the current amalgamation of villages in Bario and the subsequent abandonment (or near-abandonment) of outlying villages.

As noted earlier, before the Kelabit began practicing wet-rice agriculture in permanent plots, they produced rice in swidden fields and temporary plots. They changed the locations of their longhouses every few years at most, most often due to the need for fertile land. The swidden system, as practiced by the Kelabit and many other groups, is generally considered sustainable over long periods of time, as it included long periods of fallow after a few years of diminishing harvests in an area that had been cleared and burned. The Kelabit, as mentioned previously, would often relocate the entire longhouse several kilometers from the last location, usually along the same river or tributary. Kelabit today know the history of many of these migrations and can name the areas inhabited and farmed by their parents, grandparents, and great-grandparents (a summary of some of these longhouse migration patterns is given in Chapter 3).

The history of these past migrations, besides living in the memories of Kelabit people today, is also evident in the landscape, most conspicuously in the form of secondary forest (*amug*) and in the presence of stands of domesticated fruit trees that indicate old longhouse or

farm sites. The Kelabit that I interviewed retain much knowledge about specific fruit trees at old longhouse sites and the ways that fruit trees have been used to claim land and mark boundaries, in addition to knowledge about the types of fruit trees most commonly planted at longhouse sites when the villages moved in the past. They focused on the difference between long-lived species, such as durian and pomelo, and short-lived species, such as banana and papaya. The types of fruit trees planted at various sites were determined in part by the length of time that the community planned to stay there. For example, if the soil was particularly good at a specific site and there was plenty of room for agricultural expansion not far from the longhouse, the people would plant longer-lived species, such as breadfruit, mangosteen, and durian. But if the people knew they would need to leave the area within a few years and if they knew they would be moving some distance away when it was time to relocate, they would generally plant the shorter-lived species, such as banana, pineapples, and guava. Most respondents agreed that breadfruit was the most commonly planted fruit tree at longhouse sites in the past, because its fruit could be eaten raw as a sweet fruit when ripe or cooked as a vegetable before it was ripe. Breadfruit was also the fruit tree most often observed at old longhouse sites (see Hitchner 2006 for more details on ethnographic and ecological data collected at old longhouse sites, and see Appendix B for a list of the most common fruit trees present in old longhouse sites).

With the adoption of permanent wet-rice production techniques, the Kelabit settled into more permanent longhouse sites, including the sites of the current villages in the Kelabit Highlands today, effectively ending the migratory chapter of their history. These wet rice plots could be more intensively farmed with the introduction of natural fertilizer into the fields in the form of *kerubau* (water buffalo) dung, and complex systems of irrigation regulated the water levels. The Kelabit were well-known for their success in growing rice; in fact, some sources

claim that the Kelabit were able to produce two rice harvests a year instead of the usual one (Mjöberg 1925; Douglas 1912), but all my informants living in the Kelabit Highlands today say that was an exaggeration and that the Kelabit have always just produced one crop per year (albeit a good crop in most years).

The second event in Kelabit history that significantly affected the current landscape of the Kelabit Highlands was the war of *Konfrontasi* between Indonesia and Malaysia. As mentioned, British soldiers encouraged the Kelabit people to leave the outlying villages (particularly those near the newly created international border, such as Pa' Lungan and Pa' Bengar) and migrate to Bario, where they could better protect them from Indonesian forces. Most people heeded the suggestions of the soldiers, though a few chose to remain in their villages, despite the threat. Some wanted to defend their land, perhaps foreseeing that Bario would soon become crowded, and that the war would not last long and people would return to the villages after it was over. Some people did return to their villages after the end of the war, but many did not. Many families chose to stay in Bario in the newly established longhouses surrounding the original longhouse at Bario. They are still there now, making Bario the most populous village of the Kelabit Highlands as well as its administrative center, with the facilities previously mentioned. Also still visible in the landscape today are trenches dug during several of the battles or air raids of *Konfrontasi*.

Current and Ongoing Changes to the Landscape

Currently the two main activities changing the physical landscape of the Kelabit Highlands are infrastructural developments and logging; these are intertwined with each other and with other cultural, political, social, and economic factors. First, there have been several recent developments in infrastructure in the Kelabit Highlands, both in Bario in the northern

Kelabit Highlands and in the villages of the southern Kelabit Highlands such as Pa' Dalih and Ramudu. In Bario, several recent and ongoing infrastructural developments include: the clearing of the old medical clinic and the construction of a new one (using solar power technology), the installation of a mobile phone tower on the tallest hill in the valley which allows most villages to receive a cell phone signal, the construction of a new longhouse to replace one that burned down several years before I began fieldwork (Ulung Palang Dita', home to people originally from the now-abandoned village of Pa' Main), and the construction of a new church next to the new longhouse, the installation of several micro-hydro projects to provide electricity to longhouses in Bario, and the installation of a water treatment facility and new piping to all longhouses and individual houses in Bario.

However, the developments that have had the most impact on the landscape and the ecological systems within it, are the result of logging companies extracting timber from the Kelabit Highlands. The timber road first reached the southern villages in the Kelabit Highlands in 2002, and logging activities have drastically altered the physical landscape in numerous ways. Trees are supposed to be harvested according to best management practices (BMPs) stipulated by sustainable forest management (SFM) guidelines in order to stagger the harvest over several cycles. However, trees much smaller than the guidelines allow have been taken, to the detriment of the ecological system. Rivers like the Pa' Kelapang that runs through Pa' Dalih were clear a few years ago, but now are full of silt, making fishing difficult. Several cultural sites (including a stone burial urn and an old longhouse site) in the southern Kelabit villages of Ramudu and Pa' Dalih have been seriously damaged by logging activities.

It is important to note that the Kelabit Highlands are one of the last areas of Sarawak to be logged, and the people there have witnessed the consequences of logging on other

communities over the last two decades. They have seen other communities voluntarily sell their land to logging companies in return for money and infrastructure development, and also seen that companies do not always keep their promises. And even when they do, the local people become dependent on money in a way that they had never been before; when the money runs out, the people are not only poor but they have no way to return to subsistence agriculture and hunting because their lands have been degraded. Despite knowing this, many people in the Kelabit community feel powerless to stop it, and figure the best alternative is to negotiate to the best of their advantage.

Some of the people I interviewed seemed to think that further logging might be prevented in this area and vowed to fight against it. Others believe it will continue no matter what they want, and so they want to register their land claims in order to receive financial compensation. I attended several community meetings about logging, and noticed that although some community members oppose logging, they do not want to be like the Penan who orchestrated blockades on the timber roads, drawing international attention to their campaign. One man said: "We are not Penan. We are Kelabit. They [logging companies] have lawyers, we have lawyers." Most of the people with whom I spoke support conservation efforts and would like the Kelabit Highlands to be protected from logging, although several expressed concern that any complaints about logging could be perceived as opposition to the government and that conservation efforts could interfere with types of development that could benefit the community. Specifically, several people mentioned that the new national park prevented the creation of a road from Bario to Ba' Kelalan and on to the coastal city of Lawas.

The issue of whether the Kelabit people wanted any road to reach Bario was a hotly debated issue, with strong advocates for both sides of the issue. Proponents of the road argued

that the price of goods in Bario would decrease once they could be driven in instead of flown in, and that people could more easily reach other parts of the Kelabit Highlands and the cities on the coast if they were not restricted by the limitations posed by the flight schedules. For some people that own four-wheel drive trucks, the road presented a new employment opportunity transporting people and supplies. But other people opposed the road for various reasons. Some did not like the idea of inviting the timber companies to their doorsteps and feared that logging roads would encourage illegal timber harvesting, illegal swidden agriculture, and illegal poaching by outsiders, as often occurs on newly established logging roads in Borneo. Many people, most often women, feared for the safety of the women and children once loggers had free access to the villages; in Sarawak there have recently been a number of cases in the news of indigenous women (mostly Penan) being raped by workers at timber camps. Other people viewed the construction of the road as the first step of opening the Kelabit Highlands to settlement by non-Kelabit people. After much deliberation within the Kelabit community, RKS led negotiations with the timber company and did request the road that already connected the southern Kelabit Highlands with the coastal city of Miri to reach Bario. When I left Bario in late July 2009, the road was complete except for one bridge over the Pa' Debpur River, which has since been completed. Logging activities have slowed in recent months in the Kelabit Highlands and elsewhere due to both ongoing negotiations over the community agreements with the logging companies (including the price paid to the community per ton of timber extracted and the annual "Christmas gifts" of RM3000, about USD880, to each village) and to the decreasing demand for tropical timber as a result of the global economic downturn. It is likely that soon logging operations will increase in the area.

What will follow logging activities in the Kelabit Highlands is very uncertain. Often in Borneo and other tropical regions, large-scale agricultural plantations are established on newly logged areas, which requires the logged areas to then be clearcut. The Malaysian and Indonesian governments have been especially keen to establish oil palm plantations in logged-over forest (often including primary forests that are clearcut for the explicit purpose of establishing profitable plantations). Although it is possible that the Kelabit Highland area is too high in elevation for oil palm to grow well, suggestions for other agricultural crops such as acacia, cinnamon, or rice to be grown in plantations or large-scale plantation-like arrangements have been proposed by government agencies. Ose Murang, the former Resident Officer of the Miri District who is from Long Peluan (a Kelabit and Saba'an village south of Ramudu), promoted the creation of an "Agropolis" in the Kelabit Highlands, which would include various large-scale agricultural projects including acacia, cinnamon, and rice, as well as large areas of forest cut to make cow pastures for halal beef production. Other people promoted the idea of entering much of the land around Bario into a joint-venture scheme between local community members (especially those of the Bario Asal longhouse) and outside investors, despite the fact that historically these schemes have usually benefitted the investors and the corporations much more than the communities in the long term (Cooke 2003, 2002). But no one is really sure whether any of these plans will become reality, or if so, who will be in control of them.

Much of the area within and surrounding the Kelabit Highlands has also been slated for conservation, either as an extension to Pulong Tau National Park (PTNP), which was officially gazetted in 2005 after many years of negotiation or as part of the tri-national Heart of Borneo initiative led by the World Wide Fund for Nature, to which the state of Sarawak is a signatory.

Pulong Tau National Park (PTNP), which translates to "Our Forest" in the Kelabit language, was first requested by members of the Kelabit community in the late 1970s as a means to protect the headwaters of several major rivers in Sarawak, including the Baram, Tutoh, and Limbang Rivers (Sreedharan 2006; Wahab 2007, Grinang 2007; Chiew 2007; Nyanti and Grinang 2007). Originally, this park included 164,500 hectares, but over the years, the area was decreased incrementally to its current size of 59,817 hectares (Sreedharan 2006; Dagang 2007). Key landscape features were removed from the park, and all but about two kilometers of the transboundary areas were also removed. There is currently a proposal by the International Tropical Timber Organization (ITTO) and the Government of Malaysia to extend the border of PTNP in Sarawak to join with Kayan Mentarang National Park (KMNP) in Kalimantan, thus creating a large transboundary conservation area. This ITTO project, entitled "Transboundary Biodiversity Conservation: The Pulong Tau National Park, Sarawak State, Malaysia," is now finishing its second phase. During the first phase (2005-2007, with an operating budget of USD1,546,563), Sarawak Forest Department employees conducted baseline ecological studies within the park, as well as socio-economic and cultural studies on the communities in the Kelabit Highlands, areas within and bordering the proposed extension area (ITTO 2003). These baseline studies were intended to inform the long-term management plan of PTNP. The second phase of the project (2008-2010, with an operating budget of USD1,490,165) includes implementation of the projects proposed in the first phase, the most significant of which is the actual extension of the boundaries of PTNP to create a transboundary conservation area with KMNP (ITTO 2007). This transboundary extension to PTNP fits within the goals of the tri-national Heart of Borneo initiative, which will be discussed in detail in Chapter 6.

Beyond the Plateau: The Wider Context of the Kelabit Highlands

The Kelabit Highlands, although still geographically remote (though accessibly by air and now by road), is not isolated politically or economically; the area and its people operate within wider contexts that extend to global processes. The Kelabit Highlands, for example, exist within the political landscape of Sarawak, Malaysia, and Southeast Asia. Since Sarawak operates with a high degree with of autonomy from the federal government of Malaysia, the state government is the strongest source of outside political influence, and the Kelabit people are deeply enmeshed in this political context. Most all adult Kelabit living in the Kelabit Highlands belong to an official political party, most often one that falls under the umbrella of the *Barisan Nasional*, or "National Front," the coalition of parties currently ruling the Parliamentary government of Malaysia. This coalition has been led by the same Chief Minister in Sarawak, Pehin Sri Haji Abdul Taib bin Mahmud since 1981. Though his rule has been characterized by widespread corruption, and though the legitimacy of his power have been questioned in the past, many indigenous people in Sarawak continue to support his regime. Many Kelabit and other indigenous peoples in Sarawak believe they have benefitted from this government in terms of development, or are satisfied with the rule of this coalition for other reasons, such as the relative financial security of the state and the peaceful nature of co-existence among the ethnic groups that have also been characteristic of the rule of *Barisan Nasional*. There are a few indigenous groups that collectively do not support parties within *Barisan Nasional* and individuals within most all indigenous groups that do not. But the majority, Kelabit included, generally do not vote or act in ways that could be seen as "anti-government," even though they may privately criticize the policies of the state government or the behaviors of politicians (Amster 1998).

The state government, led by *Barisan Nasional*, like the governments of many developing states and nations, is fixated on "development" of its rural areas. This is often framed in terms of improving the standard of living for rural inhabitants, which is a central responsibility of government. The Sarawak government, however, is often criticized for instigating "development" projects more for the benefit of favored contractors or license holders than for local communities. But by implementing these high-profile development projects in rural areas, the government attempts to overcome the perception that many people (even in Peninsular Malaysia) have of Sarawak as "backwards" socially and generally "behind the times." Several Kelabit with whom I have spoken said that when they visited Peninsular Malaysia, people there wanted to know if Sarawakians "still lived in trees." The Malaysian states of Sabah and Sarawak are also seen by the national government as "periphery" areas that can provide raw resources and income to the national government. In Sarawak, several "megaprojects" have been proposed to provide electrical power to Peninsular Malaysia; first by the massive dam on the Bakun River that displaced many people living in the communities along the river, and later by a series of energy-related megaprojects under the umbrella of SCORE, the Sustainable Corridor of Renewable Energy.

While including communities like the Kelabit Highlands in these massive development projects that directly threaten the ecological systems of Sarawak, the state government simultaneously promotes the idea that it supports conservation initiatives. Much has been written about conservation in Sarawak, much of it discouraging (Bennett and Gumal 2001; Horowitz 1998; Dinerstein and Wikramanayake 1993; King 1993; Primack 1991; Caldecott 1988), and from a global conservation standpoint, Sarawak's environmental record is dismal. But the Malaysian government, and especially the Sarawak state government under the rule of Chief

Minister Taib, is extremely sensitive to criticism, especially from foreign researchers, scientists, or activists. Much of this sensitivity is in reaction to the years of bad publicity that the Sarawak government endured as a result of being in the global spotlight in the 1980s. This was a time when the Penan, many of them nomadic hunters and gatherers, gained international attention (and support) for blockading the logging roads that entered the lands in which they lived. Because a Swiss man named Bruno Manser assisted the Penan in organizing some blockades and drawing international attention to the issues in Sarawak, the government grew wary of all foreigners visiting Sarawak, including researchers and tourists (Brosius 1999, 1997). The government, still sensitive and resistant to bowing to international pressure regarding its environmental policies, is also now promoting its own conservation plans in the hopes of convincing the world of its concern for the fragile ecological systems of Sarawak and Sabah, from the few montane forests that are as yet uncut to the carbon-storing peat swamps in the lowlands.

It is evident that the Kelabit Highlands is an important part of the conservation landscape of Sarawak (see Chapter 6 for a detailed description of conservation in the Kelabit Highlands, and the inclusion of the Kelabit Highlands into the Heart of Borneo conservation initiative), whether genuinely or purely strategically. They are also clearly embedded within the political landscape of Sarawak and Malaysia, despite their remoteness, and the nature of the engagement of the Kelabit Highlands landscapes and communities puts them in the heart of global discussions regarding communities and development and conservation projects, as well as discussions of indigenous rights and transformations of cultural identity.

## Discussion

### Changes in Kelabit Perception of the Landscape

All the historical and recent events in the Kelabit Highlands that have been described in this chapter (with details to follow in the next four chapters), which have occurred within the wider political, social, and economic landscapes described above, have greatly influenced changes in Kelabit connections to, and perceptions of, the Kelabit Highlands landscape. These changes are manifested in myriad ways and are connected to specific cultural issues. These issues include: (1) a growing disconnect with the physical landscape as land becomes viewed more as a commodity now than in the past; (2) the diasporic nature of the Kelabit community, which results in multiple perceptions; (3) wider opportunities created by greater access to and success in education outside the Kelabit Highlands, which have led to differential access to information about the wider context of the Kelabit Highlands as well as to more opportunities for employment outside the Kelabit Highlands; and (4) the conversion of the Kelabit community to Christianity, which has had both dramatic and subtle effects on the perception of landscape. These issues are interrelated and difficult to discuss in isolation from one another.

During the time I spent in Sarawak, both in the Kelabit Highland villages and in the coastal cities, many Kelabit lamented the fact that they no longer felt the same kind of connections to the land that their parents and grandparents did. Not surprisingly, this sentiment was most often expressed by urban Kelabit who have migrated out of the Kelabit Highlands in pursuit of education, employment, or marriage. Urban Kelabit often feel nostalgia when remembering their childhoods in the Kelabit Highlands, and they continue to think of the Kelabit Highlands as the Kelabit homeland. Many urban Kelabit plan to retire in the Kelabit Highlands, and they seek to maintain links to their home villages through relationships with their kin, as

well as by providing financial assistance for village projects. Wealthy urban Kelabit, for example, often donate money for projects such as construction or renovation of churches, or they help to secure funding through their employers' companies for community projects (often through the companies' corporate social responsibility funds). Outmigration has had many positive effects on the Kelabit community, such as exposure to more education and employment opportunities and access to more knowledge about what is happening outside the Kelabit Highlands. But Bala (2007) writes about the emotional price that is paid both by people who leave the highlands and those who are left behind. Speaking specifically of rural mother-urban daughter relationships, she notes:

> Outward migration undoubtedly is one of the most significant factors which has transformed the Kelabit from a rice-farming community to one that produces professionals, religious leaders, intellectuals and others who play a valuable role in wider Malaysian society. As suggested by the songs and narratives of women and their migrant daughters, these transformations are not without cost…. A vacuum is created and the yearning for each is acute (136).

Among many urban Kelabit, there is also an acute longing for the rural Kelabit lifestyle and for the landscape itself.

Some Kelabit now living in cities plan to retire in the Kelabit Highlands and do not want the area to change much. They want to return to the villages in which they lived as children. They want game to be in the forests when they go hunting, and for fish to be in the rivers. They want to see the longhouses, clear rivers, and trees that they remember. However, many have grown accustomed to amenities in the cities such as electricity, email and telephone communication, cheap and plentiful food and goods, and even luxury amenities such as golf

courses, spas, and restaurants, and they envision bringing these amenities to the Kelabit Highlands so they can retire in comfort. Some Kelabit living in cities realize that they have more power to decide the future of the Kelabit Highlands due to their access to information, relationships with politicians, and connections with private companies involved in development or extractive industry (such as Samling, the company with the timber licenses for many areas in the Kelabit Highlands, or the Sarawak Forestry Corporation). Some urban Kelabit view land as a commodity and have capitalized on their advantages, thus profiting from their assistance to governmental agencies or politicians or to extractive industries or developers. Others, more aware of the rampant political corruption of the state government (and the global economic system that rewards large-scale logging), lament the destruction of their land and oppose extraction in the guise of "development." Many urban Kelabit understand all these positions, and they make a genuine effort to negotiate in a way that benefits both rural and urban-based Kelabit, despite the inherent contradictions and inevitable trade-offs. As Amster notes: "rural Kelabit have generally looked to the leadership of the urban-based Kelabit ethnic associations to help them navigate an intelligible response to logging" (Amster 2008: 90). The diasporic nature of the urban Kelabit community leads to multiple perspectives on the values (sentimental, cultural, ecological, economic, and political) of the landscape and multiple opinions on what the Kelabit Highlands landscape should look like in the future. Fragmentation of the Kelabit community, combined with the multiplicity of visions for the future, has led to a heterogeneous view of the future for the Kelabit Highlands.

Rural Kelabit, those who live in the Kelabit Highlands and are dependent on the landscape, also express a deep love of the land, but tend not to romanticize it. They usually view the landscape in practical terms, and seek a balance between developments that will benefit them

(such as a road to lessen the cost of the transport of goods into the Highlands) and the prevention of logging and development activities that will have negative impacts on their abilities to procure food (which silts rivers and drives away game animals), earn income from tourists who come to the Kelabit Highlands to trek through intact forests, or ensure the safety of community members, especially women and children. Although most villagers have had some formal education and do regularly visit the coastal cities, they tend to not have access to as much information about the plans for the future of the Kelabit Highlands, and so they have to trust the people (such as government officials or representatives or urban Kelabit) that come to their villages to hold meetings or make announcements. Due to the disparity in levels of access to information and political influence, rural Kelabit often keenly feel the power imbalances that exist between rural and urban Kelabit, as well as between themselves and other urban-based authority figures.

While urban Kelabit are disconnected from the land physically by virtue of not living in the Kelabit Highlands, and perhaps more fundamentally by not having to rely on the land for daily needs, rural Kelabit have become more disconnected from the land as well, albeit in different ways. This growing disconnect is directly related to changing lifestyles in the Kelabit Highlands, most importantly outmigration. As mentioned, outmigration leaves a generation gap in the Kelabit Highlands, so that many villages are left without young adults to do the arduous farming tasks. This gap is often filled by Indonesian workers from villages just across the border, who time their own harvests so that they can tend their own fields as well as those of the Kelabit. Often the rural Kelabit do participate (perhaps mainly in symbolic gestures) in the labor of planting and harvesting rice, but they often leave the bulk of the work to others, as they have other sources of income and the means to pay workers.

Most Kelabit now living in the villages have spent some time in cities, in school or working, and most Kelabit now living in the cities were born and raised in the Kelabit Highlands. There are many teenagers and young adults who have never lived in the Kelabit Highlands (perhaps never even visited), and there are elderly Kelabit who have never lived outside the Kelabit Highlands. But the majority of both urban and rural Kelabit have lived, if only briefly, in both worlds. So to discuss "urban" and "rural" Kelabit is particularly tricky, and the boundaries between these categories, like all others concerning Kelabit, are fluid. Lucy Bulan and Robert Lian Saging, both Kelabit, discuss the urban-to-rural migration of Kelabit who are resettling in the Kelabit Highlands after being disappointed by life in the towns. They discuss the likely future for the diasporic Kelabit community:

> With the inherent resilience of the Kelabits, coupled with the good leadership and organization that the successful Kelabits in the towns can offer, the Kelabit longhouse settlements will hopefully see new development in the next decade. In the towns the Kelabits will slowly be assimilated into the urban way of life, keeping only a few customs and practices which will serve to identify them as Kelabits. They will continue to serve the State and country to the best of their ability (Bulan and Saging 1979:93)

Regardless of where Kelabit are currently living, the multiplicity of Kelabit perspectives on the landscape of the Kelabit Highlands, and the meanings that different people attach to the landscape (cultural, historic, economic, political, ecological, spiritual), are also constantly changing. Individuals change their mind often, as they gain more knowledge and experiences. They may associate more closely with one meaning or value one day and a different one the next day, or they emphasize different values and meanings depending on whom they are talking with.

As mentioned, Christianity has been a major unifying force for the widespread Kelabit community, and is a major element of Kelabit identity today. The conversion to Christianity has also had decided impacts on the material culture and the landscape of the Kelabit Highlands. Almost immediately following conversion, at the suggestion of some missionaries, many cultural items such as beads and jars were destroyed. Likewise, some of the megaliths and landscape modifications were either destroyed or consciously ignored. These items became a source of shame for the newly-converted Kelabit because they were made by pagans and because they glorified (or were reminders of) pagan traditions like headhunting, hierarchical class structure, secondary burials, or of behaviors now seen as un-Christian, such as personal pride. Amster (1999:185) notes that: "In the wake of conversion there was a rapid and widespread abandonment of traditional ritual practices as well as to an array of changes in Kelabit thought and society." Years later, during a process of cultural transformation that included increasing familiarity with the outside world, many Kelabit realized that they may have been overzealous in destroying tangible reminders of their pagan past. They acknowledge that while they would never want to disavow Christianity or return to a pre-Christian lifestyle, they now accept that not all aspects of Kelabit history are bad or incompatible with Christian beliefs. There was, and continues to be, a process of sorting out what aspects of traditional/pre-Christian Kelabit culture to keep (such as the name-changing ceremony, traditional dances, and the Kelabit language) and what to get rid of for good (such as infanticide, headhunting, secondary burial). Amster (1999) writes about the ways that old traditions have been turned into something new through a process of "selective reinterpretation of 'traditional' practice" that combines elements of the past with the current ideals of modernization and Christianity (for example, Kelabit rituals today lack animal sacrifices and heavy drinking of alcoholic *tuak*). Interestingly, he notes (1999), one of the most

important rituals marking Kelabit identity today, the *Irau Naru' Ngadan* or *Irau Makaaa Ngadan*, or Name-Changing Ceremony, is actually a relatively new phenomenon, but that "significant discourse about authenticity does not appear to be taking place among the Kelabit regarding the issue of name changing" (186). While he acknowledges that the ceremony may be at least partly "an exercise in nostalgia" (196), he also argues that the modern Kelabit are not too nostalgic about the past:

> As with many people undergoing rapid change, many Kelabits consider it desirable to retain some form of ethnic identity and affiliation. And yet, on the whole, there is very little nostalgic interest in the past within the community… With a few exceptions, Kelabits do not seem to regret the fact that they have lost much of their knowledge of practices of their pre-conversion past (1999:195).

However, the situation seems to be different now, ten years after he wrote that passage, as is evidenced by the proliferation of cultural revitalization projects initiated in the past few years.

In 2000, a new *kawang* was made on the Pengapawan Ridge overlooking all of Bario to commemorate the new millennium (called the Millennium Kawang). It was made to symbolically allow new ideas to pass into the Kelabit Highlands more freely, and it was made in a spirit of Christian piety. Some Kelabit, however, disapproved of this activity, fearing a reversion to pagan rituals. During my time in the Kelabit Highlands, I heard suggestions that other people may make other new *kawang* or megaliths, though, to my knowledge, none has been made yet. The current project implemented by *Rurum Kelabit Sarawak* to protect cultural sites from destruction by logging and to preserve cultural knowledge about these sites is another manifestation of how the landscape has become involved in processes of cultural transformation. At the same time, some cultural objects are still seen by local people, or more often, visiting

preachers or missionaries, as representations of a pagan past, or even physical repositories of "evil" powers. Several of these objects have recently been destroyed. Two tops of burial jars that were being held in a family home in one village in the Kelabit Highlands (at the request of the director of the Sarawak Museum) were smashed by visiting missionaries from Indonesia because it was thought that they were bringing bad luck to the village. In another village just outside the Kelabit Highlands, a carved stone was broken because it was thought that evil spirits were residing inside the rock. In both cases, the destruction of these items was accompanied by fervent prayers and for some, a relief that the evil had been dissipated. Other Kelabit, either those present at the destruction or who heard of it later, were sad or angry at the loss of the items and at the seeming inability of the people involved to "have enough faith that Christ is stronger than the evil spirits." Some Kelabit profess to having no belief in spirits or ghosts outside the Christian repertoire, but there are many degrees of religious syncretism.

Amster (2008:85) also discusses the "resacralization of the forest" of Mount Murud, the highest peak in Sarawak and the site of annual pilgrimage retreats to a church map built there in 1990 (Chew 2009). Amster contrasts this with the case of the Rungus Dusun community, for whom anthropologist George Appell (1997, 2005) has argued that conversion to Christianity has led to a "desacralization of land" (Amster 2008:85). As Christianity is such an important element of Kelabit cultural identity, it is difficult to overestimate how deeply these spiritual beliefs permeate Kelabit perceptions of and interactions with the physical landscape.

Uncertainty about the Future of the Landscape

As mentioned throughout this chapter, the future of the Kelabit Highlands landscape is highly uncertain; many proposals (ranging from conservation to agricultural plantations) have been suggested, submitted, or encouraged by various actors (Kelabit and non-Kelabit). The

processes of addressing these many proposals has both created and exacerbated tensions among different subsets of Kelabit, even between and within certain families. The uncertainty has also led to a high degree of anxiety among Kelabit today (see Amster 2009). This uncertainty makes long-term planning difficult (and investment in new business risky) and can exacerbate inner-community tensions and present threats to community solidarity. Many Kelabit are saddened when they see their homeland destroyed, and they fear what could happen if big development projects come into the Kelabit Highlands: changing demographics and loss of Kelabit control of the area, destruction of the ecosystems and watersheds that support rice production and provide Kelabit with game animals and fish, and of the forests necessary for ecotourism revenue. Yet they are also excited about what development can potentially bring to the Kelabit Highlands: new employment opportunities that could retain or bring back younger Kelabit to the area, increased connection to the outside world, a lower cost of living and a higher standard of living, and increased amenities.

Anthropologist Matthew Amster discusses the shift in the perception of the natural world by the Kelabit that has come with the modernizing forces that have been affecting the community in the past several decades, particularly the advent of Christianity. He suggests that although the context has changed dramatically, there is still an underlying anxiety in the relationship of the Kelabit to the natural world. He says that "the local landscape has gone from being perceived of as highly problematic – at times a terrifying – source of anxiety in spiritual terms to being an equally terrifying source of political and economic anxiety and stress in the present day" (Amster 2008:77). The Kelabit, he argues, have experienced a sense of a loss of agency, as they are unable to stop the logging and are hesitant to oppose government plans for large-scale agricultural development. Amster (2008:90) says:

> Kelabit, who have been well-known for their educational and professional success in town as well as their religious zeal and political savvy, now suddenly appear as disenfranchised and passive agents in the decision-making processes that will likely determine the fate of their homelands in the Kelabit Highlands.

Privately, many Kelabit express pro-conservation/anti-logging stances; they do not want to see the Kelabit Highlands logged, and it causes them great emotional pain to see the landscape destroyed. However, many also believe that protests, such as the high-profile blockades instigated by the Penan in the 1980s and 90s are "counter-productive as it would only irritate the government" (Amster 2008:90).

Many Kelabit individuals and communities have already accepted timber compensation money (in the form of "Christmas gifts" or monthly "salaries") or signed agreements with the timber company. The unequal distribution of benefits from the company also exacerbates inner-community tensions, due to jealousy and to accusations of "selling out." This selective distribution of financial benefits to certain community members is very strategic on the part of the extraction companies, as they have typically employed "divide and conquer" strategies when dealing with local communities. It seems inevitable that if or when large agricultural corporations make plans to initiate agricultural plantations in the Kelabit Highlands, they will employ the same strategies, probably through the vehicle of joint-venture schemes, which have created many inner-community problems elsewhere. This only adds to the layers of anxiety created by the uncertainty over the future of the Kelabit community and the Kelabit landscape.

## Conclusion

The Kelabit community and the landscape of the Kelabit Highlands have undergone significant transformations, each intertwined with the others. These transformations have

resulted in the diasporic Kelabit community of today and the Kelabit Highlands landscape that today is a mosaic of many different past, present, and future land uses. The history of the Kelabit people is embedded within this landscape, and they are keen to document it now, as the landscape is acutely threatened by logging activities. This effort to document the cultural sites, village boundaries, water catchment areas, family land, and other portions of the landscape, can be seen as direct response to logging, but it also part of a larger cultural matrix that emphasizes the revitalization of certain aspects of traditional Kelabit culture within the context of a modernized and Christian community interacting with state, national, international, and global processes. Further changes in Kelabit community and the Kelabit Highlands landscape are inevitable. From the earliest written accounts about them it has been evident that Kelabit people are adaptable, resilient, entrepreneurial, and open to new ideas. Right now the community faces many challenges to solidarity and to the future of their homeland. There are many scenarios of how the community and the landscape could look in five, ten, or fifty years. Time will tell what happens to the physical landscape and how Kelabit identity both responds to and influences those changes.

References Cited

Amster, Matthew
2008 Where Spirit and Bulldozer Roam: Environment and Anxiety in Highland Borneo. Journal for the Study of Religion, Nature and Culture 2(1):74-92.

Amster, Matthew
2005 Cross-border Marriage in the Kelabit Highlands of Borneo. Anthropological Forum 15(2): 131-150.

Amster, Matthew
2003 Gender Complementarity and Death among the Kelabit. *In* Journeys of the Soul: Anthropological Studies of Death, Burial, and Reburial Practices in Borneo. William D. Wilder, ed. Pp. 251-307. Kuching: Borneo Research Council, Inc.

Amster, Matthew
1998 'Tradition,' Ethnicity, and Change: Kelabit Practices of Name Changing. Sarawak Museum Journal Vol. LIV (No. 75 New Series):183-200.

Amster, Matthew
1998 Community, Ethnicity, and Modes of Association among the Kelabit of Sarawak, East Malaysia. Unpublished dissertation, Faculty of the Graduate School of Arts and Sciences, Brandeis University.

Amster, Matthew
1995 Kelabit/English, English/Kelabit Glossary: A Concise Guide to the Kelabit Language. Kuching: Rurum Kelabit Sarawak.

Appell, George N.
2005 Dismantling the Cultural Ecosystem of the Rungus of Sabah, Malaysia: A History of How the Ideology of Western Institutions Led to the Destruction of a Borneo Environment. *In* Histories of the Borneo Environment: Economic, Political and Social Dimensions of Change and Continuity. Reed L. Wadley, ed. Pp. 213-243. Leiden: KITLV Press.

Appell, George N.
1997 The Ecological and Social Consequences of Conversion to Christianity among the Rungus Dusun of Sabah, Malaysia. *In* Sociocultural Change, Development, and Indigenous Peoples. Tan Chee-Beng, ed. Contributions to Southeast Asian Ethnography 11:61-99.

Appell, George
1971 Systems of Land Tenure in Borneo: A Problem in Ecological Determinism. Borneo Research Bulletin 3:17-21.

Bala, Poline
2008 National Identity and Multiculturalism at the Margins: The Kelabit Experience in the Highlands of Central Borneo. *In* Representation, Identity and Multiculturalism in Sarawak. Zawawi Ibrahim, ed. Pp. 131-154. Kuching and Selangor: Dayak Cultural Foundation and Persatuan Sains Sosial Malaysia.

Bala, Poline
2007 From Highlands to Lowlands: Kelabit Women and Their Migrant Daughters. *In* Village Mothers, City Daughters: Women and Urbanization in Sarawak. Hew Cheng Sim, ed. Pp. 120-139. Singapore: Institute of Southeast Asian Studies.

Bala, Poline, Roger Harris, and Peter Songan
2003 E-Bario project: In Search of a Methodology to Provide Access to Information Communication Technologies for Rural Communities in Malaysia. *In* Using Community Informatics to Transform Regions. S. Marshall, W. Taylor and X. Yu., eds. Pp. 115-131. Hershey, PA: Idea Group Publishing.

Bala, Poline
2002 Changing Borders and Identities in the Kelabit Highlands: Anthropological Reflections of Growing Up in a Kelabit Village near the International Border. Dayak Studies Contemporary Society Series, No. 1. Institute of East Asian Studies. Kuching: Unit Penerbitan Universiti Malaysia Sarawak.

Banks, Edward
1937 Some Megalithic Remains from the Kelabit Country in Sarawak with Some Notes on the Kelabit Themselves. Sarawak Museum Journal IV, Part IV (15): 411-437.

Barker, Graeme, Huw Barton, Daniel Britton, Ipoi Datan, Monica Janowski, Samantha Jones, Jayl Langub, Lindsay Lloyd-Smith, Borbála Nyíri and Beth Upex
2008 The Cultured Rainforest Project: The First (2007) Field Season. Sarawak Museum Journal 86:121-190.

Barton, Huw
2009 The Social Landscape of Rice within Vegecultural Systems in Borneo. Current Anthropology 50(5):673-675.

Beaman, Teofila E., Jeffrey J. Wood, Rimi Repin, and John H. Beaman
1998 An Enumeration of Orchid Collections from the Kelabit Highlands. *In* Bario: The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily bin Din, eds. Pp.83-112. Selangor: Pelanduk Publications.

Bennett, Elizabeth L. and Melvin T. Gumal
2001 The Interrelationships of Commercial Logging, Hunting, and Wildlife in Sarawak: Recommendations for Forest Management. *In* The Cutting Edge: Conserving Wildlife in Logged Tropical Forests. Robert A. Fimbel, Alejandro Grajal, and John G. Robinson, eds. Pp. 359-374. New York: Columbia University Press.

Bernstein, Jay H.
1997 Spirits Captured in Stone: Shamanism and Traditional Medicine among the Taman of Borneo. Boulder: Lynne Rienner Publishers.

Bloch, Maurice and Jonathon Parry, eds.
1982 Death and the Regeneration of Life. Cambridge: Cambridge University Press.

Blust, R. A.
1974 A Murik Vocabulary, with a Note on the Linguistic Position of Murik. Sarawak Museum Journal XXII (43):153-189.

Brosius, J. Peter
1999 Green Dots, Pink Hearts: Displacing Politics from the Malaysian Rain Forest. American Anthropologist 101(1):36-57.

Brosius, J. Peter
1997 Prior Transcripts, Divergent Paths: Resistance and Acquiescence to Logging in Sarawak, East Malaysia. Comparative Studies in Society and History 39(3):468-510.

Bulan, Lucy and David Labang
1979 The Kelabit Harvest. Sarawak Museum Journal XXVII (48): 43-52.

Bulan, Ramy
2008 Resolution of Conflict and Disputes under Kelabit Customary Laws in Sarawak. *In* Representation, Identity and Multiculturalism in Sarawak. Zawawi Ibrahim, ed. Pp. 155-174. Kuching and Selangor: Dayak Cultural Foundation and Persatuan Sains Sosial Malaysia.

Bulan, Ramy
2003 Boundaries, Territorial Domains, and Kelabit Customary Practices: Discovering the Hidden Landscape. Borneo Research Bulletin 34:18-61.

Bulan, Solomon and Lillian Bulan-Dorai
2004 The Bario Revival. Kuala Lumpur: Home Matters Network.

Caldecott, Julian
1988 Hunting and Wildlife Management in Sarawak. Gland and Cambridge: IUCN.

Chew Ariel (with Pelayanan Gunung Doa Murud)
2009 Christian House of Prayer for All Nations: The History of Mount Murud as Prayer Mountain. http://gunungmurud.blogspot.com/2009/06/history-of-mount-murud-as-prayer.html. Posted 25 June 2009. Accessed 2 November 2009.

Chiew, S. P.
2007 Geomorphology and Soils of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama & Kuching: International Tropical Timber Organization, Sarawak Forest Department & Sarawak Forestry Corporation.

Cooke, Fadzilah Majid
2003 Maps and Counter-Maps: Globalised Imaginings and Local Realities of Sarawak's Plantation Agriculture. Journal of Southeast Asian Studies 34:265-284.

Cooke, Fadzilah Majid
2002 Vulnerability, Control and Oil Palm in Sarawak: Globalization and a New Era? Development and Change 33(2):189-211.

Cramb, Robert A.
1993 Shifting Cultivation and Sustainable Agriculture in East Malaysia: A Longitudinal Case Study. Agricultural Systems 42:209-226.

Cramb, Robert A.
1985 The Importance of Secondary Crops in Iban Hill Rice Farming. Sarawak Museum Journal 34(55):37-45.

Christensen, Hanne
2002 Ethnobotany of the Iban and Kelabit. A joint publication of Forest Department Sarawak, Malaysia; NEPCon, Denmark; and University of Aarhus, Denmark.

Dagang, P.a.
2007 Big mammals of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama & Kuching: International Tropical Timber Organization, Sarawak Forest Department & Sarawak Forestry Corporation.

Dinerstein, Eric and Eric D. Wikramanayake
1993 Beyond "Hotspots": How to Prioritize Investments to Conserve Biodiversity in the Indo-Pacific Region. Conservation Biology 7(1):53-65.

Douglas, R. S.
1912 An Expedition to the Bah Country of Central Borneo. Sarawak Museum Journal. 1(2):17-30.

Eghenter, Cristina and Jayl Langub
2008 Past Meets Future: A Trans-Border Forum for a Sustainable Future for the Highlands of Borneo. Borneo Research Bulletin.

Fong, Hon Kah
2008 A History of the Development of the Baram River Basin in Sarawak. Julitta Lim Shau Hua, transl. Kuching: Sarawak Press.

Freeman, J. Derek
1955 Iban Agriculture: A Report on the Shifting Cultivation of Hill Rice by the Iban of Sarawak. London: HMSO.

Friedman, Jonathan
1992 The Past in the Future: History and the Politics of Identity. American Anthropologist 94(4):837-859.

Glover, Ian C. and Charles F. W. Higham
1996 New Evidence for Early Rice Cultivation in South, Southeast and East Asia. In The Origins and Spread of Agriculture and Pastoralism in Eurasia. Pp. 442-464. David R. Harris, ed. London: UCL Press.

Gnaniah, Jayapragas, Alvin Yeo, Peter Songan, Hushairi Zen, and Khairuddin Ab Hamid
2004 A Comparison on the Implementation Approaches for The E-Bario and E-Bedian Projects. *In* Work With Computing Systems. H.M. Khalid, M.G. Helander and Alvin W. Yeo, eds. Pp. 286-291. Kuala Lumpur: Damai Sciences.

Hansen, T. S. and Ole Mertz
2006 Extinction or Adaptation? Three Decades of Change in Shifting Cultivation in Sarawak, Malaysia. Land Degradation and Development 17(2):135-148.

Harris, Roger
2001 Internet Access by Remote Communities in Sarawak: The Smart School as a Demonstrator Application. Research report: UNIMAS and IDRC.

Harrisson, Tom and Penghulu Balang Siran
1959 World Within: A Borneo Story. Singapore: Oxford University Press.

Harrisson, Tom
1954 Outside Influences on the Upland Culture of Kelabits of North Central Borneo. Sarawak Museum Journal VI: 104-125.

Heimann, Judith M.
2007 The Airmen and the Headhunters: A True Story of Lost Soldiers, Heroic Tribesmen and the Unlikeliest Rescue of World War II. Orlando: Harcourt, Inc.

Heimann, Judith M.
1999 The Most Offending Soul Alive: Tom Harrisson and His Remarkable Life. Honolulu: University of Hawai'i Press.

Hertz Robert A.
1960 Contribution to the Study of the Collective Representation of Death. *In* Death and Right Hand. Rodney Needham and Claudia Needham, trans. Pp. 27-113. London: Cohen and West.

Hitchner, Sarah
2006 The Living Kelabit Landscape: Linking Agroforestry, Land Use History, and Conservation in the Kelabit Highlands of Sarawak, Malaysia. Unpublished manuscript.

Hitchner, Sarah, Florence Lapu Apu, Lian Tarawe, Supang Galih@Sinah Nabun Aran, and Ellyas Yesaya
2009 Community-Based Transboundary Ecotourism in the Heart of Borneo: A Case Study of the Kelabit Highlands of Malaysia and the Kerayan Highlands of Indonesia. Journal of Ecotourism 8(2):193-213.

Horowitz, Leah Sophie
1998 Integrating Indigenous Resource Management with Wildlife Conservation: A Case Study of Batang Ai National Park, Sarawak, Malaysia. Human Ecology 26(3):371-403.

Hose, Charles
1900 In the Heart of Borneo. The Geographical Journal 16(1):39-59.

Hose, Charles
1894 The Natives of Borneo. The Journal of the Anthropological Institute of Great Britain and Ireland. 23:156-172.

Hose, Charles
1893 A Journey up the Baram River to Mount Dulit and the Highlands of Borneo. The Geographical Journal. 1(3):193-206.

International Tropical Timber Organization (ITTO) and Government of Malaysia
2003 Transboundary Biodiversity and Conservation: The Pulong Tau National Park, Sarawak State, Malaysia. ITTO Project Document, Serial number PD 224/03 Rev. 1 (F).

International Tropical Timber Organization (ITTO) and Government of Malaysia
2007 Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia – Phase II. ITTO Project Document, Serial number PD 451/07 Rev. 1 (F).

Ipor, I. B., C. S. Tawan, J. Ismail, and D. Bojo
1998 Floristic Compositions and Structures of Forest at Bario Highlands, Sarawak. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. 113-132. Selangor: Pelanduk Publications.

Ismail, Ghazally
1998 Introduction: Bario: The Highland of the Kelabit People. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. i-iii. Selangor: Pelanduk Publications.

Jalong, Philip Ngau
1989 The Ngurek. Sarawak Museum Journal XL (Old Series), 61 (New Series) (4): 157-168.

Jaman, Razali, K. Mat-Salleh, and A. Latiff
1998 Provisional Account and Checklist of Ferns and Fern-Allies in Bario, Kelabit Highlands, Sarawak. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. 141-154. Selangor: Pelanduk Publications.

Janowski, Monica
2003 Who's in Charge Around Here? Struggle for Leadership in a Changing World among the Kelabit of Sarawak. *In* The House in Southeast Asia: A Changing Social, Economic and Political Domain. Pp. 95-113. Stephen Sparkes and Signe Howell, eds. London: RoutledgeCurzon.

Janowski, Monica
1995 The Hearth-Group, the Conjugal Couple and the Symbolism of the Rice Meal among the Kelabit of Sarawak. *In* About the House: Lévi-Strauss and Beyond. Pp. 84- 104. Janet Carsten and Stephen Hugh-Jones, eds. Cambridge: Cambridge University Press.

Janowski, Monica
1988 The Motivating Forces behind Recent Changes in the Wet Rice Agricultural System in the Kelabit Highlands. Sarawak Gazette 114(1504):9-21.

Kaur, Amarjit
1998a A History of Forestry in Sarawak. Modern Asian Studies 32:117-147.

Kaur, Amarjit
1998b Economic Change in East Malaysia: Sabah and Sarawak since 1850. New York: St. Martin's Press.

Kevin, Muyang Tawie Sulok, Osumanu Haruna Ahmed, Wan Yahaya Wan Asrina, Amartalingam Rajan, and Mohamad Ahzam
2007 Towards Growing Bario Rice on Lowland Soils: A Preliminary Nitrogen and Potassium Fertilization Trial. American Journal of Agricultural and Biological Sciences 2(2):99-105.

King, Victor T.
1993 *Politik Pembangunan*: The Political Economy of Rainforest Exploitation and Development in Sarawak, East Malaysia. Global Ecology and Biogeography Letters 3(4/6):235-244.

King, Victor T.
1993 The Peoples of Borneo. Oxford: Blackwell Publishers.

King, Victor T.
1991 Cognation and Rank in Borneo. *In* Cognation and Social Organization in Southeast Asia. Pp. 15-31. Frans Hüsken and Jeremy Kemp, eds. Leiden: KITLV Press.

King, Victor T.
1985 The Maloh of West Kalimantan: An Ethnographic Study of Social Inequality and Social Change among an Indonesian Borneo People. Dordrecht, Cinnaminson: Foris.

Latiff, A., A. Zainudin Ibrahim, and K. Mat-Salleh
1998 An Account and Checklist of the Flowering Plants at Kelabit Highlands, Bario, Sarawak. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. 1-20. Selangor: Pelanduk Publications.

Lee, Boon Thong and Tengku Shamsul Bahrin
1997 The Bario Exodus: A Conception of Sarawak Urbanization. Borneo Review 4(2):113-128.

Lees, Shirley
1979 Drunk Before Dawn. Singapore: Overseas Missionary Fellowship.

MacDonald, Malcolm
1956 Borneo People. London: Jonathon Cape Limited.

Mertz, Ole and Hanne Christensen
1997 Land use and Crop Diversity in Two Iban Communities, Sarawak, Malaysia. The Royal Danish Geographical Society 97(1):98-110.

Metcalf, Peter
1987 Wine of the Corpse: Endocannibalism and the Great Feast of the Dead in Borneo. Representations 17:96-109.

Metcalf, Peter
1982 A Borneo Journey into Death: Berawan Eschatology from Its Rituals. Philadelphia: University of Pennsylvania Press.

Metcalf, Peter
1981 Meaning and Materialism: The Ritual Economy of Death. Man 16(4):563-578.

Metcalf, Peter and Richard Huntington
1991 Celebrations of Death: The Anthropology of Mortuary Ritual, 2nd Ed. Cambridge: Cambridge University Press.

Miles, Douglas
1965 Socio-Economic Aspects of Secondary Burial. Oceania 35(3):161-174.

Morrison, Hedda
1957 Sarawak. Singapore: Donald Moore Gallery.

Nagel, Joane
1994 Constructing Ethnicity: Creating and Recreating Ethnic Identity and Culture. Social Problems 41(1):152-176.

Nyanti, L. and J. Grinang
2007 Fish Fauna of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama & Kuching: International Tropical Timber Organization, Sarawak Forest Department & Sarawak Forestry Corporation.

Omar, Asmah Haji
1983 The Malay Peoples of Malaysia and Their Languages. Kuala Lumpur: Dewan Bahasa dan Pustaka, Kementerian Pelajaran Malaysia.

Ooi, Keat Gin
1997 Of Free Trade and Native Interests: The Brookes and the Economic Development of Sarawak, 1841-1941. South-East Asian Historical Monographs. New York: Oxford University Press.

Padoch, Christine
1985 Labor Efficiency and Intensity of Land Use in Rice Production: An Example from Kalimantan. Human Ecology 13(3):271-289.

Primack, Richard B.
1991 Species Diversity Research in Bornean Forests with Implications for Conservation Biology and Silviculture. Tropics 1(2-3):91-111.

Pringle, Robert
1970 Rajahs and Rebels: The Ibans of Sarawak under Brooke Rule, 1841-1941. Ithaca: Cornell University Press.

Rodger, Christopher
2005 A Case Study of Ecotourism in the Kelabit Highlands: Is it Sustainable? Master's Thesis, Lund University, Centre for East and South-east Asian Studies.

Roth, Henry Ling
1896 The Natives Of Sarawak and British North Borneo. London: Truslove and Hanson.

Rousseau, Jérôme
1990 Central Borneo: Ethnic Identity and Social Life in a Stratified Society. Oxford: Clarendon Press.

Rubenstein, Carol
1991 The Flying Silver Message Stick: Update 1985-86 on Long Songs Collected in 1971-4. Sarawak Museum Journal 42 (63):61-157.

Saging, Robert Lian and Lucy Bulan
1989 Kelabit Ethnography: A Brief Report. Sarawak Museum Journal Vol. XL, No. 61: 89-118.

Saging, Robert Lian
1979 An Ethno-History of the Kelabit Tribe in Sarawak: A Brief Look at the Kelabit Tribe Before World War II and After. Borneo Research Bulletin 2(1):14-19.

Saging, Robert Lian
1976/77 An Ethno-History of the Kelabit Tribe in Sarawak: A Brief Look at the Kelabit Tribe Before World War II and After. Unpublished thesis submitted to the Jabatan Sejarah, University of Malaya for Degree in Bachelor of Arts. Kuala Lumpur.

Sather, Clifford
1990 Trees and Tree Tenure in Paku Iban Society: The Management of Secondary Forest Resources in a Long-Established Iban Community. Borneo Review 1(1):16-40.

Schiller, Anne
1997 Small Sacrifices: Religious Change and Cultural Identity among the Ngaju of Indonesia. Oxford: Oxford University Press.

Seng, Lau, Zani b. Assim, Murtedza Mohamed, and Laily b. Din
1998 The River System and Water Quality in the Bario Highlands, Sarawak. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily bin Din, eds. Pp. 29-50. Selangor: Pelanduk Publications.

Sidu, Jiram
2007 A Socio-Economic Study of the Communities Living Adjacent to the Pulong Tau National Park. "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama & Kuching: International Tropical Timber Organization, Sarawak Forest Department & Sarawak Forestry Corporation.

Singh, Harwant
1998 The Physiography and General Geology of the Kelabit Highlands Surrounding the Bario Area. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. 1-20. Selangor: Pelanduk Publications.

Smith, Paul Leslie
2008 Rainforest Tears: A Borneo Story. Selangor: Marshall Cavendish Editions.

Songan, Peter, Khairuddin Ab Hamid, Alvin Yeo, Jayapragas Gnaniah, and Hushairi Zen
2004 Community Informatics: Challenges in Bridging the Digital Divide. *In* Work With Computing Systems H.M. Khalid, M.G. Helander and A.W. Yeo, eds. Pp. 267-270, Kuala Lumpur: Damai Sciences.

Southwell, Hudson C.
1999 Uncharted Waters. Calgary: Astana Publishing.

Sreedharan, Satish (Slim)
2006 An Ornithological Report of Pulong Tau National Park. Project Report for "Transboundary biodiversity and conservation area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama & Kuching: International Tropical Timber Organization, Sarawak Forest Department & Sarawak Forestry Corporation.

St. John, Spenser
1862 [1986] Life in the Forests of the Far East: Travels in Sabah and Sarawak in the 1860's. London: Oxford University Press.

Talib, Naimah S.
1999 Administrators and Their Service: The Sarawak Administrative Service under the Brooke Rajahs and British Colonial Rule. New York: Oxford University Press.

Talla, Yahya
1978 The Kelabit of the Kelabit Highlands, Sarawak Report No. 9. Clifford Sather, ed. Pulau Pinang: Universiti Sains Malaysia.

Tan, Chee- Beng
1994 Kelabit Associations. *In* Communal Associations of the Indigenous Communities of Sarawak: A Study of Ethnicity and National Integration. Pp. 116-140. Kuala Lumpur: Institute for Advanced Studies, University of Malaya.

Tan, Gabriel
2008 Indonesian Confrontation and Sarawak Communist Insurgency 1963-1966: Experiences of a Local Reporter. Kuching: Penerbitan Sehati Sdn. Bhd.

Thompson, Eric C.
2007 Unsettling Absences: Urbanism in Rural Malaysia. Singapore: National University of Singapore Press.

Wadley, Reed L. and Ole Mertz
2005 Pepper in a Time of Crisis: Smallholder Buffering Strategies in Sarawak, Malaysia and West Kalimantan, Indonesia. Agricultural Systems 85(3):289-305.

Walker, J. H.
2002 Power and Prowess: The Origins of Brooke Kingship in Sarawak. Honolulu: University of Hawai'i Press.

Whittier, Herbert L.
1973 Social Organization and Symbols of Social Differentiation: An Ethnographic Study of the Kenyah Dayak of East Kalimantan (Borneo). Unpublished Ph.D. thesis, Michigan State University.

Wong, Jack
2009 PM Asked to Clarify Mixed-Race Bumiputra Status. *In* Malaysia Star. 4 November 2009.

Yusof, Mohd. Noor
1998 Ethnomusicology of the Kelabits at Bario Highlands, Sarawak. *In* A Scientific Journey through Borneo: Bario, The Kelabit Highlands of Sarawak. Ghazally Ismail and Laily Bin Din, eds. Pp. 331-342. Selangor: Pelanduk Publications.

CHAPTER 3

# THE LIVING KELABIT LANDSCAPE: CULTURAL SITES AND LANDSCAPE MODIFICATIONS IN THE KELABIT HIGHLANDS OF SARAWAK, MALAYSIA[1]

[1] Hitchner, S.L. Accepted by *Sarawak Museum Journal*.
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Introduction

Although the area of the Kelabit Highlands is relatively small in size (~2500 km²) and the population of the Kelabit people living in the Kelabit Highlands is also relatively small (~1500), this landscape is highly anthropogenic and contains a substantial number of megaliths, landscape modifications, and other cultural sites. In the mid-1950s, Tom Harrisson (1954:107) said that "no other Bornean people (as far as we know) have such an active megalithic life today or in the recent past. Indeed the whole area is rich with a vigorous mythology of culture heroes and monsters and with complicated social competition and material exchange, centered on the inheritance priorities of those who pay for the monuments, which are superficially no more than 'loving reminders' of the late great." He was the first Westerner to systematically study (and often excavate) these cultural sites, and he published widely on his findings in the *Sarawak Museum Journal.* Many Kelabit living today know which sites he visited (as is sometimes visually obvious when visiting the sites today by the excavation pits near burials, under erected stones, or within rock piles), and often, with a tinge of resentment, they know which artifacts he took from them. Since then, Kelabit have had a wary approach to foreign researchers, quite a number of whom have expressed interest in studying various aspects of the culture and ecology of the Kelabit Highlands (see Bala 2002: 2-7). The community has had mixed experiences with them since Tom Harrisson, and although the Kelabit are well-known throughout Sarawak for being hospitable and accommodating toward visitors, they also want more control over the types of research carried out in the Kelabit Highlands as well as possession of data produced as a result of such studies.

Although the Kelabit Highlands are physically remote[2], the Kelabit people are now widely dispersed throughout Sarawak, Malaysia, and the rest of the world, and the people living in the Kelabit Highlands now are linked to the outside world by family members who have out-migrated and also by a pioneering new telephone and internet communications center called e-Bario (see Bala et al. 2003; Gnaniah et al. 2004; Harris 2001; Songan et al. 2004). Many have attained high levels of education (including doctorates in a number of fields), and they understand the processes of academia, many of them being academics themselves or working closely with researchers that have studied in the Kelabit Highlands. In demanding that researchers now immediately repatriate data collected in the Kelabit Highlands and requesting that all studies carried out there be of practical use to them, they have joined with many indigenous groups all over the world in turning the tables on the conventional way that studies are done in "exotic" locales by foreign researchers. This is evident in the recent creation of a Community Research Steering Committee in Bario (the administrative center of the Kelabit Highlands), which is responsible for overseeing the research carried out in the Kelabit Highlands and collecting hard and soft copies of all data and final reports.

Concurrently, there has been a turn in modern anthropological practices toward "decolonizing methodologies" (Smith 1999 ) that seek to implement truly participatory research projects, where local people are not simply hired as "guides" and "informants," but actively help determine the course and the outcome of research proposed by outside academics (and guide their own research projects as well). In the Kelabit Highlands, the dovetailing of these progressive ideas within the academic community of how anthropology "should be done" and the rightful expectations of the Kelabit community of how anthropology "should be done" in the

[2] This area is currently accessible only by airplane or walking, although there are now temporary logging roads reaching some villages.

Kelabit Highlands have led me as a graduate student in anthropology to slightly modify the focus of my research in the beginning stages. While adhering to my original research plan, I was asked by the community to focus on documenting the sites of cultural interest to them: megaliths such as *batuh sinuped* (menhirs or erected stones), *batuh narit* (carved stones), *batuh nangan* (dolmens or stone "tables"), and *perupun* (large rock piles); *binatuh* (graveyards); *lungun belanai* (grave sites with Chinese burial jars); *batuh nawi* (hollowed stone burial urns); landscape modifications such as *kawang* (notches cut into tree lines on ridge tops), *nabang* (ditches cut into the ground or through ridge tops), *taka* (oxbows of rivers); *ruma' ma'un* (old longhouse sites); and other areas of cultural importance such as *main tudtu'* (salt springs), *rupan* (swampy areas where animals come to drink), *ra'an* (mountain passes), and *lubang* (caves). Many of these sites have mythological, genealogical, historical, or cultural significance, and although the Kelabit are now enthusiastic Christians, they are anxious to preserve these sites for future generations.

The first step was simply to list them, as no one person knows of them all – their existence, as well as their history and location – and I have spent a good portion of my time in the Kelabit Highlands doing this. By visiting each village in the Kelabit Highlands and seeking interviews with the most knowledgeable people in each place, I have helped the Kelabit create a working list of cultural sites in the Kelabit Highlands (see Appendix C) and we visited and documented (using GPS) over 240 of these sites. I have typed a number of lists and distributed them, asking for comments, suggestions, additions, and corrections, hence enlarging and improving (and complicating) the lists each time. A focal aim in my research project has been to transfer the skills necessary to document these sites to the Kelabit, so that they can continue this work after I have finished my own project. Since all the data that I or they have collected has

been immediately repatriated to the community, it has become a truly participatory project; together we have listed over 540 sites of cultural importance, and visited and documented almost half of these (see Appendix D). As this is also a collaborative project in a larger sense, I have also submitted various stages of raw data to the Sarawak Museum, the Sarawak Forest Department, and Universiti Malaysia Sarawak and received support and suggestions from these institutions as this project has developed, for which I am greatly appreciative.

Description of Cultural Sites

This is an ongoing project (begun in May 2006, after two months of preliminary fieldwork in 2005), and the listing and documentation of sites are far from complete. This list now is biased toward the places in which I have spent the most time (and had the most assistance from people in the particular villages), and I hope to remedy this imbalance during the remainder of my time in the Kelabit Highlands. In the next phase of my research, I will also elaborate on the past migration patterns of the people now living in the small village of Pa' Lungan, which is the focal area of my original study (a synopsis of preliminary findings will be discussed in the section of this paper on *ruma' ma'un*), and will more elegantly tie the details of the history of landscape modification in the Kelabit Highlands (through the creation of cultural monuments, as well the clearing of patches of forest – usually secondary forest or *amug* - for shifting cultivation plots in the past) to the current academic field of the historical ecology of anthropogenic landscapes. Finally, once more sites are mapped and logged into the database, which is still under construction, I can begin analyses of the overlapping different data layers (remotely sensed images of the Kelabit Highlands, aerial photographs, topographical maps, historical maps,

community sketch maps, GPS locations of cultural sites, etc.) in order to answer some of the questions that I posed in my initial research proposal.[3]

But for now, as this is an interim report on an ongoing research project, I will relay the data that has been collected to date, by describing each kind of cultural site and/or landscape modification, focusing on several of the more interesting representative samples of each type, and listing the names of each kind of site in each village. It is very difficult to determine the ages and origins of many of the sites. The more recent ones can be traced to particular people (sometimes still living), but the histories of many of the older sites have passed out of living memory. For these, the names and histories have been passed down through the generations, and a common Kelabit answer to the question "How old is this?" is a frank "I don't know." Few archaeological excavations have been done near these cultural sites (and often by amateurs such as Tom Harrisson), and the results have often been inconclusive. This is complicated by the fact that often the artifacts found within the excavated sites are often much older, sometimes hundreds of years older than the site itself, as is the case with old Chinese jars and beads from as far away as Venice (Harrisson 1954). Detailed soil analysis or pollen sampling might give clues to more exact ages of the sites[4].

It is important to note here that collecting data of this type is often difficult, time-consuming, and confusing. Many of the cultural sites are known by different names to different people. For example, the creation of some megaliths is attributed to different individuals within

[3] *Q1: What types of knowledge about land use history will be revealed through oral histories, sketch mapping exercises, and interviews with Kelabit people? Q2: How will migrations and past land uses of Kelabit people be evident in the present ecology of the landscape? Q3: What will geospatial data such as satellite images and aerial photographs reveal about the land use history of the Kelabit Highlands? Q4: How will spatio-temporal dimensions and different types of past land uses be revealed through the comparison of ethnographic data: community sketch maps, geospatial images, and historic government maps and archival documents? Q5: In what ways will the collaborative framework specified in this proposal enhance the quality of data on Kelabit land use history? Q6: How can the collaborative documentation of Kelabit land use history be integrated into conservation plans for the Kelabit Highlands?*

[4] There is work of this nature currently being conducted in some sites in Pa' Dalih.

living memory (such as *Batuh Narit Aran Tuan @ Paru Padan Tepun / Raja' Umung @ Penghulu Miri* in Ramudu); also many sites are older than living memory, and people living now have heard different stories about them from their elders, and the different names for the same site reflect different myths associated with them (such as *Binatuh Arur Binatuh / Batuh Pun Tumid / Lepo Batuh* in Pa' Lungan). Often a site is known to some people by the name of the individual assumed to have created it, while other people associate the site with its location (such as *Batuh Sinuped Along Tigan / Pa' Tama'al* in Pa' Main). Also, some areas consist of several different types of cultural sites; for example, a *perupun* could have a dolmen on top of it (as is the case with *Batuh Ritung* and *Perupun Rayeh Pa' Lungan*, both in Pa' Lungan). Some cultural sites are on the existing communal boundaries of different villages (such as *Batuh Sinuped Ra'an Tuduk Uku'*, which is on the boundary between Pa' Main and Pa' Bengar); for these I listed them in both villages. Another difficulty is the standardization of spelling of the names of the sites; there are differences in the dialects of the northern and southern Kelabit Highlands, and also individual differences in pronunciation of names (such is the case with *Batuh Sinuped Pa' Repayuh / Reparuh* in Pa' Main). For these, I listed all variations. It is also sometimes difficult to determine what actually qualifies as a cultural site; in some cases there is nothing man-made in the landscape to indicate a cultural site, but there could be a myth or historical event related to a particular cave (as with *Lubang Balang* or "tiger cave" in Pa' Dalih), a natural rock (as with *Batuh A'ur A'ur* in Pa' Lungan), a small swamp (as with *Takung Balang [liang Ra'an Tuduk Uku']* on the boundary between Pa' Main and Pa' Bangar), or *ra'an* (as with *Ra'an Anak Adi'*, on the boundary between Pa' Main and Pa' Umor). But despite the lack of human modification to these places, they are deemed important cultural sites by the Kelabit people, and so I included them in my lists as such (in the classification of "miscellaneous"). A final difficulty in

documenting the cultural sites in the Kelabit Highlands is that several of them have already been moved, damaged, or destroyed by bulldozers (such as *Perupun Payah Telipa* in Batuh Patong, *Ruma' Ma'un Ra'an Berangan* in Pa' Dalih, and *Binatuh Pa' Da'an* in Ramudu); others are in danger, and for this reason the people are anxious to map and mark these sites on the ground so that they are not damaged further.

Megaliths

The upland plateau of the Kelabit Highlands, by nature of its location above the rapids of navigable rivers and its being surrounded by high mountain ranges, has led to cultural isolation not seen as clearly in other Borneo groups (Southwell 1999; Bulan and Labang 1979; Toynbee 1965; Mjöberg 1925; Hose 1900, 1894). However, a feature of Kelabit life in the past has been to make long journeys to other places, for purposes of trade, intermarriage, raiding, and head-hunting, so there has always been an influx of new ideas and new material goods into the highlands through these journeys. But based on studies of areas linked to the Kelabit Highlands by trade networks, it is unlikely that the idea for making megaliths has been borrowed from other neighboring groups; rather it seems that megalithic activity may have spread outwards from the highlands of central Borneo, or at least developed independently there.

The making of megaliths is a distinctive feature of Kelabit culture; although megaliths can be found in Indonesian Kalimantan (made by groups closely related to Kelabit), and to a lesser degree in the Sarawak River delta area and in Sabah (Phelan 1997; Harrisson 1958b; Keith 1947). The area of the Kelabit Highlands contains a particularly dense assemblage of megaliths. There has been much speculation as to the origin of this cultural undertaking, as it suggests a link to other Southeast Asian cultures - there are similar megaliths in Peninsular Malaysia, particularly in Malaka and Negri Sembilan (Harrisson 1958, 1962), and in Java and Sumatra

(Von Koenigswald 1962) - and to megalithic cultures in Europe, Melanesia, and other parts of Asia such as Tibet, Korea, and Cambodia (Eliade 1979). However, Tom Harrisson (1959: 14) states that the highlands of central Borneo perhaps form the core of a "megazone of megalithic activity" which extends throughout Borneo. Megalithic activity in the Kelabit Highlands of Sarawak and the Kerayan Highlands of Kalimantan (divided by the Apad Wat mountain range and culturally contiguous) is most likely an isolated cultural phenomenon, without direct influences from outside cultural groups (Harrisson 1958: 133), although there are clear linkages. It is interesting to note that when Tom Harrisson took two of his Kelabit friends, Penghulu Lawai and Tayun, to see the megaliths in West Malaysia, they were convinced that "the Malayan megaliths were definitely the work of the same people as originated those in the Kelabit country" and that "the Borneo stories of Selayu, Tokid Rini, [epic figures of half-human, half-spirit status] etc. as being gigantically nomadic, leaping and flying all over the place and leaving stones such as these as signs, was now proved even truer than they had thought" (Harrisson 1962: 380).

Megalith-making results from a combination of cultural factors. Creativity alone cannot lead to such immense undertakings as the creation of megaliths and major landscape modifications; specific social factors must be in place to enable the construction of such monuments. Making megaliths (and other cultural sites such as *perupun, kawang,* and *nabang*) requires a great amount of organized and cooperative human labor. Megaliths were often constructed by large numbers of people, both from within the village and from other nearby Kelabit villages. Large *irau* (communal feasts) were held, and the attendees of the *irau* were expected to help in the construction of the megalith. Like many other ethnic groups of interior Borneo, the Kelabit in the past adhered to a hierarchical class system (Rousseau 1990), and only the wealthiest aristocrats could afford to host the *irau* which essentially paid for the labor

necessary to construct the megaliths. Megaliths were often named for the person commissioning the work. Kelabit aristocrats flaunted their wealth during such occasions; indeed, they were expected to do so in order to maintain their upper class status (Harrisson 1958a: 697). As a result, they enjoyed a kind of permanency that can only be found in damp, humid tropical rain forest (where many things made of other natural materials rot in a matter of days, months, or at most a few years) by constructing things of stone. Less wealthy aristocrats (and upper middle class families) also occasionally hosted *irau* for the purpose of constructing megaliths, and this often put them in debt for many seasons, even years. But while an intricate system of labor-sharing (and food-sharing) among all the Kelabit (class structure aside, as even, or especially, the aristocrats prided themselves on being hard-working members of society, never a lazy elite) made sure that no family suffered unduly as a result of debt, the system of *irau* and megalith-making remained largely in the hands of the upper class. In effect, the *irau* served as a cultural mechanism for redistributing wealth within the community (Harrisson 1973: 128). But the generosity of the aristocrats toward all community members during the *irau* and the opportunities for all community members to be involved in the creation of a permanent structure in the landscape also led to social cohesion by reinforcing the ties between families of all class strata.

Furthermore, the rice harvests in the Kelabit Highlands were consistently productive, due to a mixture of complex wet-rice agricultural techniques known as *lati' baa'* and dry-rice swidden agriculture known as *lati' luun* that ensured that during most seasons (some were occasionally bad for everyone due to rats, pests, droughts, or floods), there was a surplus of the rice that was necessary for feasts that centered around various rice dishes and rice wine (*borak*) (Harrisson 1954; Bulan and Labang 1979; Janowski 1988). Surplus food and a farming system

that did not require attention every day during the year were other cultural factors that allowed such large-scale endeavors as the creation of megaliths. Such feats could not be accomplished by societies without the necessary surplus of time and food or without the social organization that was found in the Kelabit society at the time of these undertakings.

Batuh Sinuped

Although they were often made in conjunction with community *irau*, megaliths were constructed for other reasons than accentuating (and simultaneously enhancing) the status of the upper classes. Sometimes *batuh sinuped* (standing stones) were erected to show personal strength, as apparently was the case with *Batuh Sinuped Along Tigan / Pa' Tama'al* in Pa' Main; Along Tigan apparently also made several other *batuh sinuped* in this area. Sometimes, the creation of a *batuh sinuped* was associated with a rite of passage into manhood, as is the case with *Batuh Sinuped Tepu' Lu'ui* in Pa' Main (see Fig. 3.1). *Batuh sinuped* were also erected in honor of certain deceased people, and were often named for the deceased rather than for the creators (as with *Batuh Sinuped Pun Pitan* in Pa' Lungan).

Another reason was simply to mark boundaries, whether of private land (such as *Batuh Sinuped Menang Ribuh* in Pa' Dalih – Fig. 3.2) or between villages (such as *Batuh Sinuped Ra'an Tuduk Uku'*, which marks the boundary between Pa' Main and Pa' Bengar – Fig. 3.3, and *Batuh Sinuped Magung Bilung @ Balang Pelaba*, which marks the boundary between Pa' Da'an and Pa' Bengar). The marking of private land was sponsored by the family on whose land the megalith was constructed, while the creation of boundary stones between villages was undertaken by members of both villages. The communal aspect of these projects generally ensured that all participants were aware of and in agreement with the boundaries being marked. Boundary stones almost always take the form of *batuh sinuped*, or erected stones; most *batuh*

*sinuped* occur singly, but occasionally in clustered groups of two or more (*Batuh Sinuped Ra'an Berangad*, which marks the boundary between Pa' Umor and Pa' Main, has two – Fig. 3.4, *Batuh Sinuped Arur Tang Barat* in Pa' Berang has five). Several authors note that *batuh sinuped* were often erected in pairs, representing a husband and wife (Labang 1962; Harrisson 1958b).

*Batuh sinuped* (used as boundary markers, honorary stones, or otherwise) range in size from less than a meter tall to over two and a half meters tall (such as *Batuh Sinuped Ra'an Teneb* in Pa' Main – Fig. 3.5). Most are rectangular in shape, wider than they are thick, with tapered or triangular tops. Some, such as *Batuh Sinuped Udan Turun / Pa' Dera'an* in Pa' Lungan are more rounded, almost as thick as they are wide (Fig. 3.6). It is generally agreed that most *batuh sinuped* are inserted into the ground to a depth that matches the height that they reach above ground. The stones used to construct most *batuh sinuped* are usually found at the nearest river, although sometimes huge stones were carried or dragged great distances. In some cases, the origin of the stones is unknown.

Many *batuh sinuped* have broken or fallen over the years. Often, these are repaired where possible (such as *Batuh Sinuped Magung Bilung @ Balang Pelaba* in Pa' Dalih – Fig. 3.7), or the pieces are put near the base of the original stone (such as *Batuh Sinuped Along Tigan* in Pa' Main). Sometimes, they are propped up with wooden poles or other stones if they seem in danger of falling (such as *Batuh Sinuped Pun Pitan* in Pa' Lungan – Fig. 3.9). Some *batuh sinuped* have fallen but still are known by name (such as *Batuh Sinuped Negari Besar* in Pa' Main – Fig. 3.8[5]); others have fallen and their names forgotten. But even those that have fallen and whose names are not commonly known are still important cultural sites to the Kelabit; if it seems that some sites have been neglected, it is because the people, as they have told me, wish to "leave them in peace."

[5] Since this photo was taken, this stone has been re-erected using cement.

Batuh Narit

In the Kelabit language, "*narit*" means "design," and so *batuh narit* are stones that have been decorated with a design of some kind. Sometimes, these designs are carved in raised relief, so that the design stands out from the rest of the stone (such as *Batuh Kelabat* in Batuh Patong and *Batuh Narit Pa' Repudu' / Pa' Mada* in Pa' Mada), and some are carved in sunken relief, so that the design is incised into the stone (such as *Batuh Narit Tuked Rini at Long Tenarit* in Ramudu or *Batuh Narit Pa' Ukat* in Pa' Ukat). Usually the makers of these carvings are unknown (meaning that the carvings are quite old), although for some more recent ones, there is not agreement on whom the carver was. Such is the case for *Batuh Narit Aran Tuan / Peru Padan Tepun @ Penghulu Tinggang / Raja' Umung @Penghulu Miri / Long Kesi (Kedti)*. The two names, Aran Tuan and Paru Padan Tepun@Penghulu Tinggang, are contenders for the role of carver, while it is generally agreed that the stone was carved in honor of Raja' Umung @ Penghulu Miri (it is located at Long Kesi / Kedti, hence the fourth name given for this stone). This is a round stone, about a meter tall, on the edge of a grazing pasture in Ramudu, and displays several carvings: a face in profile (which appears to be European and may have been copied from a coin), a standing figure of a man in a loincloth with a stick in his hand, probably to herd buffalo, and a water buffalo (and possibly a dog). This being a recent carving (probably made in the 1940s), it differs from more traditional patterns used in Kelabit *batuh narit*. It is generally agreed that all carvings were made with metal tools; therefore they could have been made as early as 500 A.D., though probably later (Harrisson 1973: 128, 1958a: 695).

A much more common design found in the Kelabit Highlands (and it is common to other Orang Ulu groups as well) is a spread-eagled human figure, often with few bodily characteristics (other than exaggerated calf muscles, as the Kelabit are proud of their incredible abilities to walk

quickly up and down mountains while carrying heavy loads). The heads, however, are more detailed, and they often show the elongated earlobes with heavy earrings that used to be a marker of Kelabit identity and detailed hats of the Kelabit variety (with hornbill feathers protruding from the top). This design is clearly visible in *Batuh Narit Pa' Repuduh / Pa' Mada* in Pa' Mada (Fig. 3.11), and *Batuh Narit Long Derung* in Pa' Main, which is carved onto a stone in the Pa' Debpur River and hence only visible during relatively low water levels (Fig. 3.12). This figure is also carved onto a *batuh nawi* (stone burial urn) in *Binatuh Long Badung* in Ramudu. *Batuh Kelabat* in Batuh Patong (Fig. 3.10) looks similar, but is a carving of a "*kelabat,*" or gibbon, not a human.

The designs incised into stones often portray animals, real or mythological. *Batuh Narit Pa' Ukat* (Figs. 3.13 and 3.14) shows a side profile of a hornbill along the broad, flat face of the rock, with several heart-shaped designs (possibly human faces) above the hornbill's head (while on the back side of the rock there are carved over three hundred horizontal notches, supposedly which each indicate a human head that was hunted in the past). One rather spectacular, both in size and myth, carving is that of *Batuh Narit Tuked Rini at Long Tenarit* in Ramudu (Figs. 3.15 and 3.16). The stone itself is very large and flat, and it used to extend horizontally over the Pa' Kelapang River, perpendicular to the water. Over the years, one end has sunk down into the water, thus creating a steep slope into the water. An etched design covers the entire rock, and there is some disagreement as to what this mythological creature actually is. Some people say that it is a carving of a tiger carrying a person in its mouth. The story goes that eight brothers chased a tiger that had eaten their sister all the way to a cave in Pa' Dalih called *Lubang Balang* ("tiger cave"). In the cave, they killed the tiger and then took the carcass to a stone in Ramudu, where they chopped up the tiger so they could distribute its meat to all the people in the villages. This stone is called *Batuh Penagan* ("chopping stone"). Other people say that this *batuh narit*

depicts a two-headed dog with the body of a crocodile (though others have said that the creature's body included parts of a tiger and/or dragon, or that two separate animals are carved on the stone). In any case, it is a monster that used to occasionally eat children who were bathing or playing in the river at this spot. One day the people decided to try to catch this monster to protect their children, so they used one child as bait and tied a sack of cassava flour to his waist. When the monster attacked the child and carried him away, the people followed the trail of flour. They followed it all the way to *Lubang Balang*, and then chopped it up on *Batuh Penagan*. Both myths explain several cultural sites in the southern Kelabit Highlands. The carving on *Batuh Narit Tuked Rini at Long Tenarit* is even more interesting because it was supposedly carved by Tuked Rini (a mythological figure blessed with supernatural powers), using just his fingertips.

Batuh Nangan

*Batuh nangan* are "supported stones" or dolmens that range in size from quite small and close to the ground, such as *Batuh Nangan Pa' Pereh* in Pa' Main and the *batuh nangan* associated with the graveyard of *Binatuh Lidung Kitung* in Ramudu, to taller than a person and made of enormous support and cover stones, such as *Batuh Ritung* in Pa' Lungan and *Batuh Nangan Pa' Ra'* in Pa' Derung. Some are shaped more like chairs than tables, such as *Batuh Pun Dukung@Pasan Lemulun / Pelukung Long Nipat* in Pa' Umor (Fig. 3.17). *Batuh nangan* were probably created for many of the same reasons as *batuh sinuped*, although used more often as a burial site. But in the case of some, such as *Batuh Nangan Pa' Pereh* (Fig. 3.18), they were located too close to the longhouse to have been used as burial sites. This one was perhaps made as part of a feast or a name-change ceremony.

*Batuh Ritung* (Fig. 3.19) is especially spectacular, and even more so considering that no one knows how old it is (only that it was made in honor of a man named Ritung and possibly

also his wife) or where the stones came from – most people agree it was many kilometers away. Since this occurred before the introduction of buffalo into the Kelabit Highlands, somehow these very large stones were carried or dragged to this area, and the massive flat capstone (over four meters long and three meters wide), was raised on top of the pillars. When I asked people how this was made, the answer was commonly either "I don't know" or "Kelabits used to be giants, so one of them just put it up there." The dolmen of *Batuh Ritung* is itself on top of a large *perupun* (rock pile), and the site was also used a burial. There is another *perupun* close to this area, called *Perupun Rayeh Pa' Lungan*, which has several stones almost as large as the ones used in *Batuh Ritung* on top. It is said that those stones could have once been standing in the same way that *Batuh Ritung* is standing now, but have since fallen (it is speculated that one of these dolmens was made for a man named Ritung, and that the other was for his wife). *Batuh Ritung* is now protected by the Sarawak Museum under the Sarawak Cultural Heritage Monument Ordinance of 1993, and the area around it is fenced (buffalo have a tendency to rub against megaliths and cause them to fall). Although it has been leaning for many years (early photos of it in the 1960s show a tilt), it is now leaning more precariously since a crack developed in one of the supporting stones. The local people blame this on the failure of Tom Harrisson to fill in his excavation pits under and around the dolmen. Many people in Pa' Lungan say it may only be standing a few more years, unless something is done to prop it back up. But that would require heavy machinery, which is not yet available in Pa' Lungan.

A smaller, but no less interesting, *batuh nangan* is *Batuh Tuked Rini / Batuh Iran* in Pa' Mada (Fig. 3.20). Close to the ground, it has a large flat stone on top, with many undulating curves on one side. It is said that this stone was used by Tuked Rini and his warriors to sharpen their *parang* (machetes) before they went into battle, and also that Tuked Rini carried this large

stone there by himself. Another *batuh nangan* with similar (but less pronounced) curves as a result of *parang*-sharpening is *Batuh Nangan Lem Saug* in Pa' Dalih. This *batuh nangan* has fallen and is located in a field of grass; it also has a strange-shaped top stone – curved upwards and not rectangular, somewhat like the U.S. state of Michigan. Another interesting *batuh nangan* is *Batuh Nangan Pun Tumid / Lepo Batuh / Binatuh Arur Binatuh* in Pa' Lungan (Fig. 3.21). This one, low to the ground and collapsed on one side, has several myths associated with it. The first involves the story of Pun Tumid, a legendary giant who was hunting in this area one night and caught and crushed his foot on the slabs of this *batuh nangan*. He died from this injury to his heel, and later his ghost haunted this area, instilling fear in the local people. Another myth says that once there a woman who was raped, and she was so ashamed that she built this *lepo batuh* ("stone hut") and lived in it forever. It has also been suggested that this was a *binatuh* (burial site). In Pa' Mada, near Long Bengar, there is a flat stone in a pasture that was once a *batuh nangan* supported by four stones. It is called *Batuh Angan* (Fig. 3.22) and is said to be the place where men buried the bodies of their wives who had died in childbirth.

Batuh Baliu

*Batuh baliu* ("transformed stone") appear to be natural stones, often quite large, but according to Kelabit legend, they were once buildings. The buildings have since turned to stone, as a result of people breaking the taboos of their pre-Christian animistic beliefs. The most common taboo that was broken, resulting in petrification, was laughing at animals. This offense was usually committed by children, who either did not believe their parents when they told them of the consequences of breaking this taboo or who simply forgot when an animal amused them. *Lepo Pade Baliu / Batuh Baliu* in Pa' Lungan (Fig. 3.23) used to be a storehouse for rice, as did *Lepo Batuh Pa' Rao* in Batuh Patong. *Batuh Menedtung* ("animal stone") in Pa' Lungan (Fig.

3.24) and *Batuh Baliu Apad Runan* in Pa' Di'it (Pa' Dalih) were once longhouses. Regarding the latter, it is said that a woman named Runan once tied some bells onto the leg of a frog; when she did this, the people laughed at the frog and the longhouse was turned into stone by offended spirits. The petrification of buildings was often preceded by a hailstorm (*masab*), and usually any people within the building also turned to stone. But this last threat could be mitigated by placing a jar at the entrance to allow an escape route for the people inside.

Other Batuh

There are other stones (sometimes large rock formations, almost small mountains) that appear to be natural, but according to Kelabit legend, are not quite natural. An example of this is *Batuh A'ur A'ur* in Pa' Lungan (Fig. 3.25). "*A'ur*" means "echo or response," and it is said that the rock is haunted and echoes back shouts or cries. People living in Pa' Lungan now admit that as children they were frightened to be around this rock. In Pa' Mada, there is a stone called *Batuh Bulan*, from which it is said that Tuked Rini used to bathe; apparently there is an impression of his loincloth on the stone. However, the stone has sunk into a swamp (in the last 40 years), and no one knows exactly where it is now. Two possible sites have been suggested, one in a current padi field, and one in an overgrown area that used to be a padi field (see Fig. 3.26 for a photograph of the two possible places). Another interesting "natural" stone associated with Tuked Rini is *Batuh Tuked Rini Long Tekuyang / Batuh Sida'an Tuked Rini* in Ramudu (Fig. 3.27). This stone, a flat stone in the river, has a row of indentions that are exactly the size and shape of average human footprints. It is said that Tuked Rini stepped on this rock and that his supernatural powers burned his footprints into the stone. In Pa' Derung, there is *Batuh Emong Ada'*, which is a pile of boulders that were supposedly gathered by spirits or ghosts, and another similar site is in Pa' Bengar (*Batuh Natang Ada'*).

Perupun

*Perupun* are rock piles, generally commissioned by childless people, usually men, for the purpose of burying their valuables before their deaths. Since they had no heirs, and since the wealth would not have been distributed to other family members or friends, this was done as a means of protecting the items (usually old beads, jars, and gongs). As a known depository of valuable items, many of these *perupun* were excavated by Tom Harrisson (and many of the items sent to Kuching or to England or elsewhere). Most of the larger *perupun* that I have seen in the Kelabit Highlands still show large excavation pits.

*Perupun* vary greatly in size, the smallest one (*Perupun Long Kelit* in Batuh Patong – Fig. 3.28) being less than a meter across and the largest one (*Perupun Pa' Buda' Rayeh* in Batuh Patong - Fig. 3.29) being almost fifty meters across and four or five meters tall. Other large *perupun* are *Perupun Pa' Ramain* in Pa' Lungan (now covered with grass - Fig. 3.30), *Perupun Long Ideb* in Pa' Umor, *Perupun Teletang* in Pa' Main, *Perupun Tang Kelemanang* in Pa' Mada, and *Perupun Pa' Rabi'ung* in Pa' Dalih (Figs. 3.31 and 3.32). These large *perupun* were enormous undertakings which required moving and stacking thousands of stones (usually taken from the nearest river bed); large community *irau* were held to organize the labor needed to create a *perupun*. As most *perupun* are located close to rivers or rocky stream beds, it has been suggested that most likely all the participants would line up in a row and pass stones from one to another, from the stream bed to the *perupun* site. I have heard that of all the megalithic activities undertaken by Kelabit, the creation of large *perupun* was the most expensive and labor-intensive (except perhaps for *kawang*, which will be discussed later). Smaller *perupun* include *Perupun Pa' Lungan* in Pa' Lungan and *Perupun Kelapang* in Ramudu. Although *perupun* themselves

were not burial sites[6], sometimes there are burial sites located on the tops of *perupun*, in conjunction with other types of megaliths (such as *Batuh Ritung* and *Perupun Rayeh Pa' Lungan* in Pa' Lungan, as previously discussed).

As with other types of cultural sites, several *perupun* have been damaged by bulldozers (in addition to earlier damage inflicted by looting and excavations). The area around *Perupun Pa' Mada* in Pa' Mada, once a grazing pasture, has been cleared by bulldozers; the *perupun* itself was not razed, but the base of it has been shifted, causing collapses near the edges (see Figs. 3.33 and 3.34 of pictures taken before and after the clearing). Also, in Batuh Patong, *Perupun Payeh Telipa* has been moved completely by bulldozers (in April 2007), and *Perupun Pa' Rabi'ung* in Pa' Dalih has also been recently threatened by clearing near its base.

Binatuh

Many *binatuh* (graveyards) are scattered throughout the Kelabit Highlands, due to the long Kelabit occupation of this area. As previously mentioned, sometimes aristocrats were buried in private burial sites, often beneath *batuh nangan*. But most of the time, people were buried in communal graveyards. In the past, Kelabit practiced secondary burial; generally the procedure following the person's death involved placing the body in a wooden coffin on the veranda of the longhouse (or in the longhouse) for about a year. By this time, decomposition of the body would be complete, and only the bones would remain. The bones were then placed (usually in fetal position) in large jar of Chinese origin (*belanai*). Some of these *belanai* were many hundreds of years old already, having come to the Kelabit Highlands through extensive trade networks with traders on the Sarawak or Brunei coast. These jars are very large and heavy and were carried by boat and then by foot to the longhouses. The most highly valued Chinese jars had raised relief

[6] It is interesting to note that similar *perupun* exist in the Kerayan Highlands of Kalimantan, Indonesia, just across the international border. The *perupun* there did serve as burial sites.

dragons; others had flowers or other designs. After the bones were placed in the jars (by means of carefully cutting the top off the jar, placing the bones inside, and then putting the jar top back on), the jars were buried in the *binatuh* or occasionally left on top of the ground. At this point, the *belanai* (jars) became *lungun belanai* (burial jars).

Of the *binatuh* with *lungun belanai* in the Kelabit Highlands, there is wide variation in the numbers and conditions of the jars that are still visible. In many cases, most of the jars that are visible are broken, and only a few pieces may be seen on the ground surface today. Examples of this type of *binatuh* include *Lungun Belanai Long Layan* in Pa' Umor (Fig. 3.35) and *Lungun Belanai Pa' Bada / Long Arur Bina Puun* in Pa' Main. One very interesting and unique *binatuh* that contains only pieces of broken *lungun belanai* is *Batuh Liban* in Pa' Dalih (Fig. 3.36). This site consists of a large indentation carved into a sheer rock face; the pieces of the jar are still visible inside this grotto. There is another indentation carved into the rock above this, but it is mostly covered with vegetation. At the base of this rock face there are several small *batuh sinuped* and rock slabs that could be fallen *batuh sinuped* or *batuh nangan*. The logging road into Pa' Dalih is very close to this site. Less than fifty meters away from this *binatuh* is another one called *Binatuh Kerayan* (Fig. 3.37). This site consists of a cluster of *batuh nangan*, most of which have now collapsed. It is said that people from the Kelabit Highlands are buried in *Batuh Liban*, and that people from the Kerayan Highlands are buried in *Binatuh Kerayan*.

In other *binatuh*, the *lungun belanai* are whole or almost whole. In some places, such as *Batuh / Lungun Belanai Pa' Debpur* in Pa' Lungan (Fig. 3.38), *Lungun Belanai Arur Sebangiung* in Pa' Lungan (Fig. 3.39), *Lungun Belanai Pa' Umor* in Pa' Umor, *Lungun Belanai Batuh Iran / Tuked Rini* in Pa' Mada, and *Lungun Belanai Tang Belanai* in Pa' Mada, these can be clearly seen. One site, *Lungun Belanai Batuh Kating* in Pa' Dalih, consists of just one *lungun*

*belanai* in a pineapple field near a hill on the edge of the village (Fig. 3.40). It is said that on the side of the hill, there used to be wooden coffins, which were used for the *nulang* process of drying out the bones of deceased aristocrats before they were placed into jars or urns (the bodies of non-aristocrats remained in the wooden coffins). There are no traces of the wooden coffins here now. Another *nulang* area in Pa' Dalih is *Long Arur Lidung Binatuh;* once bones had been dried here, they were buried in *Binatuh Long Di'it.*

In other *binatuh*, the jars are still buried; often people know their locations. In *Lungun Belanai Singkulub* in Pa' Lungan (Fig. 3.41), for example, there is a line of twelve buried *lungun belanai* in a row on the top of a ridge halfway between Pa' Lungan and Long Rebpun. A few of the jar tops are protruding from the ground, but many jars are completely buried. Someone carefully poked a stick into the ground where one was buried, and it was possible to hear the gentle tapping of the stick against the jar. No attempt was made to dig up any of the buried jars; despite the fact that the Kelabit now are Christian, there are still fears about "bad luck" coming as a result of removing any jars or pieces of them. Aside from this, it is still considered disrespectful to disturb any grave site.

Another common type of *binatuh* consisted of a group of *batuh nawi*, or hollowed-out stone urns, into which the bones were placed, just as they would have been in a Chinese jar. Many of these *batuh nawi* stand about two meters tall, and they all have (or had) thin flat stones placed on top to keep out the rain and animals. A prime example of this type of *binatuh* is *Binatuh Long Di'it* (Fig. 3.42). There are approximately thirteen *batuh nawi* here, several of which are still standing. There are also two *batuh nangan* here, now collapsed. Not too far away from here is *Lungun Belanai Long Di'it*, where at least six dragon jars (buried and partially exposed and broken) can be seen (Fig. 3.43). Human bones are visible in at least one of the jars

(Fig. 3.44). There is also one intact *belanai*, smaller than ones commonly used for burials; it could be a *lungun belanai* for a child or baby. Only one *batuh nawi* that I have seen has any kind of carving on it; this one is located in *Binatuh Long Badung* in Ramudu (Fig. 3.45); the carving (of the common spread-eagled human figure) was recently discovered on an urn that had fallen over. The moss was cleaned off the carving, and the urn was stood upright again. In this *binatuh* there are at least fourteen *batuh nawi*, as well as at least three *batuh nangan* (with human bones visible underneath) and pieces of clay pottery and white and blue porcelain dishes. I have only seen one site consisting of just one single *batuh nawi*: *Binatuh Long Kelit* in Batuh Patong (Fig. 3.46). It is, however, located near two *perupun*, *Perupun Long Kelit* and *Perupun Pa' Buda' Rayeh*. More than one *batuh nawi* has been damaged; in *Binatuh Pa' Da'an* in Ramudu, in January 2006, a bulldozer overturned and seriously damaged at least three *batuh nawi* (Figs. 3.47 and 3.48).

There are other *binatuh* that contain neither *lungun belanai* nor *batuh nawi*. Not all families could afford to bury their loved ones in such an expensive and labor-intensive method, and historical events also sometimes prevented the burial of bodies in traditional manners. For example, in *Binatuh / Tanem Long Pakan / Long Pa' Deruyan* in Pa' Main, there is only a long line of twenty-one shallow graves (visible by shallow oblong indentions into the ground) on a hill overlooking Arur Pakan, with small headstones visible at some of the graves, and with clusters of planted flowers (*bunga tubing*) still growing there (Fig. 3.49). I was told that in this area, many people died suddenly of a cholera epidemic, and there was an urgent need to bury the diseased bodies quickly, and thus no time to observe the conventional rituals. Another *binatuh* that has no jars or urns is *Binatuh Lidung Kitung* in Ramudu. This is a unique burial site, as the bones were placed under several (six or seven) small *batuh nangan* that are located on the top of

a steep rock outcrop. To get to the top, it is necessary to climb about five or six meters up a notched bamboo pole. The top of the rock was covered in a tangle of vegetation that had to be cleared before the *batuh nangan* were visible. Under the *batuh nangan* on top of the rock, human bones and pieces of clay pottery and porcelain dishes were visible (Fig. 3.50). At the base of the rock containing the burials was another *batuh nangan*. The name of this *binatuh*, *Binatuh Lidung Kitung*, translates to "graveyard going in a circle." It is on the banks of the Pa' Kelapang where there is a small jetty with a constant whirlpool. Sometimes, as during an epidemic, there was not time for proper burials, and so the bodies of the deceased (or their wooden coffins) were dropped into a hole in the rock, which led them through a tunnel and into a *rebaru'* (wide part of the river), and then into the whirlpool. So there were times when bodies, coffins, or even bones could be seen "going in a circle."

Since the Kelabit converted to Christianity in the mid-1940s, following World War II, the old ways of burying people with *lungun belanai*, *batuh nawi*, and *batuh nangan* were replaced with Christian burial methods (once, right after death, in wooden coffins), with or without stone headstones to mark their places. Some of these more recent graveyards (usually called *tanem*) are: *Tanem Pa' Nelayan / Lelayan* in Pa' Umor, *Tanem Puun Kubo'* in Bario (Fig. 3.51), and *Tanem Arur Buluh Kapal* in Pa' Mada. Some *tanem* are located at the same site as older *binatuh*. An example of this is *Tanem Pa' Lungan* in Pa' Lungan; it is located on a hill, and the lower part of the hill contains recent Christian graves (Fig. 3.52), while the upper part of the hill contains older, pre-Christian burial sites. It is also interesting to note that there are deep trenches visible in the upper part of this graveyard; these ditches were used by British soldiers during the war of Confrontation between Malaysia and Indonesia in the 1960s.

Ruma' Ma'un

Villages in the Kelabit Highlands are all settled now, revolving around permanent wet-rice fields. But in the past, Kelabit used to practice shifting cultivation (and in a few places, particularly in the southern villages, still do, in addition to permanent wet-rice fields), moving locations of fields and longhouses every few years. Since the soil in the Kelabit Highlands is generally rather poor, fertility of the swidden fields came mostly from the burning of the vegetation on the plot of land. As clearing primary forest was very difficult in the days before chainsaws, people preferred to allow used swidden fields to fallow for a number of years to regain their natural fertility and then re-use them. Secondary forest, or previously farmed land, is called *amug*, and many areas in the Kelabit Highlands, particularly near rivers (where soil is generally more fertile), are now *amug*. *Amug* areas that have been fallowing for many years resemble primary forest, although the trees are smaller and there is a different species composition. In newer *amug* areas, there is often thick undergrowth. *Amug* is a certain indicator that the land has been used by people in the past, and it is probable that near these areas, there was once a longhouse (*ruma' ma'un*).

When the land had been temporarily exhausted by farming, the people would often move the longhouse to another area. As it was common practice to dismantle the entire longhouse and re-use the planks to build a new one, the new longhouse site usually was not a great distance from the previous ones. Often the pattern of longhouse migrations was somewhat circular, as people would return to previously farmed areas to create new fields where old ones had once been. Since the longhouses themselves were often re-used, and since wooden planks eventually rot in the tropical forest anyway, there is often no trace of the longhouse itself when these *ruma' ma'un* sites are visited today. Also, sometimes longhouses burned to the ground in accidents

(such as with *Ruma' Ma'un Meseb* in Pa' Main) or were destroyed by high winds (such as *Ruma' Ma'un Long Ramudu* in Ramudu), which would be two examples of obvious reasons why a longhouse would move or be re-built. Other reasons that a longhouse might change location include historical events such as battles with neighboring groups, the Confrontation between Malaysia and Indonesia (this caused a major resettlement pattern all over the Kelabit Highlands, which led to the current amalgamation at Bario), outbreaks of epidemic diseases, intra-longhouse quarrels that caused splits between family groups, or bad omens that encouraged people to move elsewhere.

Often the only indications that a longhouse was once at a particular site are ecological ones: the presence of nearby *amug*, and also intentionally planted fruit trees, giant bamboo (used for construction of houses, bridges, roofing, etc.), and *isip* (a plant with large leaves that were used to wrap packets of mashed rice called *nuba' laya'*). Documenting the types of fruit trees found at each *ruma' ma'un* site was the focus of my first preliminary study in the Kelabit Highlands in 2005, and I will not discuss all the results of that study here. But it is interesting to note that many of the most commonly planted fruit trees at *ruma' ma'un* sites (according to interviews with elderly Kelabit who had lived at many of these sites) are no longer visible in the landscape today; some require sunlight to grow, and once the forest canopy closed over them, they could no longer survive. Also, since people knew they might only be at a particular site for a few years, they sometimes only planted short-lived fruit species such as banana (*bua' ba'ung*), pineapple (*bua' kaber*), papaya (*bua' majan*), eggplant (*bua' ulam*), pumpkin (*bua' tedak*), guava (*bua' libuh*), and chili pepper (*bua' lada'*). However, there are still many large-sized, long-lived species visible in the *amug* areas today; notably breadfruit (*bua' sukun*), terap (*bua' kiran*), durian (*bua' bindalah* if wild *and bua' datu'* if cultivated), mango (*bua' laam*), jackfruit

(*bua' baduk*), longan (*bua' bubpuh*), wild mangosteen (*bua' raku'*), orange (*bua' buyo'*), pomelo (*bua' buyo tuan*), longsat (*bua' langaat*), soursop (*durian belanda*), and petai (*bua' patar*). Descendents of the original owners of these *amug* areas still collect fruit from these trees[7].

There are at least 119 *ruma' ma'un* sites in the Kelabit Highlands, and likely many more. Older people in the villages can list the sites at which they have lived in their lifetimes, and can also list sites at which their parents and grandparents lived. They also know approximately how many people lived in each longhouse, and how long the group stayed there before moving on. Based on this information, it is possible to determine general dates for many of the known *ruma' ma'un* sites. But often, people have heard of other *ruma' ma'un* sites, but do not know how long ago people lived there. The younger people, particularly the young men who go out hunting in these areas, often know where the sites are, or the locations can be described to them by older people.

A general aim of my research has been to trace the longhouse migration patterns of *ruma' ma'un* sites in the northern Kelabit Highlands, particularly around and north of the present village of Pa' Lungan. This has proven quite difficult to do; interviews with the older people in Pa' Lungan have yielded many similarities, but also differences in the sequence of longhouse locations, the amount of time spent at each site, and the number of people at each site. This is probably not a case of faulty memory; more likely it is related to the fact that in the past, longhouse groups would often split up for awhile and then merge together again later in different locations, perhaps with people from other longhouses.

Conglomeration of information received through interviews in Pa' Lungan shows the following general patterns of longhouse migrations in this area (RM = *Ruma' Ma'un*):

[7] For more information on land tenure related to fruit trees in Borneo, see Appell 1986, Cramb and Wills 1990, Colfer 1980, 1997, Colfer and Soedjito 1996, Dove 1985, and Roseman 1996.

(1) *RM Arur Mela → RM Ilung → RM Arur Birar → RM Arur Tebelayun → RM Arur Berera → RM Bang Mitem → RM Pa' Dera'an (3X) → RM Puneng Arur Kiran → RM Keduluh → RM Long Keduluh → RM Telem Buko*

(2) *RM Pa' Terap Ketuan / Udan Turun → RM Arur Bado → RM Arur Bang Bengar (2X) → RM Semereng → RM Long Arur Buluh Puren → RM Long Pa' Lungan → RM Tesag (3X) → RM Lun Puun → RM Lubung Arur Kiran (2X) → RM Pa' Lungan → Pa' Lungan*

(3) *RM Arur Sekarut → RM Long Buluh Barit → RM Lem Patar → RM Sebangiung → RM Lun Puun → RM Long Arur Kiran → RM Pa' Lungan → RM Long Rebpun → Pa' Lungan*

(4) *RM Arur Laam → RM Arur Meritem → RM Berera → RM Arur Tebelayun → RM Arur Rupan → RM Pa' Retanid → RM Pa' Lupu' → RM Long Merariu'*

(5) *RM Pa' Terap → Pa' Lungan;* (2) *RM Pa' Semarang → RM Long Pa' Lungan → Pa' Lungan;* (3) *RM Tesag → RM Patar;* (4) *RM Arur Kiran Pa' Lungan → Pa' Lungan*

These lists do not include all the supplementary information collected so far on the numbers of people at each site, time spent at each site, approximate dates of inhabitance at each site, or types of fruit trees or other ecological indicators of past land use at each site. Those details, in codified format, will be incorporated into the database and analyzed later using GIS. Several examples of *ruma' ma'un* sites show the variations in the present ecology of these previous longhouse sites (Figs. 3.53 and 3.54).

Landscape Modifications

In addition to constructing megaliths, *perupun*, and elaborate *binatuh*, the Kelabit also created a number of semi-permanent marks on the landscape itself, including *kawang*, *nabang*, and *taka*. Like the *batuh sinuped*, these were often named either for the person who made them or organized their construction or in honor of a deceased person. They were also sometimes

made to commemorate an achievement or historical event. If the original names are not known, the site is known by its location. Many of these monuments were also made with communal labor, during a period of *irau*. Some were made to display wealth or strength, and others for more practical reasons such as intentionally flooding new rice fields.

*Kawang* were made by cutting all the trees in an area on the top of a ridgeline, thus creating a notch in the tree line that could be seen for many kilometers away. As most of these *kawang* have grown over, they are not visible from a distance anymore. But people know where these *kawang* were, and they often know the names of them. Making a *kawang* in the past was a huge undertaking, perhaps the most labor-intensive of all Kelabit monuments. On some mountains, such as Buduk Kaber in Pa' Lungan, there were multiple *kawang*. This mountain has five: *Kawang Uyau Palad @ Balang Tepun, Kawang Sinah Balang Riwat, Kawang Agan Urud, Kawang Udan Turun,* and *Kawang Udan Tuna* (see Fig. 3.55 for a photograph of Buduk Kaber). On close inspection of the site of the *kawang*, it is evident that the trees in these areas are much younger than the surrounding trees, but from a distance, it is impossible to tell that the *kawang* were there. There were also four *kawang* on Mount Murud, the highest peak in Sarawak, northeast of Pa' Lungan: *Kawang Udan Tuna, Kawang Aran Tuan, Kawang Akun,* and *Kawang Pun Erang*. Other examples of *kawang* in the Kelabit Highlands include *Kawang Rajah Umung* and *Kawang Liri @ Langit Nubung*, both in Pa' Dalih, *Kawang Bayo* in Pa' Bengar, *Kawang Tama' Lian / Apad Bawang Runan* in Batuh Patong, and series of *kawang* known as *Kawang Mula'* ("many *kawang*") on the ridge between Pa' Umor and Pa' Main. There were at least 24 *kawang* surrounding Bario Asal in the past (see Appendix C). There is one recently-made *kawang* in Bario which is clearly visible from anywhere in Bario today (Fig. 3.56). It is called the *Millennium Kawang* and was made to commemorate the year 2000; it is said to be the

gateway for good fortune to enter the Kelabit Highlands. There was no practical reason (such as for irrigation) that a *kawang* was made in the past. When I asked one Kelabit woman why people made *kawang*, she replied proudly, "Because we can."

Another type of landscape modification often made by the Kelabit was a *nabang*. *Nabang* are ditches cut into the soil or through a ridge, and these were also quite labor-intensive to construct. There are a great number of *nabang* in the Kelabit Highlands, and they were made for a variety of reasons. Some were made for practical reasons, such as to intentionally flood or drain an area for planting rice. Examples of this type of *nabang* are *Nabang Karasan* and *Nabang Pun Marada'*, both in Pa' Lungan. *Nabang* are still made for this reason today. *Nabang Balang Tepun* in Pa' Lungan is an example of a recently made *nabang* (actually a set of three in close proximity to one another). *Nabang* were also made for reasons similar to those for making *kawang* or *batuh sinuped* – to display wealth or strength or to honor someone. *Nabang* were often made to intentionally straighten bends in a river or stream, thus changing the flow of the water. Examples of this include *Nabang Palad Balang* and *Nabang Balang Tepun Pa' Terutun*, both in Pa' Lungan. A third reason that *nabang* were made was spiritual; some *nabang* were made to guide the soul of a deceased person in a certain direction; Tom Harrisson called this type of *nabang* a "spirit egress" (1958:698). *Nabang Ra'an Berangad*, on the boundary of Pa' Main and Pa' Umor, was made near the *lungun belanai* of Pun Ngenep, who was buried on the boundary. The *nabang* was made so that the soul of Pun Ngenep would be guided back to his homeland of Pa' Main. *Nabang Menang Ribuh / Batuh Kating* in Pa' Dalih (Fig. 3.57) was connected to a *binatuh*, so it is quite possible that this one was also made for spiritual reasons (to guide the souls into Pa' Dalih). While most *nabang* are straight, a few are rounded. *Nabang Pa' Libung* in Pa' Lungan (Fig. 3.58) is circular, which meant it was probably not created for

irrigation purposes; it was suggested, though not known for certain, that the reason was either spiritual or personal.

As mentioned, there are many *nabang* still visible in the landscape today, including: *Nabang Buluh* (Fig. 3.59)*, Nabang Selayu'* (Fig. 3.60), and *Nabang Pun Marada'*, all in Pa' Lungan, *Nabang Long Benuang* and *Nabang Taka Tama'al* in Pa' Main, *Nabang Ra'an Tuduk Uku'*, on the boundary between Pa' Main and Pa' Mada; *Nabang Long Pa'it, Nabang Tang Belanai*, and *Nabang Pa' Semayo* in Pa' Mada; *Nabang Ra'an Berangan, Nabang Long Da'an, Nabang Ruid Sakai,* and *Nabang Pa' Reka'ang* in Pa' Dalih; and *Nabang Serayah Ribuh, Nabang Tama' Lian, Nabang Ubar Uwih, Nabang Pun Tanid, Nabang Pun Ngutak, Nabang Long Buda', Nabang Natad Rupah,* and *Nabang Ketuan Tapun*, all in Batuh Patong. This is in addition to many *nabang* whose names and histories are not known.

A third way that Kelabit created cultural monuments using the landscape itself was by cutting off a bend in a river or stream, thus creating an oxbow (*taka*). These were usually made in order to flood an area for growing rice, and they were often the desired result of creating *nabang*. Several examples of intentional *taka* are: *Taka Udung Buluh* (Fig. 3.61), *Taka Rawir,* and *Taka Gia Ulang* (Fig. 3.63), all in Pa' Lungan, and *Taka Tama'al* in Pa' Main (Fig. 3.62). *Taka Lem Saug Pa' Dalih* in Pa' Dalih and *Taka Bulan* in Pa' Mada are natural oxbows of the Pa' Kelapang River and are also used for growing rice.

Miscellaneous: Other Important Cultural Sites

There are many other sites in the Kelabit Highlands with cultural, historical, mythological, spiritual, or social significance. Many of these are natural features of the landscape that have been used by people for specific purposes or are associated with certain myths, legends, or historical events.

One example of this type of site is *main tudtu'*, or salt springs. The production of salt using natural salt springs is a distinctive feature of Kelabit culture, and in the past allowed the Kelabit to be relatively autonomous in comparison to other groups because they could provide for their own salt needs. It was also a valuable trade item, and packets of salt were used as a kind of currency before the introduction of money. Having salt containing iodine apparently also gave the Kelabit a physical advantage over some other neighboring groups, as it contributed to their overall health and strength and prevented goiter. Salt springs dot the Kelabit landscape, and salt is still produced in the Kelabit Highlands (especially in *Main Keramut* in Pa' Umor), by boiling the salty water in bamboo stems until all the liquid has evaporated, and then burning off the bamboo in fire and wrapping the hardened cakes of salt in *Ilad* (*Licuala valida*) leaves. There are stories about how each salt spring was discovered. For example, *Main Rabadui* in Pa' Main (Fig. 3.64) was discovered by a hunter from Pa' Ramapuh who dropped one of his blowpipe darts into the water. Because the dart was wet, it was loose in the blowpipe, so he bit the end of it to make it fit better. When he did this, he tasted the salt. Other *main tudtu'* known to exist in the Kelabit Highlands are *Main Terema'an / Main Abu' / Main Abuh* (so named because once a small boy, "*abu'*," fell into this well and drowned, and his ashes, "*abuh*," were thrown in the well; another story says that someone was jealous of the owner of the salt spring, so he threw ashes, "*abuh*," in the well to destroy it) (Fig. 3.65), *Main Ra'u, Main Sadang* (3 sites), *Main Paad*, all in Batuh Patong, and also *main tudtu'* in Ramudu and Pa' Berang.

*Rupan* are another type of site that is important to the Kelabit. These are small natural ponds or swampy areas, often also slightly salty, where animals come to drink. Obviously, these were popular hunting spots, and one particularly interesting *rupan* on the boundary between Pa' Main and Pa' Bengar is called *Takung Balang (liang Tuduk Uku')*; it is said that tigers used to

come here to drink and to bathe (Fig. 3.66). Other named *rupan* include *Rupan Rabe'* in Batuh Patong (where people used to hunt rhinoceros), *Rupan Arur Lela* in Pa' Umor, and *Rupan Arur Birar* in Pa' Derung.

*Ra'an*, or mountain passes, are also often of historical importance to the Kelabit. These *ra'an* are lower areas on mountain ridges, and trails between villages often went through these areas. Many *ra'an* were used as meeting points (*apu'* or *tung*) for people from different villages; they would conduct trade meetings here, and when people from one village invited people from another village for an *irau*, the hosts would meet the guests at these *ra'an* and escort them to the village. Some of these *ra'an*, as already noted, had other cultural monuments such as *batuh sinuped*, *nabang*, or *binatuh* to mark them (in addition to those *ra'an* described earlier, *Ra'an Ere* on the boundary between Pa' Main and Pa' Umor also has a small square stone to mark the boundary). *Ra'an Tuduk Uku'* has a line of stones, and it is said that men used to jump from one to the next in order to show strength and courage. This was also an area where solemn oaths were taken, and people would swear on a dog (*uku'*) that they were telling the truth or would fulfill a promise (this usually entailed the death of the dog). In other areas, historical events are associated with certain *ra'an*. *Ra'an Anak Adi'* ("mountain pass small children"), on the boundary between Pa' Main and Pa' Umor, was known to be a dangerous place, and children were warned not to go there alone, especially at night. But one time three boys dared each other to go there alone, one at a time. The first boy went, and did not come back. Then the second boy went to look for him, and he did not come back either. A third boy went to look for the first two, and he also disappeared. It was assumed that the boys were killed by "the enemy," and the *ra'an* was thus named for these boys who were never found. Other important *ra'an* that mark boundaries between villages include *Ra'an Buduk Tumu'* and *Ra'an Benuang*, which mark the

boundary between Pa' Main and Pa' Umor; *Ra'an Ngororen, Ra'an Dalan, Ra'an Dalem,* and *Ra'an Lilad*, which mark the boundary between Pa' Mada and Pa' Main; *Ra'an Ngaba*, which marks the boundary between Pa' Main and Bario (a logging road now runs through this *ra'an*); *Ra'an Remubung*, which marks the boundary between Pa' Dalih and Pa' Bengar; *Ra'an Tong Bera*, which marks the boundary between Bario and Pa' Umor; and *Ra'an Buluh Barit*, which marks the boundary between Pa' Lungan and Pa' Ukat.

Other sites that are important to Kelabit culture and history do not fit into any general categories. For example, *Kiran Patur* in Pa' Main (Fig. 3.67) is a perfectly straight row of *bua' kiran* trees in the forest (perhaps planted to mark a boundary of some kind). Another site of particular cultural and mythological significance is *Lubang Balang* ("tiger cave") in Pa' Dalih (Fig. 3.68). As discussed already, this was the site where the monster depicted on *Batuh Narit Tuked Rini at Long Tenarit* in Ramudu was killed before being chopped up on *Batuh Penagan* in Ramudu. This is a small cave (maybe ten or fifteen meters deep) on a steep hill surrounded by trees; this site is of particular importance to people in Pa' Dalih. Other natural areas whose protection is important to Kelabit include *Ru'eb Pa' Di'it* ("waterfalls") in Batuh Patong, *Lubang Ka'ong* in Batuh Patong, and *Kayu Parir* ("poison trees" or *ipoh*, from which people used to collect sap to make poison for their blow darts) in Pa' Bengar. Also, several more recent events in Kelabit history have left their marks on the landscape and so are also considered by Kelabit as cultural sites; these include Confrontation army camps or trenches, old school sites, old airstrips in Pa' Dalih, Ramudu, and Pa' Lungan, the site of Tom Harrisson's house in Bario, and others.

Threats to Cultural Sites in the Kelabit Highlands

As discussed throughout this chapter, there are numerous threats to the cultural sites in the Kelabit Highlands. Natural phenomena, such as lightning strikes, floods, erosion,

decomposition, falling trees, and shifting soil can damage megaliths or other sites. Sites are also overgrown with vegetation, rendering them invisible in the landscape and liable to damage underground. Wild animals such as boar, who root in the ground for food, have undoubtedly damaged burial jars and other pottery, as have domesticated animals, such as buffalo, who have caused the collapse of several large megaliths in living memory. Past and present archaeological excavations have also damaged sites; artifacts have been taken from many sites, and amateur excavations by Tom Harrisson several decades ago have left several large megaliths in precarious positions. Also, sometimes the local people themselves have used materials from megaliths such as *perupun*, *batuh sinuped*, and *batuh nangan* for the construction of houses and other buildings, or they have cleared areas containing cultural sites for padi fields or buffalo pastures. But perhaps the largest threat to cultural sites today comes from the widespread logging that is currently taking place, and the large-scale agricultural and infrastructure development that is planned for the area. As noted in the text, several sites have already been damaged as a result of logging activities, and the Kelabit people want to prevent further damage and also looting and vandalism of sites that often accompany logging activities. For these reasons, the Kelabit people are eager to map and demarcate on the ground the areas surrounding cultural sites.

Community Documentation and Preservation Efforts

Although there is legal protection for megaliths, burial sites, and artifacts under the Sarawak Cultural Heritage Ordinance (1993), it is difficult to enforce protection of them on the ground in remote areas like the Kelabit Highlands. The Kelabit community is fully aware of the need for their own monitoring and protection of these sites, and they have been proactive in seeking funds and assistance to map and demarcate the sites on the ground. In addition to the collaborative mapping project that I have conducted with the community, staff of the Sarawak

Forest Department (through a project directed by the International Tropical Timber Organization) have mapped 88 sites in the northern highlands of Sarawak, a broad area which includes the Kelabit Highlands (Cluny and Chai 2007), and a team of archaeologists is currently mapping some sites in the southern Kelabit Highlands. The Kelabit community, led by *Rurum Kelabit Sarawak* (The Kelabit Association of Sarawak), is currently collating all these data, and with approximately RM80,000 of funding from the United States Cultural Foundation (a foundation run through the U.S. Embassy to Malaysia) and the Oxbridge Society from the United Kingdom, they are designing a comprehensive project to map, demarcate, and maintain the cultural sites of the Kelabit Highlands, in addition to water catchment areas, communal forest reserves, and village boundaries. This is a larger-scale initiative that builds on ongoing community protection, maintenance, and repair of the sites that they value as being an integral part of their heritage and identity, and that prove beyond doubt the highly anthropogenic nature of this landscape and the long-term occupation of the Kelabit people here.

These documentation efforts by the Kelabit community will not only help to preserve the sites themselves and the historical and cultural knowledge associated with them, but will also be very informative for future planning for this area. Hopefully by highlighting the cultural uniqueness and ecological integrity of the Kelabit Highlands, the Kelabit people living here today will be able to determine a trajectory for the future that acknowledges both the rich cultural heritage present in the current landscape and the potential it holds for conservation and community-based sustainable development.

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References Cited

Adams, Jonathon and Thomas McShane
1992 The Myth of Wild Africa. Berkeley: University of California Press.

Amster, Matthew
2005 Cross-Border Marriage in the Kelabit Highlands of Borneo. *Anthropological Forum* 15(2): 131-150.

Amster, Matthew
2003 Gender Complementarity and Death among the Kelabit. *In* Journeys of the Soul: Anthropological Studies of Death, Burial, and Reburial Practices in Borneo. William D. Wilder, ed. Pp. 251-307. Kuching: Borneo Research Council, Inc.

Appell, George N.
1986 Kayan Land Tenure and the Distribution of Devolvable Usufruct in Borneo. Borneo Research Bulletin 18(2): 1-24.

Bala, Poline, Roger Harris, and Peter Songan
2003 E-Bario project: In Search of a Methodology to Provide Access to Information Communication Technologies for Rural Communities in Malaysia. *In* Using Community Informatics to Transform Regions. S. Marshall, W. Taylor and X. Yu., eds. Pp. 115-131. Hershey, PA: Idea Group Publishing.

Bala, Poline
2002 Changing Borders and Identities in the Kelabit Highlands: Anthropological Reflections of Growing Up in a Kelabit Village near the International Border. Dayak Studies Contemporary Society Series, No. 1. Institute of East Asian Studies. Kuching: Unit Penerbitan Universiti Malaysia Sarawak.

Baleé, William
1992 People of the Fallow: A Historical Ecology of Foraging in Lowland South America. *In* Conservation of Neotropical Forests: Working from Traditional Resource Use. Kent H. Redford and Christine Padoch, eds. Pp. 35-57. New York: Columbia University Press.

Banks, Edward
1937 Some Megalithic Remains from the Kelabit Country in Sarawak with Some Notes on the Kelabit Themselves. Sarawak Museum Journal IV, Part IV (15), 1937: 411-437.

Bulan, Lucy and David Labang
1979 The Kelabit Harvest. Sarawak Museum Journal XXVII (48): 43-52.

Bulan, Ramy
2003 Boundaries, Territorial Domains, and Kelabit Customary Practices: Discovering the Hidden Landscape. Borneo Research Bulletin 34:18-61.

Cluny, Wilhelmina and Paul Chai
2007 Cultural Sites of the Northern Highlands Sarawak, Malaysia: Megaliths and Burials. ITTO Project PD 224/03 Rev. 1(F): Transboundary Biodiversity Conservation Pulong Tau National Park. Yokohama and Kuching: International Tropical Timber Organization and Sarawak Forest Department.

Colfer, Carol J. Pierce
1980 Change and Indigenous Agroforestry in East Kalimantan. *In* Whose Trees? Proprietary Dimensions of Forestry. Louise Fortmann and J.W. Bruce, eds. Pp. 306-309. Boulder: Westview Press.

Colfer, Carol J. Pierce and Herwasono Soedjito
1996 Food, Forests, and Fields in a Bornean Rain Forest: Toward Appropriate Agroforestry Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, eds. Pp. 162-186. Oxford: Oxford University Press.

Cramb, Robert A. and I. R. Wills
1990 The Role of Traditional Institutions in Rural Development: Community-Based Land Tenure and Government Land Policy in Sarawak, Malaysia. World Development 18(3): 347-360.

Cronon, William
1995 The Trouble with Wilderness, or Getting Back to the Wrong Nature. *In* Uncommon Ground: Toward Reinventing Nature. William Cronon, ed. Pp. 69-90. New York: W.W. Norton & Co.

Crumley, Carole L.
1994 Historical Ecology: A Multidimensional Ecological Orientation. *In* Historical Ecology: Cultural Knowledge and Changing Landscapes. Carole Crumley, ed. Pp. 1-13. Santa Fe: School of American Research Press.

Dove, Michael
1985 Swidden Agriculture in Indonesia: Subsistence Strategies of the Kalimantan Kantu'. New York: Mouton.

Eliade, Mircea
1979 A History of Religious Ideas. Glasgow: Collins Publishers.

Gadgil, Madhav and Ramachandra Guha
1992 This Fissured Land: An Ecological History of India. London: Routledge.

Gnaniah, Jayapragas, Alvin Yeo, Peter Songan, Hushairi Zen, and Khairuddin Ab Hamid
2004 A Comparison on the Implementation Approaches for The E-Bario and E-Bedian Projects. *In* Work With Computing Systems. H.M. Khalid, M.G. Helander and Alvin W. Yeo, eds. Pp. 286-291. Kuala Lumpur: Damai Sciences.

Guyer, Jane and Paul Richards
1996 The Invention of Biodiversity: Social Perspectives on the Management of Biological Diversity in Africa. Africa: Journal of the International African Institute 66(1): The Social Shaping of Biodiversity: Perspectives on the Management of Biological Diversity in Africa: 1-13.

Harris, Roger
2001 Internet Access by Remote Communities in Sarawak: The Smart School as a Demonstrator Application. Research report: UNIMAS and IDRC.

Harrisson, Tom
1973 Megalithic Evidences in East Malaysia: An Introductory Summary. Journal of the Malaysian Branch, Royal Asiatic Society XLVI(1):123-140.

Harrisson, Tom
1962 Megaliths of Central Borneo and Western Malaya, Compared. Sarawak Museum Journal XI(19-20) (New Series):376-382.

Harrisson, Tom
1959 More 'Megaliths' from Inner Borneo. Sarawak Museum Journal IX (13-14):14-20.

Harrisson, Tom
1958a A Living Megalithic in Upland Borneo. Sarawak Museum Journal VIII (12) (New) (29) (Old):694-702.

Harrisson, Tom
1958b Megaliths of Central and West Borneo. Sarawak Museum Journal VIII (11) (New) (26) (Old): 394-401.

Harrisson, Tom
1954 Outside Influences on the Kelabits. Sarawak Museum Journal VL (4) (New) (19) (Old):104-125.

Harrisson, Tom
1950 Kelabit, Land Dayak and Related Glass Beads in Sarawak. Sarawak Museum Journal V (2): 201-220.

Harrisson, Tom and Penghulu Balang Siran
1959 World Within: A Borneo Story. Singapore: Oxford University Press.

Hose, Charles
1900 In the Heart of Borneo. The Geographical Journal 16(1):39-59.

Hose, Charles
1894 The Natives of Borneo. The Journal of the Anthropological Institute of Great Britain and Ireland 23:156-172.

Janowski, Monica
1988 The Motivating Forces behind Recent Changes in the Wet Rice Agricultural System in the Kelabit Highlands. Sarawak Gazette 114(1504):9-21.

Keith, Henry George
1947 Megalithic Remains in North Borneo. Journal Malayan Branch, Royal Asiatic Society. Vol. XX, part I: 153-155.

Labang, Lian
1962 "Married Megaliths" in Upland Kalimantan. Sarawak Museum Journal XI(19-20) (New Series): 383-385.

Michon, Geneviève, Hubert De Foresta, and Patrice Levang
2000 The Damar Agroforests of Krui, Indonesia: Justice for Farmers. *In* People, Plants, and Justice: The Politics of Nature Conservation. Charles Zerner, ed. Pp. 159-203. New York: Columbia University Press.

Mjöberg, Eric
1925 An Expedition to the Kalabit Country and Mt. Murud, Sarawak. Geographical Review 15(3): 411-427.

Nyerges, A. Endre
1996 Ethnography in the Reconstruction of African Land Use Histories: A Sierra Leone Example. Africa: Journal of the International African Institute 66(1): 122-144.

Phelan, Peter R.
1997 Traditional Stone and Wood Monuments of Sabah. Kota Kinabalu: Pusat Kajian Borneo.

Roseman, Marina
1996 Singers of the Landscape: Song, History, and Property Rights in the Malaysian Rain Forest. American Anthropologist 100(1):106-21.

Rousseau, Jérôme
1990 Central Borneo: Ethnic Identity and Social Life in a Stratified Society. Oxford: Clarendon Press.

Saging, Robert Lian and Lucy Bulan
1989 Kelabit Ethnography: A Brief Report. Sarawak Museum Journal XL(61): 89- 118.

Songan, Peter, Khairuddin Ab Hamid, Alvin Yeo, Jayapragas Gnaniah, and Hushairi Zen
2004 Community Informatics: Challenges in Bridging the Digital Divide. *In* Work With Computing Systems H.M. Khalid, Martin G. Helander and Alvin W. Yeo, eds. Pp. 267-270. Kuala Lumpur: Damai Sciences.

Toynbee, W.
1965 Educational Progress in the Kelabit Highlands. Sarawak Gazette, Vol. XCI, No. 1289 (from Sarawak Gazette Delima Edition, pp. 394-395).

Southwell, Hudson C.
1999 Uncharted Waters. Calgary: Astana Publishing.

Smith, Linda Tuhiwai
1999 Decolonizing Methodologies: Research and Indigenous Peoples. London: Zed Books.

Von Koenigswald, Gustav Heinrich Ralph
1962 A Remarkable Megalith and Gold Ear-ring from Java. Sarawak Museum Journal Vol. XI(19-20) (New Series): 372-375.

CHAPTER 4

# DOING HIGH-TECH COLLABORATIVE RESEARCH IN THE MIDDLE OF BORNEO: A CASE STUDY OF E-BARIO AS A BASE FOR THE TRANSFER OF GIS TECHNOLOGY IN THE KELABIT HIGHLANDS OF SARAWAK, MALAYSIA[1]

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Abstract

This case study describes the experiences of an anthropologist currently conducting GIS-based ethnographic research in the Kelabit Highlands of Sarawak, Malaysia, using the e-Bario Telecentre as a local collaborating institution, a base for the input and storage of hard and soft copies of data and reports, and as a nexus for training community members to use GIS technology. Grounded in discussion of current collaborative research trends in the fields of anthropology and geography, this paper elaborates on the challenges and benefits of using the technology, facilities, and personnel currently available at the e-Bario Telecentre. It also describes how this current project is laying the foundation for a larger project that will be owned, managed, and used by the local community. This article elaborates on the social, cultural, political, economic, and environmental context in which this project is developing, demonstrating how this research project, and the transfer of technological knowledge that is a key component of it, can be both beneficial and challenging to the Kelabit community. Finally, it offers suggestions for the improvement of e-Bario by suggesting both what e-Bario can do to better serve the needs of researchers in the Kelabit Highlands and what researchers can in turn do to assist e-Bario in meeting its goals to serve the community, visitors, and other researchers.

Introduction

Guided by the principles outlined in Wawasan 2020[2], it is Malaysia's goal to become a "fully-developed country," competitive in all respects with the world superpowers by the year 2020. These goals include: higher education for more Malaysians; broader availability of health

[2] "Wawasan 2020" or "Vision 2020" is a plan that was proposed by Dato' Seri Dr Mahatir Mohamad (then Prime Minister of Malaysia) in 1991 that envisions Malaysia as a "fully developed country" – "economically, politically, socially, spiritually, psychologically, and culturally." Mahatir writes: "We must be fully developed in terms of national unity and social cohesion, in terms of our economy, in terms of social justice, political stability, system of government, quality of life, social and spiritual values, national pride and confidence" (Mahatir 1991, quoted on www.wawasan2020.com)

care, higher income, and improved standard of living for all citizens; more direct revenue from the export of manufactured goods; and infrastructure and communications development for even the remotest areas. Connecting the most remote and isolated communities with communications capabilities is a distinct challenge for a country like Malaysia, and especially for a state as large as Sarawak, located on the island of Borneo.

Concurrent with the national drive to link rural Malaysian villages to the rest of the world via telephone and internet connections is an international movement promoting ICT[3] projects in small communities all over the world. Because of its remote location and a population that was mostly unaware of the internet but eager to embrace new technologies to enhance communication (Harris 2001; Songan et al. 2004), Bario (the administrative center of the Kelabit Highlands of Sarawak) was chosen as the site to implement the first rural ICT network in Malaysia, using a multi-disciplinary team of researchers and a participatory approach to the implementation and management of the project (Bala et al. 2003; Gnaniah et al. 2004; Harris 2001; Songan et al. 2004). The e-Bario project was initially funded by the International Development Research Centre (IDRC) of the Canadian government and the Malaysian government (Harris 2001; Songan et al. 2004) and was first administered as a joint venture between the Kelabit community in Bario and Universiti Malaysia Sarawak (UNIMAS), with the technological support of Telekom Malaysia, the major telecommunications company in Malaysia. It has proven to be highly successful. Since its inception in 1999 and the opening of the internet telecentre in 2002, e-Bario has won numerous national and international awards[4].

[3] ICT: information and communications technology

[4] Awards include: "Top Seven Intelligent Communities," World Teleport Association (2001), Industry Innovators Award for Systems Development and Applications, Satellite Professionals International (2002), Information Technology Premier Award, Malaysian Administration Modernisation and Management Planning Unit (MAMPU), Prime Minister of Malaysia (2003), eASIA "Bridging the Digital Divide" Award, Asian Pacific Council for Trade Facilitation and Electronic Business (AFACT) (2004), and Mondialgo Engineering Recognition for Outstanding Achievement Award (UNIMAS and the University of Cambridge Engineering Department, 2005).

E-Bario is a computer network system that provides public internet access using wireless VSAT (Very Small Aperture Terminal) satellites that run on solar power and transmit signals to Telekom Malaysia (Gnaniah et al. 2004; Harris 2001; Liew et al. 2004; Songan et al. 2004; Zen et al. 2004). The main facility, Gatuman@Bario (the e-Bario Telecentre), houses ten computers for public use, all of which are linked to the internet and to a printer, as well as a management office and a meeting room. E-Bario allows residents and visitors to access the internet, print photographs and documents, and burn CDs. With this ability, they are able to conduct business (as lodge owners, guides, and shopkeepers), do remote work for companies outside the Kelabit Highlands, maintain personal contacts with friends and family (this is especially important since only about 1200 of the approximately 6000 Kelabit people currently live in the Kelabit Highlands), and produce websites and blogs[5] related to issues of Kelabit interest. Internet communication and the other office facilities of e-Bario also make it possible for researchers like myself to maintain contact with their home institutions and other collaborators and researchers around the world and to produce interim reports in the Kelabit Highlands that can be immediately distributed to people living here and elsewhere. Finally, the telecentre serves both as a nexus for training community members to use various kinds of technology, and as a friendly place to conduct formal and informal meetings with community members regarding issues that have inevitably surfaced though the course of my own project.

In this article I describe the research project, which is focused on documenting Kelabit land use history using ethnographic and geospatial research methods. I examine the social, cultural, historical, political, economic, and political context of the Kelabit Highlands and the role of the e-Bario Telecentre as a local collaborating institution. I locate this research within the

[5] Including but not limited to www.ebario.com, www.kelabit.net, several personal websites and blogs on Multiply and other networks.

emergent fields of participatory anthropological research and community mapping, and relate how I have used e-Bario as a forum to attempt to overcome some of the challenges inherent in this type of research. I describe the complementary role that researchers can play in supporting e-Bario's mission in the community, and how e-Bario can in turn provide crucial support for researchers working in the Kelabit Highlands. As an institution linking community priorities with the research enterprise, e-Bario ensures a congruence of goals. I end by making suggestions about how e-Bario can grow to incorporate other types of research, be more supportive of local and foreign researchers, and prepare members of the Kelabit community to both continue research and to store, manage, and use data produced by such projects on a long-term basis.

Documenting the Land Use History of the Kelabit Highlands Using GIS

Building on recent advances in the historical ecology of anthropogenic landscapes (Cronon 1995; Crumley 1994; Gadgil and Guha 1992; Nyerges 1996; Roseman 1996) and the political ecology of conservation(Adams and McShane 1992; Blaikie and Brookfield 1987; Brown 1998; Colfer 1980; Colfer and Soedjito 1996; De Jong et. al. 2003; Greenberg and Park 1994; Guyer and Richards 1996; Logan and Moseley 2002; Moore 1993; Zimmerer and Bassett 2003), this research focuses on documenting the land use history of the Kelabit Highlands of Sarawak, Malaysia. My two main objectives in creating this land use history are 1) to advance a multidisciplinary methodology of analyzing spatial and temporal data from different sources and 2) to promote a multi-level collaborative approach to participatory anthropological research methods in the context of a state-led conservation initiative[6] that affects the Kelabit community. Applying an array of complementary ethnographic methods, including archival research, participant observation, interviews that include oral history collection and sketch mapping, and guided visits to cultural monuments and past settlement sites, I will incorporate these codified

[6] "Transboundary Biodiversity Conservation: Pulong Tau National Park, Sarawak State, Malaysia" (2003).

ethnographic and ecological data into a GIS database that will also include GPS locations of features and layers of regional geospatial data from existing maps, satellite images, and aerial photographs. This project will result in the creation of a digital land use history that acknowledges the role of cultural institutions and historical and political events in shaping the current landscape. A digital map and GIS database will make this landscape history visible.

In addition to the hallmark method of anthropological fieldwork, participant observation (Munck 1998; Frankenberg 1982; Gans 1982; Hume and Mulcock 2004; DeWalt and DeWalt 2002), I plan to conduct GIS overlay analysis[7] of the various data layers, spatial (Alderderfer and Maschner 1996; Fotheringham and O'Kelly 1989, McGwire et. al. 1996) and temporal analysis of geospatial and ethnographic data, and ethnographic analysis of data using a grounded-theory approach (Bernard 2002; Krippendorff 1980; Roberts 1997; Ryan and Weisner 1998; Weber 1990) that includes frequency analysis of "code words" collected in interviews (Lofland and Lofland 1995) and examination of historical events that have shaped the land use history of the Kelabit Highlands. Incorporating GIS technology into ethnographic fieldwork will allow for the cross-checking of attributed tabular data collected from interviews, document archives, ecological observations, and geospatial images (Anselin 1992; Behrens 1996; Goodchild 1996). Creating a GIS database flexible enough to include qualitative and multi-media ethnographic data will be a distinct challenge, but the result will be a more complete land use history than could be obtained by any of these methods in isolation.

The GIS database and digital map can be used by local people not only as a cultural archive, but also as a tool in negotiations with agencies involved in conservation or development. This research project includes training for local people in technological and ethnographic methods. This transfer of knowledge and building of local capacity will allow the Kelabit to

[7] Overlay analysis shows congruencies and discrepancies between data layers when they are laid over one another.

experiment with other ways of promoting their interests with regard to lands they have historically occupied and to use GIS technology to document and preserve their cultural monuments and other sites of social, cultural, environmental, or economic importance. The fact that this map and database will be produced in a collaborative manner and then managed and owned by the Kelabit community allows residents to use this resource in ways that are beneficial to them now and in the future.

This research project is ongoing; I am still in the process of working with the Kelabit community to collect data for entry into the database, which is also still under construction. All analyses of the data layers will be done later. During the past eighteen months, I have been living and working in the Kelabit Highlands, conducting interviews, and collecting ethnographic and GPS data on the cultural monuments and old longhouse sites. I have written an interim research report on my findings to date[8] and am now distributing it to the Kelabit community living both within and outside of the Kelabit Highlands for comments, additions, and suggestions for more completeness and greater accuracy. E-Bario, as I will explain, has been an important element determining the pace and outcome of my research here.

Community Mapping and Participatory GIS (PGIS)

Two challenges for anthropologists working with local peoples in biologically diverse and politically dynamic areas have been (1) moving beyond purely extractive research toward inquiry that is more relevant to the community being studied and (2) addressing critiques by local peoples that anthropological ethnographies do not adequately represent them (Escobar 1998; O'Neill 2001; Orlove 1991; Peters 1996). Participatory data collection and mapping methods address these challenges (Colchester 2005; Cooke 2003; Eghenter 2000; Peluso 1995;

[8] This interim report is entitled: "The Living Kelabit Landscape: Cultural Sites and Landscape Modifications in the Kelabit Highlands of Sarawak, Malaysia" (August 2007).

Warren 2005). Other anthropologists have linked ethnography with geospatial data in participatory ways (Calamia 1999; Fox 2002; McConchie and McKinnon 2002; Mohamed and Ventura 2000; Robiglio et. al. 2003), and there is now a substantial literature on community mapping, participatory mapping, participatory GIS (PGIS), and public participation GIS (PPGIS)[9]. Here I will outline some of the major issues involved in introducing mapping technology to local communities and in carrying out participatory mapping projects in rural areas.

Simply put, maps are representations of places, but the "truth" of maps[10] is a hotly debated topic, and now people are starting to look at maps more critically. Maps themselves are never objective representations of reality, as mapmakers are always in control of what people or places are or are not on a map (King 1996), and maps have always been powerful tools for the control of people, places, and resources. Official (colonial and postcolonial) maps have often misrepresented or under-represented local communities, often subjugating various forms of indigenous knowledge by trying to fit them into a Western framework. As a result, many local communities have begun to "counter-map" (Peluso 1995), creating their own maps in ways that render their needs, desires, and ideas about space, land rights, and resource use visible to outside agencies (Chambers 1994; Kabutha et. al. 1990; Peluso 1995; Poole 1995; Rocheleau 1995, 1997; Hodgson and Schroeder 2002). Counter-mapping projects, or locally-driven community mapping initiatives, have proliferated in recent decades. Much of the literature on community and participatory mapping has focused on the *process* of mapping, often critiquing conventional processes as exclusionary and offering a range of alternative ways of mapping that respect local

[9] A copy of my literature review on these topics ("Mapping By, With, and For Local Communities: An Analysis of the Theories and Methods of Community and Participatory Mapping," 2005) is available on request.
[10] Maps make places "real." King (1996:3, 16) says: "The map has become the only reality, not representing a territory but establishing the sole form of its existence…. The power to draw or redraw the map is a considerable one, involving as it does the power to define and what is or is not real."

interests and priorities and that also reflect local perceptions of landscape. These insights about how maps are made (and by whom) have led to further experiments in community mapping, with varying goals, mixed results, and both intended and unintended consequences.

Community mapping entails placing the mental maps of a community on paper. Communities can make many types of thematic maps, including ones focused on territorial boundaries, cultural sites, forest uses, land tenure systems, farming and other land uses, or traditional ecological knowledge. Indigenous or rural communities often want to create maps of their territories in order to assert legal recognition of their land rights, document local knowledge, manage community lands, or increase their capacity to communicate and negotiate with external agencies who are sometimes actively deciding the future of community lands. Other purposes for community maps include solving or preventing boundary disputes with other communities, initiating discussion with government agencies or logging or mining companies about land uses within or near the community territory, planning a land use or resource management system, documenting baseline demographic and geographic data, and educating children in the community about their culture and traditional land (Flavelle 2002; Hodgson and Schroeder 2002, Poole 1995). Community mapping can potentially revitalize and connect communities, strengthen local institutions, support local challenges to external forms of authority, and serve as a nexus between formal and informal governance systems (Warren 2005). Full community participation is important in making such maps; otherwise the interests and knowledge of some people are left off the map (Russell and Harshbarger 2003). Maps can be made in a participatory manner in conjunction with outside researchers, NGOs, or governmental agencies, but if the local people do not retain control of the maps, they are much less useful to them, and could be used against them.

GIS has been continually changing the way that space and spatial relationships can be analyzed. GIS and other geospatial technologies (e.g. remote sensing, GPS) greatly influence the ways in which natural resources are perceived, managed, and exploited (McCusker and Weiner 2003). In studies of land use and land cover change, GIS can be particularly useful in presenting geographical information at different spatial and temporal scales. There are many publications now that describe the technical aspects of integrating qualitative ethnographic and historical data into GIS databases and digital maps (English 2003; Gregory 2003; Knowles 2002). GPS points can be collected at the same time that qualitative data from informants is recorded. Such qualitative data can be incorporated into attribute data tables, which can include information about land quality, usufruct rights and restrictions, types of land and resource ownership, density of resources, and intensity of land and resource use, as well as information about the informants, including age, gender, and social status. These "classification matrices" can be quantified into data tables or added to attribute tables in qualitative format. Geomatics can be used to "build on local knowledge to articulate traditional concepts and present them in a format that facilitates transactions with external agencies" (Mohamed and Ventura 2000:226), thus making local knowledge perceptible to outsiders.

Participatory GIS (PGIS) or Public Participation GIS (PPGIS)[11] is a process by which local groups are given the ability to utilize GIS technologies in ways that fit their own needs and capabilities (Abbott et. al. 1998). It has spread into many remote locations to allow more equal access to GIS technologies for marginalized peoples, often with support from indigenous advocates, computer software developers, researchers, and public and private funders (Kyem 2004). It allows local groups to collect and analyze spatial data and to use this knowledge in decision-making processes that affect their lands and rights. As with community mapping in

[11] In this paper, I will just use the acronym PGIS to refer to both terms.

general, PGIS should be seen as a process guided by a set of inclusive principles, not merely as a tool or a result. The outcome of a PGIS project should not be merely extractive, and local people should be involved in the analysis of GIS data, not just providers of information for a GIS database that outside "experts" will analyze away from the social context in which it was collected. PGIS should have the capability to store qualitative information that is not easily represented spatially. It must be accepted that not all parts of the reality of a community can be stored in a GIS database, but the database should be flexible enough, perhaps through the use of multimedia components, to store and show as much qualitative information as possible. The focus should always be on incorporating local knowledge and local decision-making capability into the PGIS project. PGIS has begun to play an important role in empowering marginalized groups (Craig and Elwood 1998; Craig, Harris, and Weiner 2002; Ghose 2001; Kyem 2004), but its success is also dependent on its use within a broader context of involvement with government agencies, NGOs, and the private sector that allows for community participation.

There are critics of the use of GIS technology in ethnographic studies and of GIS use by local peoples. Some scholars have claimed that GIS technology requires and imposes a certain logic and way of spatially representing reality that favors Western paradigms and therefore symbolizes a scientific, masculine, data-driven, and hegemonic worldview that cannot adequately include the worldviews of under-represented peoples (Goss 1995; Gregory 1994; Kyem 2004; Roberts and Schein 1995). Feminists, for example, question the data layers analyzed in conventional GIS; they question whose input is left out (often that of women) (Rundstrom 1995). Similarly, it is troubling for anthropologists and indigenous advocates who claim that local groups should be judged on their own merits and not on their ability to fit into a certain technocratic schemata.

Since the primary function of GIS has been to organize data for decision-making processes, some researchers and local communities have argued that the technology exists more to benefit policy makers than marginalized groups (Curry 1994: Kyem 2004; Pickles 1995). Science-based maps of land features, such as soil, vegetation, slope, watershed, and species have often increased centralized control over locally managed lands by claiming scientific authority and positive environmental intentions (Vandergeerst 1996:171). Further, GIS-based scientific mapping into homogenous zones does not adequately represent complicated property rights structures in many local communities (Fox 2002; Hodgson and Schroeder 2002; Rundstrom 1995) and often ignores the human presence altogether. As a result of these concerns, PGIS has not been used much in development planning, in part because social scientists who promote community participation in development projects do not fully trust GIS technologists and often feel that the GIS framework is too simplistic to accurately reflect the complexity of local land management regimes (Harmsworth 2002), and local communities feel that the future developments they envision cannot (or will not) be incorporated into the GIS systems used by decision-makers. Scholars, advocates, and communities also claim that GIS cannot properly visualize the landscapes of the past, thus disregarding the roles that local communities have played in creating the present landscapes. Development agencies, on the other hand, often feel that local communities are incapable of contributing reliable technological data to a GIS database or that their contributions would complicate or delay development plans.

GIS has often been used with the intention of settling land conflicts, but GIS does not in itself produce or represent the values inherent in these conflicts. Some scholars argue that GIS intensifies conflicts (Berry 1994; Obermeyer and Pinto 1994), while others claim that GIS can be used in myriad ways that produce a number of possible solutions that can help resolve conflicts

(Armstrong et. al. 1996; Carver 1991; Densham 1991; Diamond and Wright 1988; Eastman et. al. 1993; Kyem 2000). Kyem (2004) argues that GIS can be used to resolve land conflicts, so long as people realize that conflicts operate within specific socio-cultural contexts, and that there are different types of conflict (within or between socio-political systems, for example). The introduction of GIS to local communities can also lead to power imbalances, created by unequal access to technology (Aitken and Michel 1995; Curry 1994; Kyem 2004; Obermeyer 1991). But the critiques of the way that GIS is used emphasize the need to allow indigenous groups access to the same technology in order to level the playing field in public policy debates over lands they have historically occupied (Kyem 2004). The fact is that indigenous communities can take the tools formerly used against them and use them to their own advantage.

Some of these critiques of GIS have been applied to PGIS and participatory mapping in general; when outsiders seek to implement community mapping programs for marginalized or underrepresented communities, it is essential to assess the ways that mapping and the introduction of new technologies will affect the communities (Mohamed and Ventura 2000). According to Mohamed and Ventura (2000:234), "Technology must be considered a double-edged sword with the potential to cause harm as well as bring benefits." It is therefore necessary to inform local communities of potential risks and problems associated with mapping. It has been suggested that to prevent conflicts and other dilemmas associated with community mapping, it is necessary for the community to write by-laws at the outset of the project that detail the effects the maps will or will not have on traditional resource use systems; they should also include codified structures for resource sharing and for sanctioning corrupt leaders for illegal land sales, to prevent dilemmas such as the ones that have occurred in the past (Hodgson and Schroeder 2002). For community mapping to be successful, mechanisms should also be in place for dispute

resolution, conflict mediation, attention to gender, status, and ethnic considerations, and a system of checks and balances (Warren 2005). Communities should also create ways to protect knowledge that they do not want to be openly available. Culturally-appropriate GIS methods are needed to ensure sensitivity, confidentiality, and respect for intellectual property rights. In short, the technology must be adapted to the needs of local people.

Context: Kelabit Highlands and Sarawak

In this section I will give a brief description of the social, cultural, environmental, economic, and political context of this participatory GIS project. Understanding the context is crucial in any mapping project, and I address some of the issues and challenges that have presented themselves so far during the course of this project.

Though little archeological research has been conducted in the Kelabit Highlands, and though it is difficult to link many existing archaeological sites to current communities, Kelabit oral histories attest to a long history of occupation of the area (Talla 1978; Saging 1989). The Kelabit Highlands are unique in Sarawak because of the existence of a large number of megaliths and other cultural monuments: carved stones (*batuh narit*), raised stone slabs or dolmens (*batuh nangan*), standing stones or menhirs (*batuh sinuped*), large circular rock piles (*perupun*), burial grounds with ancient Chinese pottery (*lungun belanai*) or hollowed stone urns (*batuh nawi*), *kawang* (notches in treelines), and *nabang* (large trenches cut through stone or soil) (Banks 1937; Harrisson 1984[1959]; Schneeberger 1945; Bala 2002; Bulan 2002; Saging and Bulan 1989). Also common is evidence of past landscape engineering, including dams, bunds, irrigation ditches, and stream diversions (Bulan 2002; Saging and Bulan 1989). Nowhere else in Sarawak can one find such a dense assemblage of monuments. Numerous stories surround these cultural monuments, and link them to particular luminary ancestors and mythological figures.

Kelabit value these monuments as evidence of the antiquity of their occupation of the region. Old longhouse sites (*ruma' ma'un*) dot the landscape, and these sites are surrounded by extensive stands of old secondary forest, fruit trees, and other evidence of human modification. Prior to the 20th century, the Kelabit subsistence system was based on shifting cultivation of rice. According to Kelabit oral histories, their ancestors were very mobile, moving longhouses every few years. As is evident by the sheer number and diversity of cultural sites in the Kelabit Highlands, it is obvious that this is a highly anthropogenic landscape which has been altered by many generations of Kelabit.

The 20th century was a period of dramatic transformation for the Kelabit Highlands. As one of the most remote regions of Sarawak, the Kelabit Highlands was largely isolated from colonial influence before 1900. This began to change in the early 20th century and continued at an accelerating pace after World War II. In recent generations, there have been several political and historical events that have affected patterns of migrations and land use in the Kelabit Highlands. These include:

1) the introduction of wet rice agriculture to the Kelabit, which supplemented or replaced shifting cultivation of dry rice (Janowski 1988; Amster 2003);
2) the arrival of Christian missionaries, who began preaching among Kelabit in the 1920s, and succeeded in encouraging large-scale conversion after World War II (Amster 2003; Bala 2002; Harrisson 1959; Southwell 1999, Bulan 2003; Lees 1979);
3) the demarcation of the political boundary between Malaysia and Indonesia, which influenced the travel and marriage patterns between Kelabit in Malaysia and related ethnic groups in Indonesia (Amster 2005; Bala 2002);

4) the subsequent war (*Konfrontasi*) between these countries in the 1960s, during which time many Kelabit moved from remote villages to Bario (Bala 2002; Saging and Bulan 1989); and

5) the construction of the first school in the Kelabit Highlands in 1946 and subsequent enthusiasm for higher education, which has led to many Kelabit receiving advanced degrees and high levels of achievement in all sectors of the economy and government (Amster 2003; Bala 2002), as well as high levels of out-migration from the Kelabit Highlands.

In creating a digital land use history of the Kelabit Highlands, it is necessary to incorporate ethnographic information about these more recent events, in addition to events and cultural land use practices that occurred before widespread contact with colonial and postcolonial governments. These recent events have had profound effects on the landscape of the Kelabit Highlands today, and it is these events which will be the most visible in geospatial data that is currently available for the Kelabit Highlands. Regardless, there are many older land use patterns that are still visible in the landscape today. More recent uses of the land have not completely obliterated or obscured these older uses. Many layers of history coexist in the current landscape of the Kelabit Highlands. For example, pre-Christian burials and Christian burials may occupy the same graveyard, and current wet rice fields may contain megaliths that are old enough to have passed out of living memory. The digital map and database will reflect the complexity of the highly anthropogenic nature of this landscape. This land use history will give support to the case that over many generations, the Kelabit have contributed to the socio-historical creation of this landscape and are largely responsible for the density and distribution of the biological

diversity in the Kelabit Highlands today, which has important implications for conservation plans for the area.

The value of the Kelabit Highlands as a rich reservoir of cultural significance and ecological diversity has been noted by the state of Sarawak, and it is now included as a potential site for the expansion of Pulong Tau National Park (PTNP). Planning for the establishment of PTNP began in the early 1980s when researchers from Sarawak's National Parks and Wildlife Division discovered a remnant population of rhinoceros in the area. When the original proposal was developed in 1984, PTNP encompassed 164,500 hectares. Two subsequent boundary revisions reduced PTNP to 59,917 hectares by the time it was officially gazetted in 2005. PTNP runs along the western side of the Kelabit Highlands, extending along the Tamabuh Range from near Long Lellang in the south to Gunung Murud (2423 meters, Sarawak's highest peak) in the north. From the outset, there has been a high level of community support for the establishment of PTNP because Kelabit leaders played a key role in putting forth the original proposal for the park. This high level of local support derives both from the fact that the Kelabit have a strong interest in protecting the watersheds that supply water to rice fields, and from their interest in preserving the natural features that attract eco-tourists and historical monuments that are an integral part of their cultural identity . When I first began working in the Kelabit Highlands, the Sarawak State government had recently signed an agreement with the International Tropical Timber Organization (ITTO) for research and planning support to expand PTNP eastward across the Kelabit Highlands to the Indonesian border. This would have linked PTNP to Indonesia's 1,000,000 hectare Kayan Mentarang National Park, and all seven communities in the Kelabit Highlands would have been incorporated into PTNP[12]. The state

[12] This excludes areas surrounding the villages themselves which would be set aside for communal forest reserves, allowing community members to hunt and harvest food resources and timber for their own needs.

agreement with ITTO mandated a research program designed to support the expansion of PTNP and the development of a management plan, formulated in coordination with the Kelabit community, that addressed both biodiversity conservation values and community development priorities. The ITTO conservation planning framework incorporated a number of innovative participatory elements, including community mapping. It was this agreement between the Sarawak State Government and ITTO that made it possible for me to conduct my own dissertation research. Especially significant, rather than mandating strict protection in a way that excluded human communities, the ITTO agreement acknowledged the human role in creating and maintaining this landscape.

Most Kelabit strongly support this extension of PTNP, although extenuating circumstances may prevent this from happening. While the Sarawak State Government has undertaken concrete steps to conserve biodiversity in the Kelabit Highlands, in 2004 members of the Kelabit community received confirmation from the Sarawak Forest Department that much of the highlands had been given out as a timber concession; logging operations are currently moving through the Kelabit Highlands from the south. Though many Kelabit favor the building of a road to Bario, they are deeply concerned that siltation will destroy rice fields and that logging activities will render the highlands an unattractive destination for eco-tourists. They are also concerned that logging activities will reduce populations of wild game, and that they will lead to the destruction of cultural sites[13], due both to the direct impacts of mechanized logging and because of the possibility of looting by itinerant workers.

Today it appears that continued logging in the Kelabit Highlands is inevitable, and community members are now actively negotiating with the timber company to ensure that the

[13] Several cultural sites have already been damaged or destroyed, including graveyards (containing ceramic jars or stone urns used for secondary burials), megaliths, old longhouse sites, and sites of landscape modification.

damage done is minimal and that the villages receive fair compensation for the trees harvested. It is possible that certain areas of the Kelabit Highlands will be included in PTNP after logging is completed. It is also possible that much of the Kelabit Highlands could be converted to large-scale agricultural plantations, producing larger quantities of the famous "Bario rice," cinnamon, or other crops. Once the road reaches Bario, a new type of tourism might be developed here, possibly including resorts, golf courses, or other attractions to lure wealthy visitors. In sum, the future of the Kelabit Highlands after logging has occurred is uncertain, which makes it difficult for residents to make long-term plans.

This uncertainty about the future of the Kelabit Highlands has spurred many Kelabit, both those living within the area and those who have migrated out, to become intensely aware of the importance of mapping their village boundaries, water catchment areas, requested communal forest reserve areas, and cultural sites. Although they are keen to do this mapping, they have been constrained from doing so by lack of funds, lack of technology, and legal challenges. First, though the state government has encouraged local communities to map their territories, community-made maps are not legally valid, due to the passage of the 2002 Land Surveyors' Bill, which states that only professional surveyors licensed by the state can make legally valid maps of lands claimed by local communities[14]. The cost for hiring licensed surveyors to map Native Customary Land (NCL) is prohibitively high, and villages in the Kelabit Highlands lack the funds to do this. So they have been actively seeking other methods of producing maps, even if these maps are not recognized legally by the government. Some communities have received limited technical assistance from Sarawak Forest Department and ITTO representatives during

[14] The Land Code of 1958 states that communities can claim lands that they have continually occupied and farmed since before 1958, under the Native Customary Rights (NCR) statue of this bill. Though this creates problems for several of the current villages in the Kelabit Highlands, which moved to their present place of residence after this date, most villages in the Kelabit Highlands were settled in the general vicinity of their current location well before this date.

the course of their preliminary baseline socio-economic studies and cultural site surveys in the Kelabit Highlands, or from local non-governmental organizations. Other Kelabit have acquired their own GPS units and have used them to mark cultural sites, village boundaries, and personal family land.

Within this political context, I have obviously had to approach the matter of introducing GIS and GPS technology to the Kelabit community carefully, to avoid inviting trouble for myself and community members. In requesting research permission from the State Planning Unit of Sarawak, I have complied with all regulations that apply to foreign researchers and am conducting research strictly within the stipulations of the research visa. It is also helpful to note that the ITTO proposal to extend PTNP across the Kelabit Highlands opened a window of opportunity for the type of technology transfer that is integral to my research, as it calls explicitly for community mapping. Continued cooperation and data-sharing among the various stakeholders – me (who can collect, collate, and analyze data), the Sarawak Forest Department (who can negotiate with timber companies and supervise timber extraction), the Sarawak Museum (who can demarcate and protect cultural sites under the Cultural Heritage Ordinance of 1993), Univeristi Malaysia Sarawak (who can provide technology and technological assistance to e-Bario), and the Kelabit community (who can decide what data and which areas are in need of mapping and protecting and can manage the data collected) – can benefit all parties. The transfer of not just technology but also skills and contacts can help the Kelabit community to manage the data (all of which are being immediately repatriated to the community) and database once my particular research project is finished. The Kelabit are well aware of the benefits of acquiring technology and technological skills, and they are keen to expand and strengthen their networks with individuals in all relevant governmental and educational institutions.

Community Mapping in the Kelabit Highlands

In addition to navigating the complex political landscape of Sarawak in such a way that compels them to seek cooperation with the government, members of the Kelabit community must also make other decisions on how to effectively proceed with a community mapping project (both the one outlined in my research proposal and other related mapping projects they have initiated on their own). One key decision is logistical: which people within the Kelabit community have the necessary skills in technology, human resource management, and financial accounting, as well as the necessary motivation and time, to implement such a project on the ground? There is no lack of qualified individuals within the Kelabit community; as noted, many Kelabit are highly educated, and other members of the community are highly knowledgeable about Kelabit history, culture, and landscape. By combining the knowledge and talents of such a diverse community, the Kelabit are positioned to successfully implement an effective mapping project, perhaps more so than other remote communities in Sarawak. However, this diversification in educational levels and expertise also leads to special challenges that must be overcome in order to ensure cooperation, transparency, and accurate transmission of information among all Kelabit people involved in the project. The diasporic nature of the Kelabit community is a particular obstacle, though efforts are being made to coordinate efforts of Kelabit living within and outside the Kelabit Highlands. This issue needs to be sorted out among Kelabit themselves; no outside researcher can or should interfere with internal matters such as which individuals should serve on project committees.

Another specific consideration for mapping projects in the Kelabit Highlands that has been raised in conjunction with this research project is the question of which cultural sites to include or not include on open-access maps and databases. Some Kelabit expressed concern

about placing some sites on maps that will be seen by outsiders, particularly burial sites that contain valuable jars or other artifacts such as beads that could be looted. Although the Kelabit agree that these sites should be mapped, and particularly that maps containing these sites be given to timber extractors to avoid damage to the sites and artifacts, there is less agreement on how public the complete maps should be, or on which versions of the maps should be available to whom. This is another issue that must ultimately be decided by community members, and I, as a researcher, need the guidance of a representative committee when the time comes for decisions to be made about which data and maps derived from my own research project to publish. Other maps and data sets produced or collected by the community will also be subject to these same concerns. The Kelabit community realizes this, and they have recently created a Community Research Steering Committee. This committee will oversee all research done in the Kelabit Highlands, monitor outside researchers, and ensure repatriation of data and reports produced by them. It will also guide research and mapping projects undertaken by community members themselves.

The Role of e-Bario as a Collaborating Institution

The e-Bario Telecentre serves as an institutional nexus for research undertaken in the Kelabit Highlands, and thus serves as the local collaborating institution for my own research (in addition to *Rurum Kelabit Sarawak*, the Kelabit Association of Sarawak). As noted, it serves many purposes for community members, and in addition to the technological facilities it houses, it also provides logistical and personnel support for all types of community functions (everything from setting up microphones and LCD players for speeches and presentations by visiting politicians, researchers, etc. to creating banners, logos, and laminated nametags for community meetings). For researchers such as myself, e-Bario provides critical technologies such as

telephones, printers, photocopiers, and computers with internet access that allow me to maintain contact with my home institution and with all the other institutions and individuals that are assisting in my research. It also serves as a repository for hard and soft copies of reports, raw data, and photographs; I have stored many files on the computers there and have informed people of where these documents are located so that they can be read or viewed by community members at their convenience. I have also left paper copies of reports and data lists near the computer sign-in sheet that community members can "check out" or read (and edit) while sitting in the telecentre or at the adjacent coffee shops.

The e-Bario Telecentre also serves as a locus for training community members to use GPS technology. Its location near the main *kedai* (row of shophouses and cafes) make it a convenient meeting spot and location to circulate information. Within the telecentre is a meeting room which provides the community with a place to discuss issues of local interest. This meeting room has been the setting for many meetings in which I have discussed this research project and issues regarding the link between cultural heritage and community mapping. Meetings at e-Bario have also provided a forum for discussions about what community members hope to gain by learning to use the GPS units. At various meetings I have given an overview of how the units work and passed out sheets with instructions on how to take waypoints. As the area around the e-Bario Telecentre is open, it is a good place to practice using the GPS unit. In small training sessions, I usually have three or four GPS units and split the group into pairs or small groups. Each person or small group practices taking waypoints and recording the data systematically on paper. Then, after arranging a follow-up meeting, I suggest that they go practice in the forest, where it is much more difficult to collect waypoints under the tree canopy. This is a vital step in the training process because once people practice using the units on their own, they often

encounter problems; sometimes they accidentally change the settings, or they change the batteries without re-calibrating the compass and altimeter, or they forget to actually record the waypoint in the unit or mislabel the waypoint in their notebooks. At the follow-up session, I can meet with each person individually and help him or her straighten out issues such as these. At this point they are more confident about using the GPS to record waypoints while hunting, guiding tourists, or marking sites or boundaries. In later stages of this project, as it moves from data collection to integration of the data into the database, e-Bario will again serve as a place to train community members to enter the data into the database and eventually onto the maps which will be housed in electronic form on the computers at the telecentre.

People also know that when I am in Bario, I am often working in the e-Bario Telecentre, so they can find me there if they need further assistance or want to give me written copies of data they have collected. They can also leave notes or written data with the personnel at e-Bario, and these people will pass on such things to me when they next see me in Bario. They have also passed notes, letters, emails, and other documents to me when I am staying in the village of Pa' Lungan. Logistically, the staff members of e-Bario have also helped me to set up community meetings to discuss certain aspects of the research; these topics have ranged from the sensitivity of placing certain sites on an open-access map to discrepancies associated with alternate spellings of words, places, and people in the non-standardized Kelabit language. As noted, the e-Bario personnel and other community members have also recently formed a Community Research Steering Committee (in cooperation with Rurum Kelabit), which oversees all research undertaken in the Kelabit Highlands, with the goal of promoting community awareness of and participation in research initiated by outsiders (as well as locals). This committee is now in the process of creating guidelines and protocols for researchers and producing written agreements

between researchers and the research committee. This is a proactive step taken by the Kelabit community to gain more access to and control over data collected in the Kelabit Highlands, ensuring community benefit from research projects.

Improving Capabilities for e-Bario

The personnel of e-Bario intend to expand the capabilities and facilities of the telecentre to make it more useful for community members, visitors, and researchers. They are well aware of the current technological limitations of e-Bario: a lack of up-to-date software programs, which often require expensive site licenses; limited bandwidth for internet usage; and limited RAM on the computers for storing large data files or running large programs. With limited bandwidth, if more than a few people are online at once, the connection is so slow that it is virtually impossible to use the internet. Further it is virtually impossible to store digital maps or to run RAM-intensive software programs such as ArcGIS. There is also a lack of office equipment such as photocopiers and printers capable of quickly producing large numbers of documents, and scanners large enough to scan oversized documents such as maps. Even limited basic office supplies such as toner and paper for printers are in short supply. E-Bario staff members know that acquiring these types of things would both improve support for researchers and benefit community members who have become dependent on the telecentre for business transactions and marketing their skills, handicrafts, lodges, etc. via internet. Thus, they have been actively seeking grants as well as donations (corporate or private) of cash or equipment such as computers. As e-Bario is now licensed as a community-owned business, rather than a pilot project funded through Universiti Malaysia Sarawak, its aim is to be self-sufficient through both grants and income generated by services provided to the community[15], tourists, and researchers.

[15] Residents use the telecentre's computers at a discounted rate.

In addition to improving the technological capabilities of the telecentre itself, the staff of e-Bario also hopes to expand its sphere of technological reach to all of Bario and other villages in the Kelabit Highlands. One key goal is to extend the wireless service beyond 50 meters from the telecentre, so that locals can access the internet from their own homes and so that tourists and researchers can access it from the lodges or from the cafes and coffee shops. Further, because of limited bandwidth, currently only one laptop can access the network at a time. Since several community members own laptops, and since researchers almost always bring their own laptops (and occasionally tourists do as well), it can be difficult or impossible for a researcher to access the wireless service. With improved bandwidth and routers to expand the wireless capabilities of e-Bario, it will be possible for numerous community members, researchers, and tourists to access the internet simultaneously.

It has been difficult for the personnel of e-Bario to acquire more bandwidth, and "wiring" the whole of the Kelabit Highlands is at present a very ambitious undertaking. But another more manageable goal in the meantime that could help both community members and researchers is e-Bario's goal of providing computers to each village. Even if the computers cannot access the internet now, people could create documents in the villages and then download them to flash drives or CDs to be emailed at the telecentre in Bario. This could also greatly improve computer literacy in the villages, since the children learn to use computers in schools and could teach their parents to use them in the villages. For researchers like myself who focus their studies in villages other than Bario, computers in the villages would be very helpful. Since an integral part of my project is training community members to enter data into a database, having a computer in the village would make this aspect of the project much easier. Community members could create documents and input data into the database in the village computer and then transfer the data to

the main computers at the telecentre in Bario. The staff members of e-Bario are actively seeking means to make this possible.

There are several other ways that e-Bario could support research in the Kelabit Highlands, and that researchers could in turn work to improve e-Bario. A larger meeting room is crucial. Currently the meeting room can hold around ten people comfortably; for larger gatherings, the use of a lodge, large house, or the Balai Raya (community meeting hall) is necessary. An expansion of the meeting room at the telecentre (which may need to be relocated to a larger building), and the purchase (or donation) of furniture, an LCD projector, screen, and a dedicated in-house computer could make community meetings and research briefings more productive and inclusive. At the telecentre itself, designated spaces for researchers which include computers, printers, large desks and bookcases, and private lockable offices that would allow researchers to work without disrupting community members or being interrupted would be helpful as well. It has also been suggested that small houses could be constructed near e-Bario, which could be rented by researchers. In addition, the establishment of a library at e-Bario would benefit both researchers and community members; researchers themselves are best positioned to contribute to this goal. It might include reports of all research undertaken in the area, as well as books, articles, and other documents about the Kelabit Highlands, as well as literature on topics of interest to community members: issues such as community mapping, community museums, cultural heritage preservation, etc. Paper and electronic lists of contact information for other researchers who have visited or worked in the Kelabit Highlands could also strengthen ties between researchers themselves and serve as a nexus for linking the work done here and for bringing new researchers into the area. Links on the e-Bario website could also steer new researchers through the appropriate channels for gaining governmental and community support

for research projects, and researchers could contribute comments to an online forum that could ease the transition into research in the Kelabit Highlands by providing information on topics such as prices for transportation and lodging in different areas as well as names of community members that are especially knowledgeable about certain aspects of Kelabit culture, history, or forest use. By first defining both the ways that e-Bario can support researchers and that researchers can support e-Bario, e-Bario personnel can incorporate these and other ideas into a long-term management plan that will benefit all users of the telecentre and e-Bario communications network.

## Conclusion

Designing and implementing a truly participatory GIS-based research project in any remote community is a difficult undertaking, and there are particular challenges in the Kelabit Highlands of Sarawak. However, the Kelabit community is eager to embrace new technologies, including GIS, that will enhance communication and that will enable them to disseminate information amongst themselves and with external agencies more effectively. They also realize the benefits that can come from more systematic study of the history, ecology, and culture of the Kelabit Highlands and so are receptive to research projects initiated by outside researchers with the understanding that reports and data will be repatriated to the community. Staff members of the e-Bario Telecentre are actively trying to encourage more researchers to study in the Kelabit Highlands and to improve the existing facilities of the telecentre to make it more conducive the effective conduct of research. These proactive efforts of one rather remarkable remote community in the middle of Borneo dovetail nicely with Malaysia's vision of Wawasan 2020 and have proven to be a beacon for other rural communities in Sarawak and other parts of the

world. In turn, researchers who have the opportunity to benefit from the communications capabilities of e-Bario should contribute to the continual improvement of e-Bario for all users.

References Cited

Abbott, J., R. Chambers, C. Dunn, T. Harris, E. De Merode, G. Porter, J. Townsend, and D. Weiner
1998 Participatory GIS: Opportunity or Oxymoron? PLA Notes 33: 27-33.

Adams, Jonathon and Thomas McShane
1992 The myth of wild Africa. Berkeley: University of California Press.

Aitken, S. C. and S. Michel
1995 Who Contrives the 'Real' in GIS? Geographic Information, Planning, and Critical Theory. Cartography and Geographic Information Systems 22(1):17-29.

Alderderfer, Mark and Herbert D. G. Maschner, eds.
1996 Anthropology, Space, and Geographic Information Systems. Oxford; Oxford University Press.

Amster, Matthew
2003 Gender Complementarity and Death among the Kelabit. *In* Journeys of the Soul: Anthropological Studies of Death, Burial, and Reburial Practices in Borneo. William D. Wilder, ed. Pp. 251-307. Kuching: Borneo Research Council, Inc.

Amster, Matthew
2005 Cross-border Marriage in the Kelabit Highlands of Borneo. *Anthropological Forum* 15(2): 131-150.

Anselin, Luc
1992 Spatial Data Analysis With GIS: An Introduction to Application in the Social Sciences. National Center for Geographic Information and Analysis, Technical Report 92-10.

Armstrong, M. P., P. J. Densham, and P. Rushton
1986 Architecture for a Micro-Computer Decision Support System-Based. *In* Proceedings of the 2nd International Symposium on Spatial Data Handling. Pp. 120-131. Williamsburg, New York.

Bala, Poline
2002 Changing Borders and Identities in the Kelabit Highlands: Anthropological Reflections of Growing Up in a Kelabit Village near the International Border. Dayak Studies Contemporary Society Series, No. 1. Institute of East Asian Studies. Kuching: Unit Penerbitan Universiti Malaysia Sarawak.

Bala, Poline, Roger Harris, and Peter Songan
2003 E-Bario project: In Search of a Methodology to Provide Access to Information Communication Technologies for Rural Communities in Malaysia. *In* Using Community Informatics to Transform Regions. S. Marshall, W. Taylor and X. Yu., eds. Pp. 115-131. Hershey, PA: Idea Group Publishing.

Baleé, William
1992 People of the Fallow: A Historical Ecology of Foraging in Lowland South America. *In* Conservation of Neotropical Forests: Working from Traditional Resource Use. Kent H. Redford and Christine Padoch, eds. Pp. 35-57. New York: Columbia University Press.

Banks, Edward
1937 Some Megalithic Remains from the Kelabit Country in Sarawak with Some Notes on the Kelabit Themselves. Sarawak Museum Journal IV, Part IV (15), 1937: 411-437.

Behrens, Clifford A.
1996 A Formal Justification for the Application GIS to the Cultural Ecological Analysis of Land-Use Intensification and Deforestation in the Amazon. *In* Anthropology, Space, and Geographic Information Systems. Mark Aldenderfer and Herbert D. G. Maschner, eds. Pp. 55-77. Oxford: Oxford University Press.

Bernard, H. Russell
2002 Research Methods in Anthropology: Qualitative and Quantitative Approaches, 3rd ed. New York: Altamira Press.

Berry, Joseph K.
1993 Cartographic Modeling: The Analytical Capabilities Of GIS. *In* Environmental Modeling with GIS. M.F. Goodchild, B.O. Parks, and L.T. Steyaert, eds. Pp. 58-74. York, UK: Oxford University Press.

Blaike, Piers and Harold Brookfield
1987 Land Degradation and Society. London: Methuen.

Brown, Katrina
1998 The Political Ecology of Biodiversity, Conservation, and Development in Nepal's Terai: Confused Meanings, Means, and Ends. Ecological Economics 24(1):73-87.

Bulan, Lucy and David Labang
1979 The Kelabit Harvest. Sarawak Museum Journal XXVII (48): 43-52.

Bulan, Ramy
2003 Boundaries, Territorial Domains, and Kelabit Customary Practices: Discovering the Hidden Landscape. Borneo Research Bulletin 34:18-61.

Calamia, Mark. A.
1999 A Methodology for Incorporating Traditional Ecological Knowledge With Geographic Information Systems For Marine Resource Management in the Pacific. SPC Traditional Marine Resource Management and Knowledge Information Bulletin # 10: 2-12.

Carver, Stephen J.
1991 Integrating Multi-Criteria Evaluation with Geographic Information Systems. International Journal for Geographic Information Systems 5(3):221-239.

Chambers, Robert
1994 Participatory Rural Appraisal (PRA) Challenges, Potential and Paradigm. World Development 12(10):1437-1454.

Colchester, Marcus
1992 Pirates, Squatters and Poachers: The Political Ecology of Dispossession of the Native Peoples of Sarawak. Global Ecology and Biogeography Letters 3 (4/6): 58-179.

Colchester, Marcus
1994 Sustaining the Forests: The Community-Based Approach in South and South-East Asia. Development and Change 25:69-100.

Colchester, Marcus
2005 Maps, Power and Defense of Territory: The Upper Mazaruni Land Claim in Guyana. *In* Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management. J. Peter Brosius, Anna Tsing and Charles Zerner, eds. Pp. 271-304. Walnut Creek, CA: Altamira Press.

Colfer, Carol J. Pierce
1980 Change and Indigenous Agroforestry in East Kalimantan. *In* Whose Trees? Proprietary Dimensions of Forestry. Louise Fortmann and J.W. Bruce, eds. Pp. 306-309. Boulder: Westview Press.

Colfer, Carol J. Pierce, with Nancy Peluso and Chin See Ching
1997 Beyond Slash and Burn: Building on Indigenous Management of Borneo's Tropical Rain Forests. Bronx: New York Botanical Garden.

Colfer, Carol J. Pierce and Herwasono Soedjito
1996 Food, Forests, and Fields in a Bornean Rain Forest: Toward Appropriate Agroforestry Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, eds. Pp. 162-186. Oxford: Oxford University Press.

Cooke, Fadzilah Majid
2003 Maps and Counter-Maps: Globalised Imaginings and Local Realities of Sarawak's Plantation Agriculture. Journal of Southeast Asian Studies 3/4(2): 265-284.

Courgeau, Daniel and Éva Lelièvre
1992 Event History Analysis In Demography. Oxford: Clarendon Press.

Craig, William J. and Sarah A. Elwood.
1998 How and Why Community Groups Use Maps and Geographic Information Systems. Cartography and Geographic Information Systems 22(2):95-104.

Craig William J., Trevor M. Harris, and Daniel Weiner, eds.
2002 Community Participation and Geographic Information Systems. New York: Taylor and Francis.

Cronon, William
1995 The Trouble with Wilderness, or Getting Back to the Wrong Nature. *In* Uncommon Ground: Toward Reinventing Nature. William Cronon, ed. Pp. 69-90. New York: W.W. Norton & Co.

Crumley, Carole L.
1994 Historical Ecology: A Multidimensional Ecological Orientation. *In* Historical Ecology: Cultural Knowledge and Changing Landscapes. Carole Crumley, ed. Pp. 1-13. Santa Fe: School of American Research Press.

Curry, Michael R.
1994 Image, Practice, and The Hidden Impacts of Geographic Information Systems. Progress in Human Geography 18(4):44-459.

De Jong, Wil, Brian Belcher, Dede Rohadi, Rita Mustikasari, and Patrice Levang
2003 The Political Ecology of Forest Products in Indonesia: A History of Changing Adversaries. *In* The Political Ecology of Tropical Forests in Southeast Asia: Historical Perspectives. Lye Tuck-Po, Wil de Jong, and Abe Ken-ichi, eds. Pp.107-132. Kyoto: Kyoto University Press.

De Munck, Victor C.
1998 Participant Observation: A Thick Explanation of Conflict in a Sri Lankan Village. *In* Using Methods in the Field: A Practical Introduction Casebook. Victor C. de Munck and E. J. Sobo, eds. Pp. 39-54. Walnut Creek, CA: Altamira Press.

Densham, Paul J.
1991 Spatial Decision Support Systems. *In* Geographic Information Systems: Principles, Vol. David J. Maguire, Michael Goodchild, and David.W. Rhind, eds. London: Longman Scientific Technical.

Dewalt, Kathleen M. and Billie R. Dewalt
2002 Participant Observation: A Guide for Fieldworkers. Walnut Creek, CA: Altamira Press.

Diamond, J. T. And J. R. Wright
1988 Design on an Integrated Spatial Information System for Multi-Objective Land Use Planning. Environment and Planning B: Planning and Design 15:205-214.

Dove, Michael
1996 So Far From Power, So Near to the Forest: A Structural Analysis of Gain and Blame in Tropical Forest Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Edited by Christine Padoch and Nancy L. Peluso, eds. Pp. 41-58. Kuala Lumpur: Oxford University Press.

Eastman, J. Ronald, Peter A.K. Kyem, and James Toledano
1993 GIS And Decision-Making. Geneva: UNITAR.

Eghenter, Cristina
2000 Mapping People's Forests: The Role of Mapping in Planning Community-Based Management of Conservation Areas in Indonesia. Peoples, Forests and Reefs (PeFoR) Program Discussion Paper Series. BSP/WWF-US, Washington D.C.

English, Kim Z. and Laura S. Feaster
2003 Community Geography: GIS in Action. Redlands, CA: ESRI Press.

Escobar, Arturo
1998 Whose Knowledge, Whose Nature? Biodiversity, Conservation, and the Political Ecology of Social Movements. Journal of Political Ecology 5:53-82.

Flavelle, Alex
2002 Mapping Our Land: A Guide to Making Maps of Our Own Communities and Traditional Lands. Edmonton, Canada: Lone Pine Foundation.

Fotheringham, A. Stewart and M. E. O'Kelly
1989 Spatial Interaction Models: Formulations And Applications. Boston: Kluwer Academic Publishers.

Fox, Jefferson
2002 *Siam Mapped* and Mapping in Cambodia: Boundaries, Sovereignty, and Indigenous Conceptions of Space. Society and Natural Resources 15:65-78.

Frankenberg, Ronald
1982 Participant Observers. *In* Field Research: A Sourcebook and Field Manual Robert G. Burgess, ed. Pp. 50-52. London: George Allen and Unwin, Ltd.

Gadgil, Madhav and Ramachandra Guha
1992 This Fissured Land: An Ecological History of India. London: Routledge.

Gans, Herbert J.
1982 The Participant Observer as a Human Being: Observations on the Personal Aspects of Fieldwork. *In* Field Research: A Sourcebook and Field Manual. Robert G. Burgess, ed. Pp. 53-61. London: George Allen and Unwin, Ltd.

Ghose, Rina
2001 Use of Information Technology for Community Empowerment: Transforming Geographic Information Systems into Community Information Systems. Transactions in GIS 5(2):141-163.

Gnaniah, Jayapragas, Alvin Yeo, Peter Songan, Hushairi Zen, and Khairuddin Ab Hamid
2004 A Comparison on the Implementation Approaches for The E-Bario and E-Bedian Projects. *In* Work With Computing Systems. Halimahtun M. Khalid, Martin G. Helander and Alvin W. Yeo, eds. Pp. 286-291. Kuala Lumpur: Damai Sciences.

Goodchild, Michael F.
1996 Geographic Information Systems and Spatial Analysis in the Social Sciences. *In* Anthropology, Space, and Geographic Information Systems. Mark Aldenderfer and Herbert D. G. Maschner, eds. Pp. 241-250. Oxford: Oxford University Press.

Goss, John
1995 Marketing the New Marketing: The Strategic Discourse of Geographic Information Systems. *In* Ground Truth: The Social Implications of Geographic Information Systems. John Pickles, ed. Pp. 130-170. New York: Guilford.

Greenberg, James and Thomas Park
1994 Political Ecology. Journal of Political Ecology 1(1):1-12.

Gregory, Derek
1994 Geographical Imaginations. Cambridge: Blackwell Publishing Company.

Guyer, Jane and Paul Richards
1996 The Invention of Biodiversity: Social Perspectives on the Management of Biological Diversity in Africa. Africa: Journal of the International African Institute 66(1): The Social Shaping of Biodiversity: Perspectives on the Management of Biological Diversity in Africa: 1-13.

Harris, Roger
2001 Internet Access by Remote Communities in Sarawak: The Smart School as a Demonstrator Application. Research report: UNIMAS and IDRC.

Harrisson, Tom and Penghulu Balang Siran
1959 World Within: A Borneo Story. Singapore: Oxford University Press.

Hodgson, Dorothy L. and Rick A. Schroeder
2002 Dilemmas of Counter-Mapping Community Resources in Tanzania. Development and Change 33:79-100.

Hume, Lynne And Jane Mulcock, eds.
2004 Anthropologists in the Field: Cases in Participant Observation. New York: Columbia University Press.

International Tropical Timber Organization (ITTO) and Government of Malaysia
2003 Transboundary Biodiversity and Conservation: The Pulong Tau National Park, Sarawak State, Malaysia. ITTO Project Document, Serial number PD 224/03 Rev. 1 (F).

Janowski, Monica
1988. The Motivating Forces behind Recent Changes in the Wet Rice Agricultural System in the Kelabit Highlands. Sarawak Gazette 114(1504):9-21.

Kabutha, Charity, Barbara P. Thomas Slayter, and Richard Ford
1990 Participatory Rural Appraisal Handbook: Conducting PRA's in Kenya. Prepared jointly by Kenya National Environment Secretariat, Ergeton University, Clark University, and World Resources Institute.

King, Victor T.
1993 *Politik Pembangunan*: The Political Economy of Rainforest Exploitation and Development in Sarawak, East Malaysia. Global Ecology and Biogeography Letters 3(4/6):235-244.

King, Geoff
1996 Mapping Reality: An Exploration of Cultural Cartographies. London: MacMillian Press, Ltd.

Krippendorff, Klaus H.
1990 Content Analysis: An Introduction to its Methodology. Beverly Hills, CA: Sage Publications.

Kyem, Peter A. K.
2000 A Choice Heuristic Algorithm for Managing Land Resource Allocation Problems Involving Multiple Parties and Conflicting Interests. Transactions in GIS 5(2):113-132.

Kyem, Peter A. K.
2004 Of Intractable Conflicts and Participatory GIS Application: The Search for Consensus amidst Competing Claims and Institutional Demands. Annals of the Association of American Geographers 94(1):37-57.

Liew, Jing-Hong, Alvin W. Yeo, Khairuddin Ab Hamid and Al-Khalid Othman
2004 Implementation Of Wireless Networks In Rural Areas. *In* Work with Computing Systems. Halimahtun M. Khalid, Martin G. Helander and Alvin W. Yeo, eds.. Pp. 282-285. Kuala Lumpur: Damai Sciences.

Lofland, John and Lyn H. Lofland
1995 Analyzing Social Settings: A Guide to Qualitative Observation and Analysis. Belmont, CA: Wadsworth Publishing Company.

Logan, B. Ikubolajeh and William G. Moseley
2002 The Political Ecology of Poverty Alleviation in Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE). Geoforum 33: 1-14.

McConchie, Jack A. and John M. McKinnon
2002 Using GIS To Produce Community-Based Maps to Promote Collaborative Natural Resource Management. ASEAN Biodiversity: 27-34.

McGwire, Ken., Napoleon A. Chagnon, and Charles Brewer Carías
1996 Empirical and Methodological Problems in Developing a GIS Database for Yanomamö Tribesmen Located in Remote Areas. *In* Anthropology, Space, and Geographic Information Systems. Mark Aldenderfer and Herbert D. G. Maschner, eds. Pp. 97-106. Oxford: Oxford University Press.

Mohamed, Mohamed A. and Stephen J. Ventura
2000 Use of Geomatics for Mapping and Documenting Indigenous Tenure Systems. Society and Natural Resources 13:223-236.

Moore, Donald S.
1993 Contesting Terrain in Zimbabwe's Eastern Highlands: Political Ecology, Ethnography, and Peasant Resource Struggles. Economic Geography 69 (4) Environment and Development, Part 2: 380-401.

Nyerges, A. Endre
1996 Ethnography in the Reconstruction of African Land Use Histories: A Sierra Leone Example. Africa: Journal of the International African Institute 66(1): 122-144.

Obermeyer, Nancy J.
1991 GIS in a Democratic Society: Opportunities and Problems. Paper presented at European Geographic Information Systems Conference, April 1991, Brussels.

Obermeyer, Nancy J. and Jeffrey Pinto
1994 Managing Geographic Information Systems. New York: Guilford.

O'Neill, John
2001 Representing People, Representing Nature, Representing the World. Environment and Planning C: Government and Policy 19: 483-500.

Orlove, Benjamin S.
1991 Mapping Reeds and Reading Maps: The Politics of Representation in Lake Titicaca. American Ethnologist 18(1):3-38.

Peluso, Nancy Lee
1995 Whose Woods Are These? Counter-Mapping Forest Territories in Kalimantan, Indonesia. Antipode 27(4): 383-406.

Peters, Pauline
1996 Who's Local Here? The Politics of Participation in Development. Cultural Survival Quarterly 20(3):22-25.

Piper, K.
2002 Cartographic Fictions: Maps, Race, And Identity. New Brunswick, NJ: Rutgers University Press.

Poole, Peter
1995 Indigenous Peoples, Mapping, and Biodiversity Conservation: An Analysis of Current Activities and Opportunities for Applying Geomatics Technologies. Washington, DC: Biodiversity Support Program.

Roberts, Carl
1997 A Theoretical Map for Selecting Among Text Analysis Methods. *In* Text Analysis for the Social Sciences: Methods for Drawing Statistical Inferences from Text and Transcripts. Carl W. Roberts, ed. Pp. 275-283. Mahwah, NJ: Lawrence Erlbaum Associates.

Roberts, Susan M. and Richard H. Schein
1995 Earth Shattering: Global Imagery and GIS. *In* Ground Truth: The Social Implications of Geographic Information Systems. John Pickles, ed. Pp. 71-95. New York: Guilford.

Robiglio, Valentina, William A. Mala, and M. C. Diaw.
2003 Mapping Landscapes: Integrating GIS and Social Science Methods to Model Human-Nature Relationships in Southern Cameroon. Small-scale Forest Economics, Management and Policy 2(2):171-184.

Rocheleau, Dianne
1995 Maps, Numbers, Text and Context: Mixing Methods in Feminist Political Ecology. The Professional Geographer 47(4):458-466.

Rocheleau, Dianne
1997 Musings on Mapping against Power: Comments, Questions, and Selected Examples. Paper presented at the Ford Foundation-Sponsored Conference on Representing Communities: Histories and Politics of Community-Based Resource Management, Helen GA, 1995.

Roseman, Marina
1996 Singers of the Landscape: Song, History, and Property Rights in the Malaysian Rain Forest. American Anthropologist 100(1): 106-21.

Rundstrom, Robert A.
1995 GIS, Indigenous Peoples, and Epistemological Diversity. Cartography and Geographic Information Systems 22(1):45-57.

Russell, Diane and Camilla Harshbarger
2003 Groundwork for Community-Based Conservation: Strategies for Social Research. Walnut Creek: Altamira Press.

Ryan, G. and T. Weisner
1998 Content Analysis of Words in Brief Descriptions: How Fathers and Mothers Describe Their Children. *In* Using Methods in the Field: A Practical Introduction Casebook. Victor C. de Munck and E. J. Sobo,e ds. Pp. 57-68. Walnut Creek, CA: Altamira Press.

Saging, Robert Lian and Lucy Bulan
1989 Kelabit Ethnography: A Brief Report. Sarawak Museum Journal Vol. XL, No. 61: 89-118.

Schneeberger, Werner F.
1945 The Kerayan-Kelabit Highland of Central Northeast Borneo. Geographical Review, 35(4):544-562.

Songan, Peter, Khairuddin Ab Hamid, Alvin Yeo, Jayapragas Gnaniah, and Hushairi Zen
2004 Community Informatics: Challenges in Bridging the Digital Divide. *In* Work With Computing Systems. Halimahtun M. Khalid, Martin G. Helander and Alvin W. Yeo, eds. Pp. 267-270, Kuala Lumpur: Damai Sciences.

Southwell, Hudson C.
1999 Uncharted Waters. Calgary: Astana Publishing.

Spradley, J. P.
1979 The Ethnographic Interview. New York: Harcourt Brace Jovanovich College Publishers.

Talla, Yahya
1978 The Kelabit of the Kelabit Highlands, Sarawak Report No. 9. Clifford Sather, ed. Pulau Pinang: Universiti Sains Malaysia.

Vandergeest, Peter
1996 Mapping Nature: Territorialization of Forest Rights in Thailand. Society and Natural Resources 9:159-175.

Warren, Carol
2005 Mapping Common Features: Customary Communities, NGOs and the State in Indonesia's Reform Era. Development and Change 36(1):49-73.

Weber, Robert Philip
1990 Basic Content Analysis, 2nd ed. Newbury Park, CA: Sage Publications.

Zen, Hushairi, Khairuddin Ab Hamid, Peter Songan, Alvin W. Yeo, and Jayapragas Gnaniah
2004 Bridging the Digital Divide: The e-Bario and e-Bedian Telecommunication Framework. *In* Work With Computing Systems. Halimahtun M. Khalid, Martin G. Helander and Alvin W. Yeo, eds. Pp. 277-281, Kuala Lumpur: Damai Sciences.

Zimmerer, Karl S. and Thomas J. Bassett
2003 Future Directions in Political Ecology: Nature-Society Fusions and Scales of Interaction. *In* Political Ecology: An Integrated Approach to Geography and Environment-Development Studies. Zimmerer, Karl and Thomas Bassett, eds. Pp. 274-296. New York: The Guilford Press.

# CHAPTER 5

# COMMUNITY-BASED TRANSBOUNDARY ECOTOURISM IN THE HEART OF BORNEO: A CASE STUDY OF THE KELABIT HIGHLANDS OF MALAYSIA AND THE KERAYAN HIGHLANDS OF INDONESIA[1]

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Abstract

This paper examines the current state of community-based transboundary ecotourism in the Kelabit Highlands of Sarawak, Malaysia and the Kerayan Highlands of Kalimantan, Indonesia, areas included within the international Heart of Borneo (HoB) conservation initiative. Ecotourism development is an important element of the HoB initiative, which aims to simultaneously promote conservation and sustainable development by linking protected areas with low-impact use zones in a variety of ecosystem types. There is strong local, governmental, and international support for ecotourism development here, as well as an awareness of the possible pitfalls of expanding ecotourism in this region.

Research for this case study was conducted primarily in the Kelabit Highlands of Sarawak, and it included interviews with local actors in ecotourism (local guides and homestay owners, as well as urban-based tour operators and tourism promotion centers and agencies), participation in inter-community dialogues regarding transboundary ecotourism, as well as analysis of promotional materials on ecotourism in these areas, comments in the visitors' books of lodges, and tourists' websites and travel blogs. This case study represents a stage of introspection by people actively engaged in current ecotourism activities, and seeks to chart a course forward that takes into account the specific ecological, social, cultural, and political context of this region. The process of conducting this research project helped to pinpoint some of the specific challenges of transboundary ecotourism in this area, and will form the basis for a more comprehensive ecotourism management plan for local communities on both sides of the border.

Gathering, collating, and analyzing the findings of this research with local community members revealed that the main issues that need to be addressed include: (1) protection of forests

and cultural sites as foci for ecotourism; (2) improved communication between villages, guides, and lodges; (3) increased promotion of transboundary trekking options; (4) village-level preparation for more tourists and more equitable distribution of income generated from ecotourism; (5) careful improvements in tourism infrastructure; (6) the negotiation of legal complications arising from international border crossings by tourists and guides; and (7) the maintenance of local control over ecotourism management and of the trajectory of future tourism development in the "heart of Borneo."

Introduction

The Kelabit Highlands of Sarawak, Malaysia and the Kerayan (also called Krayan) Highlands of Kalimantan, Indonesia are highland plateaus separated by the Apad Wat mountain range in the interior of the island of Borneo. This area is now known around the world as the "Heart of Borneo," which references the high-profile transboundary conservation initiative led by the World Wide Fund for Nature (WWF). These highlands offer a combination of experiences that appeal to ecotourists. Due to the altitude of just over 1000 meters, the temperature year-round is cool and comfortable, thus more appealing as a trekking destination than areas in Borneo's hot and humid lowlands. Also, the remote, mountainous, and relatively "unspoilt" (compared to other places in Borneo) forests here are the island's last places to do long-distance village-to-village trekking. The Kelabit and Kerayan Highlands contain a number of small villages and longhouse communities that have not yet been commercialized, allowing tourists seeking remote places and exotic people (Azarya 2004; Tucker 1997) to experience a more genuine cultural encounter than is possible in other places in Borneo that are promoted as tourism destinations (Zeppel 1997). These tend to be heavily commercialized and, to a certain extent, "staged" (Din 1997). Based on numerous discussions with tourists who visit the

highlands of Borneo, it became obvious that tourists do not come here wanting to stay in hotels or resorts; they prefer to avoid artificial or contrived lodgings made especially for tourists and come with the desire to stay with local families and to trek in the jungle with local guides.

The Kelabit and Kerayan Highlands are home to several closely related ethnic groups (including Kelabit, Lun Dayeh/Lun Bawang, Berian, Lengilu, Saban, and Penan) that speak related languages and have many cross-boundary kinship ties. Shared cultural features include similar wet-rice cultivation techniques and handicrafts (such as beadwork and weaving of baskets and mats), as well as a common history of megalith-making activities. These megaliths (erected or carved stones or large rock piles) and other cultural monuments dot the landscape surrounding the rural villages and demonstrate the cultural contiguity of these plateaus, which are a 2-3 day hike apart. These close cultural ties between the Kelabit and Kerayan Highlands, in addition to forests that have not yet been logged or converted to large-scale agriculture development, create an ideal situation for the development of community-based transboundary ecotourism initiatives that have the potential to be both a long-term source of revenue for rural communities and a land-use option that is compatible with local, regional, national, and international goals of conservation of biodiversity and natural resources. However, there are several factors that can make implementation of this type of tourism difficult to achieve on the ground. These will be discussed later in this paper, but the most obvious one is that ecotourism development is one of several goals for development proposed by the governments for this area, and it is not necessarily compatible with other governmental proposals.

This paper examines the current state of transboundary ecotourism development in the Kelabit and Kerayan Highlands, with emphasis on the Kelabit Highlands of Sarawak. It situates the promotion of ecotourism here within the rhetoric of state and national conservation and

development goals, and also identifies several of the main challenges faced by the local communities in the further development of community-based transboundary ecotourism. Research for this case study was conducted primarily in the Kelabit Highlands, and it included interviews with most of the guides and homestay owners in the Kelabit Highlands[2] and with fourteen tourism professionals (tour operators, members of the Sarawak Tourism Board, and employees at visitors' centers) in the main cities of Sarawak, participation in inter-community dialogues regarding transboundary ecotourism. In addition, it analyzes promotional materials (both in print and on the internet) on ecotourism in these areas, comments in the visitors' books of lodges in the Kelabit Highlands, and tourists' websites and travel blogs. Co-written by four local guides and homestay owners in Sarawak and Kalimantan and a graduate student from the U.S. who has conducted three years of ethnographic research in the Kelabit Highlands, this case study represents a stage of introspection by people actively engaged in current ecotourism activities and seeks to chart a course forward that takes into account the specific ecological, social, cultural, and political context of this region. The process of conducting this research project helped to pinpoint some of the specific challenges of transboundary ecotourism in this area, and will form the basis for a more comprehensive ecotourism management plan for local communities on both sides of the border.

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[2] There are 21 registered guides in the Bario-Ba' Kelalan Nature Guides Association, and at least as many unregistered guides. There are 25 more-or-less official lodges or homestays, and other families also occasionally host tourists.

ecotourism; (5) careful improvements in tourism infrastructure; (6) the negotiation of legal complications arising from international border crossings by tourists and guides; and (7) the maintenance of local control over ecotourism management and the trajectory of future tourism development. Analysis of these issues in this transboundary area will not only help maximize local benefits from ecotourism in interior Borneo but also addresses many themes central to the academic literature on ecotourism in other parts of the world.

Background: Ecotourism in Malaysia

Tourism, and particularly ecotourism in developing countries rich with natural and cultural capital, is often touted as a sustainable source of revenue for indigenous and rural communities (Schilcher 2007; Briedenhann and Wickens 2004; Ponting 2001; Chambers 2000; Mowforth and Munt 1998), and tourism often helps to bring developing countries and even local communities into the global economy (Schilcher 2007; Azarya 2004; Russell and Stabile 2003; Hall 1998; Wood 1997). Although it is widely recognized now that while tourism has the potential to stimulate economic growth in marginal and underdeveloped areas, it can also serve to exacerbate inequalities within and between communities (GFC 2008; Carrier and Macleod 2005; Olsder 2004; West and Carrier 2004; Belsky 1999; Reed 1997; Brohman 1996; Richter 1989), and between local communities and the larger social, economic, political context in which these communities are embedded (Schilcher 2007; Mowforth and Munt 1998; Weaver 1998). Many scholars, human rights advocates, and tourism practitioners have argued that in order to address these issues of inequalities created or reinforced by tourism in rural areas, it is important that local communities are active stakeholders in tourism ventures and that such ventures are not imposed on them by outsiders who seek personal gain (GFC 2008; Stronza 2005; Burns 2003; Berno 2003; Ponting 2001; Scheyvens 1999; Twining-Ward and Twining-Ward 1998; McLaren

1997). However, this can be difficult and problematic on the ground, particularly when multiple communities are involved (Suich 2008). The local communities in the Kelabit and Kerayan Highlands, both of their own initiative and with the assistance of international organizations such as WWF and the International Tropical Timber Organization (ITTO), have implemented several strategies for maintaining local control of tourism and promoting and improving community-based transboundary ecotourism.

In Malaysia, The Ministry of Tourism and Culture, established in 1987, became the Ministry of Culture, Arts, and Tourism in 1989. Now, tourism activities fall under the national jurisdiction of the Ministry of Tourism, and in the state of Sarawak, under the jurisdiction of the state Ministry for Urban Development and Tourism. In recent years, the Malaysian government has been steadily increasing its promotion of tourism, even globally advertising the year 2007 as Visit Malaysia Year. Malaysia is a popular tourist destination (over 12 million visitors in 2001), and in particular as an ecotourism destination. Chin (2000) notes that in the Malaysian state of Sarawak, "tourist receipts have increased from RM 140.6 million in 1989 to RM 522.3 million in 1997" (p. 20). According to Mohamed (2002), revenues from ecotourism in Malaysia were RM 655 million, of a total of RM14 billion generated from all types of tourism. However, Davison (1995) notes that it is difficult to obtain reliable information on the number of ecotourists to Malaysia.

Tourism in Malaysia has been seen by Malaysians as a double-edged sword. On the one hand are the positive benefits of tourism such as increased employment, infrastructure development for rural areas, the enrichment of local culture through contact with outsiders, and the revitalization of local cultural traditions, while on the other hand are deleterious effects such as the encroachment of new (Western) values on local communities, pollution and ecological

damage, haphazard development, exacerbation of inter- and intra-community tensions, economic inflation, and in some cases, even prostitution and drugs (Din 1997). These same benefits and concerns are echoed in case studies around the world, but are particularly salient in Malaysia, which aims to be a "fully-developed country" by 2020 (as articulated in Wawasan 2020, or Vision 2020, a common reference in Malaysian development circles). In 1997, Din (105) explained what he called this "scapegoating" of tourism: "tourism has either been disproportionally credited with all the good effects, or has received more than its fair share of the blame for the bad effects. A balanced discussion of the subject is rarely found, if at all, in Malaysia." Since then, there have been several focused case studies of ecotourism in national parks in Malaysia that do offer more balanced and nuanced discussions (Yacob et al. 2007; Mohamed 2002; Chin et al. 2000; Abidin 1999). These studies describe benefits to local communities through employment and increased protection of natural resources. They also note specific problems caused by over-use by visitors, including subsequent ecological damage and economic leakages that direct the cash flow from ecotourism away from local economies.

In the early 1990s, national discussions on tourism in Malaysia began to reflect consideration for cultural issues, such as the commercialization of culture and the equitable distribution of benefits from tourism, as well as the linkage of sustainable development to environmental conservation in the form of new ecotourism enterprises, especially in Sarawak and Sabah (Din 1997; King 1993). The link between ecological and cultural tourism is particularly strong in Malaysia, and these alternative forms of tourism have been touted by governmental agencies, non-governmental organizations, tour operators, and local communities as a way to simultaneously promote conservation and non-consumptive use of natural resources, showcase unique indigenous cultures, and generate income for less-developed rural areas (King

1993). The marriage of these goals is common to ecotourism endeavors around the world (Mbaiwa 2008; Azarya 2004; Armesto et. al. 2001; Stronza 2005, 2001; Carrier and Macleod 2005; Maharana et. al. 2000; Belsky 1999; Mowforth and Munt 1998; Wood 1993; Crick 1989; Cohen 1988), but it represented an important shift in tourism goals by the Malaysian government, which previously did not thoroughly examine the effects of tourism on local communities.

Malaysia has officially adopted the IUCN's definition of ecotourism[3], and in 1997 created the National Ecotourism Plan, which outlined a set of 25 guidelines for categorizing sites and ecotourism opportunities, defining carrying capacity and limits of acceptable change for each site, creating and improving national parks and forest reserves, promoting accreditation of ecotourism products, and other activities necessary for ensuring compatibility between conservation and sustainable development through ecotourism (Mohamed 2002). However, Abidin (1999) says that these guidelines are not specific enough, and that criteria and indicators for measuring carrying capacity, limits of acceptable change, and sustainability are lacking in this national plan, as are mechanisms for evaluating and monitoring future tourism and conservation programs. He says: "There are also no criteria and indicators developed for sustainable tourism management and biological diversity conservation in the protected areas of Malaysia" (Abidin 1999:16). Malaysia, while enthusiastically jumping on the ecotourism bandwagon, has its share of challenges and problems in ensuring such compatibility between conservation and sustainable development. An enlightening study by Lim in 1999 (discussed in Mohamed 2002) revealed that travel agencies promoting ecotourism packages in Malaysia:

[3] "Environmentally responsible travel to relatively undisturbed natural areas in order to enjoy and appreciate nature (and any other accompanying cultural features). One that promotes conservation, one that has low visitor impact, and one that provides for beneficially active socioeconomic involvement of local populations."

- are mostly new with 4-6 years experience;
- travel guides into ecotourism sites lack proper training and education; many have generic licenses but operate within ecotourism spots;
- only 11.9% of the agencies gave information regarding buying banned items when visiting ecotourism sites in Malaysia. And the same percentage contributed their income towards conservation activities;
- less than 46% have close relationships with the local communities;
- over 30% have little relation with the government; another 30.8% admitted they have no relation with the government;
- 10 out of 15 agencies do not really understand the principles and concepts of ecotourism;
- Almost 80% of the activities tend to be fun-filled or adventurous but lacking in terms of getting to know the nature. (quoted from Mohamed 2002:7)

The results of this study show that Malaysia clearly can improve its ecotourism practices rather than just promoting its natural areas as ecotourism destinations.

At the Borneo Ecotourism Conference in April of 2005, Mr. Rambli Ahmad, the Manager of Planning and Development of the Sarawak Tourism Board, stated that although ecotourism had benefited the people of Sarawak, "an adverse consequence of this business was that most of the longhouses were trying to meet the needs of foreign tourists rather than preserving their culture" (quoted in Dowling 2005:1). Communities around the world have faced similar challenges when tourism (including ecotourism and cultural tourism) has been introduced, particularly that of the commodification or objectification of material culture and the staging of performative culture that can lead more to the falsification or exaggeration of culture than the

preservation of it (Yoko 2006; Jamal and Kim 2005; Stronza 2005; Azarya 2004; Wearing and Wearing 1999; Wood 1997; King and Stewart 1996; Cohen 1988; van den Berghe 1980). According to Din (1997), the objective is to balance the needs of the guests and the hosts, and to allow the local communities to define their priorities. He says (116): "For Malaysians, it is important that tourism will not jeopardize the societal goals that the host community defines." In the case of the Kelabit and Kerayan Highlands, most community members agree that their main goals are conservation and development through their own local initiatives, and they see ecotourism as an important means of achieving these goals simultaneously. Community members have taken important steps to improve the quality of the ecotourism experience for visitors, to monitor and protect the natural and cultural resources in their villages, to expand the direct benefits of ecotourism to more community members, and to maintain control over the pace and course of ecotourism development.

Genuine community-driven ecotourism development requires that local communities determine the type and trajectory of tourism development, not merely react to the needs and desires of foreign tourists and accept top-down implementation of tourism projects by outside agencies. Due to the remoteness of this area, so far there has been little threat of the imposition of tourism on these communities, so it has remained in the hands of the community members. This could change in the near future, however, as the highlands become accessible by logging roads and more infrastructure development is sponsored by the government and the private sector. Concern for local autonomy has guided both local ecotourism initiatives and NGO-assisted programs for ecotourism development in the highlands of Borneo. At the same time, communities and assisting organizations recognize the need to work with multiple stakeholders in ecotourism development. Participants elaborated on this sentiment during the Borneo

Ecotourism Conference in 2005, as the conference fostered new partnerships between governmental agencies, private businesses, and local communities in ecotourism development (Dowling 2005). Both the federal government of Malaysia and the state government of Sarawak have made numerous public statements supporting the development of ecotourism, as both an income-generating activity for rural communities and as an important component of state and federal sustainable forestry policies (Rodgers 2005). For example, the Deputy Chief Minister of Sarawak, Datuk Patinggi Tan Sri Dr George Chan, said that:

> "The foresight of our Chief Minister [YAB Pehin Haji Abdul Taib Mahmud] has been instrumental in moving the tourism industry here to where it is today even though funds for such developments were often hard to come by due initially to the small number of tourist arrivals which did not justify the amount spent of such facilities. However, we persevere and spending wisely we have managed to bring Sarawak into the world map of eco tourism which is envisaged as a sustainable industry for the state for a long time to come" (in *Kuching Talk*, a popular tourism newsletter, 2007:1)

The 8th Malaysia Plan (2001-2005) includes an entire section on tourism development, with a focus on nature-based or eco-tourism; this rhetoric supporting ecotourism development is reiterated in the 9th Malaysia Plan (2006-2010), particularly as a means to generate income for rural communities, while simultaneously demonstrating the commitment of the government to conserve natural resources in the geographical and metaphorical "Heart of Borneo."

The Heart of Borneo Conservation Initiative

Led by WWF, the Heart of Borneo is a large-scale, tri-national transboundary initiative that aims to tie ecological conservation with sustainable development in the geographical middle (or "heart') of the island of Borneo. Following an April 2005 meeting in Brunei, the

governments of Indonesia, Malaysia, and Brunei publicly committed to a cooperative conservation initiative at the Convention on Biological Diversity meeting in Curitiba, Brazil in March 2006, and the official Heart of Borneo Declaration was signed by representatives of these countries on 7 February 2007. The area covered by the Heart of Borneo initiative is approximately 220,000 km² or 2.5 million hectares, and includes the upper montane forests in highlands and watersheds that cross international boundaries (WWF-Denmark 2006).

The interior of Borneo is recognized internationally by scientists, researchers, and conservation organizations as being globally important and ecologically and culturally unique. It is a repository of numerous endemic and endangered species, a source of watersheds for the entire island, and home to a number of indigenous communities who have managed this landscape sustainably for untold generations. Local livelihoods, centered on income from organic rice production and ecotourism, are dependent on intact forests and watersheds. However, government agencies and private sector companies in both Malaysia and Indonesia are planning different scenarios for this area: expansion of protected areas, continued logging, large-scale agricultural development, increased smallholder agriculture, infrastructure and ecotourism development, and creation of income opportunities for local communities. These different scenarios would have enormous impacts on the future of ecotourism in the interior highland areas of Borneo, in ways that are generally self-explanatory. The future here is uncertain, which makes long-term planning difficult for local communities, but they are pursuing ecotourism development at the moment, with the support of various government agencies.

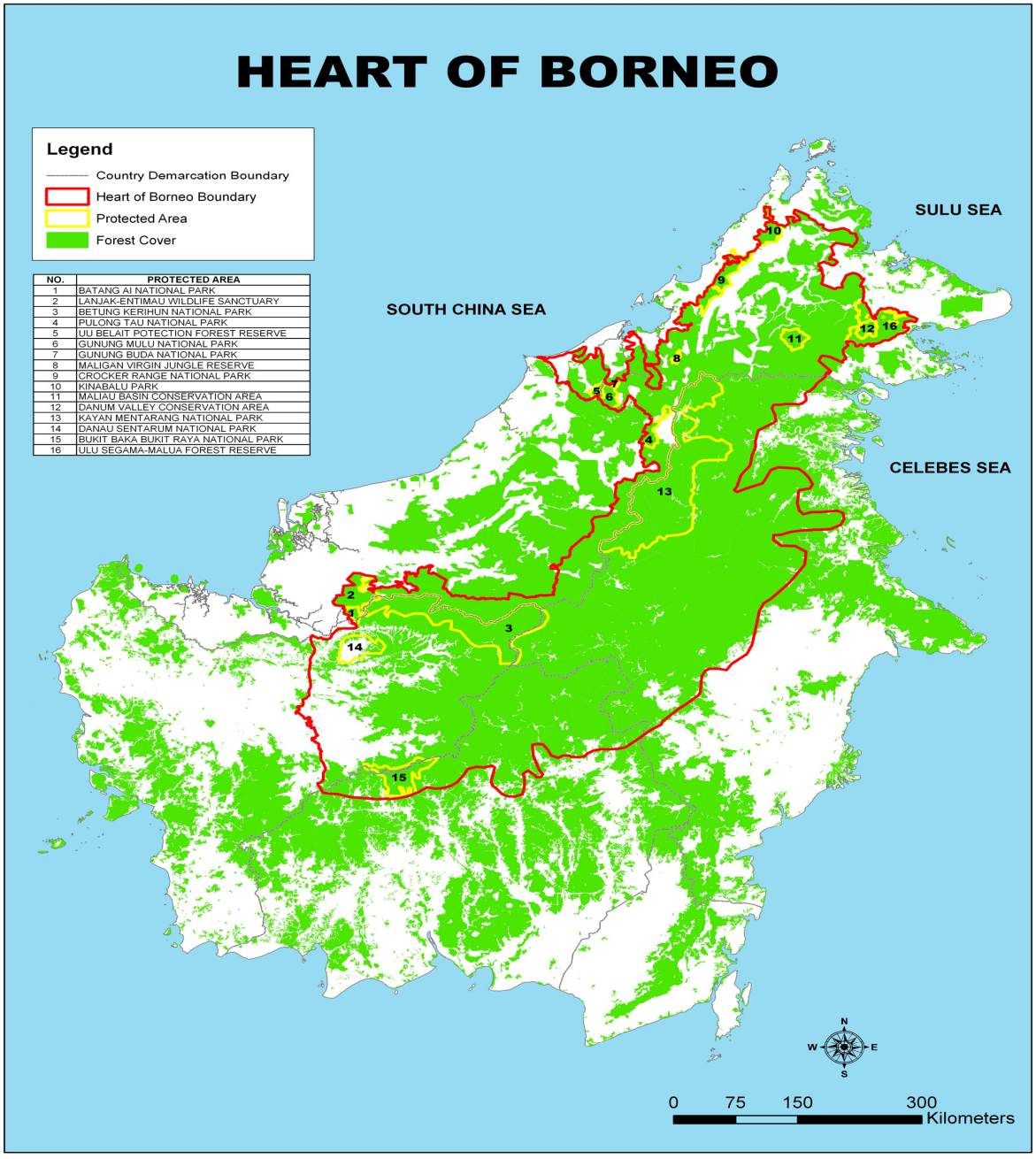


Figure 5.1: Proposed Boundaries of the Heart of Borneo

© [2009] WWF-Malaysia.

Much of the Kerayan Highlands of Indonesian Borneo is already within the boundaries of Kayan Mentarang National Park (KMNP), encompassing over 1.3 million hectares along the border with Sarawak (WWF-Denmark, 2006). On 24 March 2006, a new national park was officially gazetted in Sarawak near the border with Kalimantan (Pearce 2006; Tsai 2006). Pulong Tau National Park (PTNP), which translates to "Our Forest" in the Kelabit language, was first requested by members of the Kelabit community in the late 1970s as a means to protect the headwaters of several major rivers in Sarawak, including the Baram, Tutoh, and Limbang Rivers (Sreedharan 2006; Wahab 2007; Grinang 2007; Chiew 2007; Nyanti and Grinang 2007). Originally, this park included 164,500 hectares, but over the years, the area was decreased incrementally to its current size of 59,817 hectares (Sreedharan 2006; Dagang 2007). Key landscape features were removed from the park, and all but about two kilometers of the transboundary areas were also removed.

There is currently a proposal by the International Tropical Timber Organization (ITTO) and the Government of Malaysia to extend the border of PTNP in Sarawak to join with KMNP in Kalimantan, thus creating a large transboundary conservation area. This ITTO project, entitled "Transboundary Biodiversity Conservation: The Pulong Tau National Park, Sarawak State, Malaysia," is now in its second phase. During the first phase (2005-2007, with an operating budget of USD1,546,563), Sarawak Forest Department employees conducted baseline ecological studies within the park, as well as socio-economic and cultural studies on the communities in the Kelabit Highlands, areas within and bordering the proposed extension area (ITTO 2003). These baseline studies were intended to inform the long-term management plan of PTNP. The second phase of the project (2008-2010, with an operating budget of USD1,490,165) includes implementation of the projects proposed in the first phase, the most significant of which is the

actual extension of the boundaries of PTNP to create a genuine transboundary conservation area with KMNP (ITTO 2007).

A large component of the sustainable development goals of this ITTO project is to establish infrastructure for renewable income for local communities through ecotourism, while at the same time promoting ecoregional conservation of biodiversity and watersheds. The budget for Phase II of the ITTO project (ITTO 2007) includes USD4000 for informational material on Pulong Tau National Park (ITTO 2007:22), USD15,000 to improve and maintain jungle trails to Mount Murud, a popular trek for tourists (ITTO 2007:24), USD6000 for tourist guide training and tourism information materials (ITTO 2007:25), and USD2000 to propose Kelabit megalithic areas as a UNESCO World Heritage Site (ITTO 2007:25). It also budgets for a total of USD29,000 for "cross-border socioeconomic activities among local communities," of which USD3000 is specifically earmarked for "cross-border ecotourism: resource development, joint promotion materials, and tourist guides training/visits" (ITTO 2007:26). The ecotourism potential of this area is mentioned throughout this document, and it states clearly that: "Through transboundary cooperation, the people across the borders can work to bring their economies closer, by improving roads, promoting cross-border trade and joint ecotourism for mutual benefits" (ITTO 2007:17).

Ecotourism is often proposed as an economic investment in conservation (Stronza 2005; de los Monteros 2002; Archabald and Naughton-Treves 2001; Maharana et. al. 2000; Young 1999); however, positive examples of ecotourism in the academic literature are still rare (de los Monteros 2002; Gössling 1999). Many academic articles argue that the goals of ecotourism can conflict with the goals of conservation and preservation of cultural traditions, as well as local livelihoods (Kirkpatrick 2001; Isaacs 2000; Maikhuri et. al. 2000; Langholz 1999), and that

conservation laws can conflict with local livelihoods derived from ecotourism. A central concern with relying on ecotourism as a way to conserve natural resources is that tourism itself can bring about ecological degradation (Farrell and Marion 2001; Ross and Wall 1999). But despite these critiques of ecotourism ventures in some areas, ecotourism is still a viable and desirable alternative in many places, so long as ecotourism is carefully planned and monitored. Malaysia is a signatory to the Convention on Biological Diversity (CBD), whose fifth Conference of the Parties (COP-5) decided that: "tourism does present a significant potential for realizing benefits in terms of the conservation of biological diversity and the sustainable use of its components." However, it also noted that: "Historical observation indicates that self-regulation of the tourism industry for sustainable use of biological resources has only rarely been successful" (quoted in GFC 2008:48). Visitor impact assessment is vital to maintaining the health of ecosystems that are ecotourism destinations (Farrell and Marion 2001; Ross and Wall 1999). This is particularly important in ecosystems as fragile as those found within the highland plateaus of the Heart of Borneo (Pearce 2006), and a central concern for promoting more development of ecotourism (or any type of tourism) here is minimizing the negative social, cultural, and ecological effects.

The most recent ITTO document (2007:62) says that "with careful planning and monitoring, it is unlikely that ecotourism development will affect the sustainability of the park (PTNP)." But what is needed in the highlands is on-the-ground monitoring of the impacts of all types of development coming to these areas. Monitoring of and mitigation for ecotourism presents less of a challenge in the Kelabit and Kerayan Highlands than for other types of large-scale development that are also being proposed for this area, so it is difficult to consider this in isolation from other possible futures for this complex cultural and geographic landscape.

The political landscape of this area is also complex; in addition to myriad governmental agencies and private corporations making plans for this area, there are also numerous actors involved in ecotourism efforts in the highlands of Sarawak and Kalimantan. In addition to state and national ministries and governmental agencies in Malaysia and Indonesia, a number of international conservation, development, and finance NGOs and agencies are directly and tangentially involved in the Heart of Borneo initiative: World Wide Fund for Nature (WWF), The Nature Conservancy (TNC), Conservation International (CI), the World Conservation Union (IUCN), Global Environmental Facility (GEF), Wildlife Conservation Society (WCS), International Tropical Timber Organization (ITTO), United States Agency for International Development (USAID), United Nations Development Programme (UNDP), United Nations Educational, Scientific, and Cultural Organization (UNESCO), the World Bank (WB), International Monetary Fund (IMF), Asian Development Bank (ADB), International Finance Corporation (IFC), and Association for East Asian Nations (ASEAN). Many of these organizations have attended meetings regarding the Heart of Borneo initiative, and/or have contributed financial or verbal support, but WWF is the most involved on the ground, particularly in Kalimantan. Involvement by NGOs is more limited in Sarawak, and in the Kelabit Highlands, only ITTO (working with the Sarawak Forest Department and Sarawak Forest Corporation) has been directly involved in conservation efforts.

Alongside, and to some extent in conjunction with these national and international organizations, there are several local organizations that are actively engaged in ecotourism in the Kelabit and Kerayan Highlands, including the Tourism Bureau of the Kelabit Highlands, the Bario-Ba' Kelalan Nature Guide Association, Lembaya Swadaya Masyarakat Tanah Tam ("Our Land" Indonesian NGO), and the FORMADAT (Alliance of the Indigenous People of the

Highlands in the Heart of Borneo). The focus of this paper is on the efforts of these community-level organizations to promote, monitor, and improve transboundary ecotourism.

## Community-based Organizations Promoting Ecotourism

### Tourism Bureau of the Kelabit Highlands

The Tourism Bureau of the Kelabit Highlands is a committee under the larger unit of local development, The Bario Village Development Security and Health Council (known also as the JKKK Induk Bario). The mission of the council is the "mobilization and co-ordination of local tourism committees for accommodation providers, guides, porters, produce growers, handicraft artisans, sales outlets, catering operations, tea shops and local flora and fauna experts" (Harris 2002). The Tourism Bureau oversees tourism development in the Kelabit Highlands and supports further ecotourism development, as well as enhanced international cooperation with the villages in the Kerayan Highlands.

### Bario-Ba' Kelalan Nature Guide Association

According to Sarawak state law, local tourist guides must be certified and licensed by the Ministry of Urban Development and Tourism. Until recently, no guides in the Kelabit Highlands were licensed, due to both ignorance of this law and the inconvenience and prohibitive cost of attending a training course held elsewhere in the state (RM3000-4000, plus travel costs). Finally, due to pressure from the Kelabit guides, in September 2006, the Borneo Tourism Institute of Sabah and the Ministry of Urban Development and Tourism of Sarawak co-sponsored a 16-day training workshop for guides in the Kelabit Highlands and Ba' Kelalan (a village north of the Kelabit Highlands, also in Sarawak). This workshop, culminating in written and verbal examinations, resulted in the certification and licensing of 21 guides from the Bario area and 6 guides from the Ba' Kelalan area. These guides formed the Bario-Ba' Kelalan Nature Guide

Association (hereafter called the Guide Association). During this workshop, there was also a training session for homestay owners, and most of the homestay operators in the Kelabit Highlands completed the program for certification as a Sarawak Eco-Host. Additional training for homestay owners was conducted by the Sabah Tourism Board at the e-Bario Knowledge Fair (an international academic and UNDP-focused conference held in Bario in December 2007), while the Guide Association operated a booth to organize day trips for conference participants.

The Guide Association is the primary acting agency in the Kelabit Highlands for addressing the challenges of transboundary ecotourism development that will be discussed in the next section; the council is currently creating a promotional website with information on trekking itineraries and costs, building and maintaining jungle trails, and organizing the on-the-ground demarcation of cultural sites in the Kelabit Highlands.

LSM Tanah Tam

In 2002, a community-based ecotourism project was initiated in three communities in the Kerayan Highlands of Kalimantan, Indonesia (Long Rungan, Pa' Upan, and Long Layu'), in response to community concerns regarding long-term income generation from tourism and sustainable management of local resources. The land included in this project is customary land in an area known as the Krayan Hulu; some of this land is located within the boundaries of Kayan Mentarang National Park, while some is in the buffer zone of the park. Ecotourism here is viewed as an environmentally and economically sustainable alternative to other exploitative activities occurring all over Borneo, including logging and large-scale conversion of forest to monocrop plantations. WWF-Indonesia assisted in the planning and implementation of this project, which included training, local capacity building, and cross-border visits to communities in Sabah, Malaysia that have been developing community-based ecotourism. In 2003, the local

ecotourism committee gained the status of an NGO (LSM, or Lembaya Swadaya Masyarakat, in Indonesian), known as Tanah Tam Krayan Hulu ("Our Land" Krayan Hulu). Tanah Tam, an inter-community organization with committees in each village, works with community organizations in the Malaysian states of Sabah and Sarawak, as well as the local Tourism Office (Dinas Pariwisata dan Kebudayaan) to encourage and facilitate transboundary ecotourism options. Tanah Tam aims to ensure that control over the direction of ecotourism development remains in the hands of local community members (see www.borneo-ecotourism.com; www.aboriginal-ecotourism.org/spip.php?article163).

FORMADAT

The FORMADAT, or Alliance of the Indigenous People of the Highlands in the Heart of Borneo (Forum Masyarakat Adat [Asli] Dataran Tinggi Borneo), is a transboundary community-based organization led by village headmen. It was officially established in 2003 with the financial and organizational assistance of WWF-Indonesia, although meetings among the various headmen in the highland communities have been taking place since the year 2000, under the organization's former name of FoMMA, or the Alliance of the Indigenous People of the Kayan Mentarang National Park (WWF-Denmark 2006). The main communities involved in the FORMADAT are the Bario Highlands (including nine main villages, from Pa' Lungan in the north to Pa' Dalih and Ramudu in the south), Ba' Kelalan, Long Semado, Long Pasia, Long Bawan, Long Mio, Ulu Padas, and Long Layu'. These communities include about 15,000 people on the Malaysian side of the border and around 20,000 on the Indonesian side. Several closely related ethnic groups (themselves sometimes subdivided into smaller groups) are represented by the FORMADAT: Lun Dayeh/Lun Bawang, Kelabit, and Saban. Their mission is to: "increase

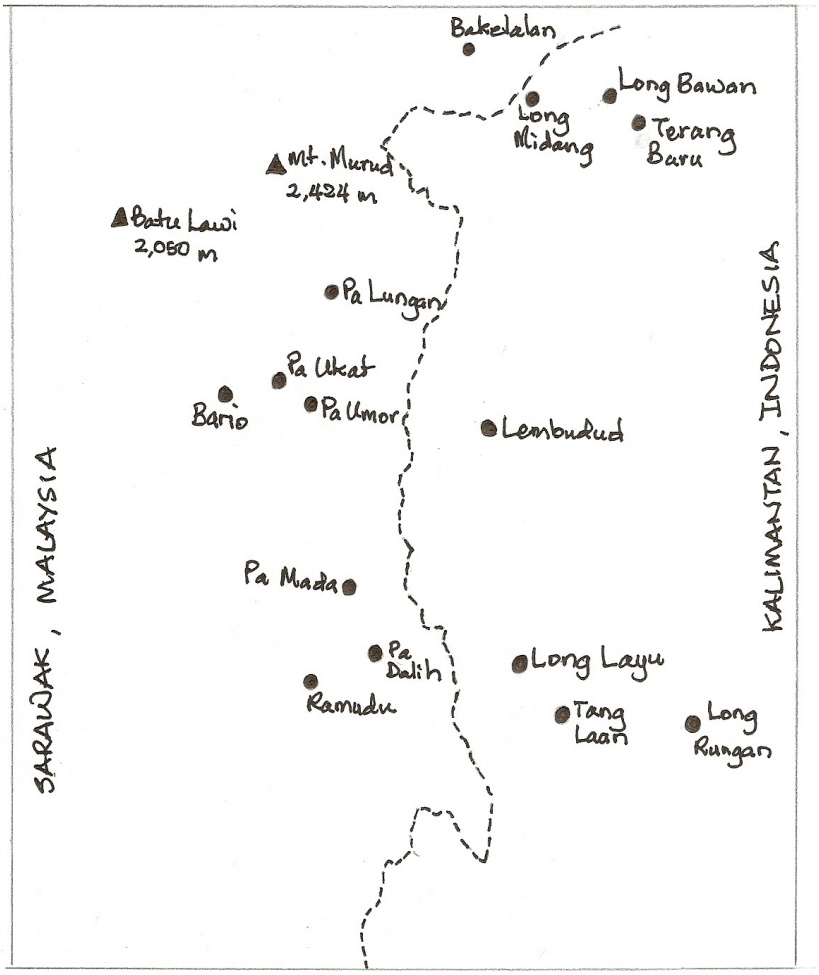


Figure 5.2: Villages in the Kelabit Highlands of Sarawak and the Kerayan Highlands of Kalimantan

awareness and understanding about the highland communities, build local capacity, and encourage sustainable development in the Heart of Borneo," and several specific issues they focused on in recent meetings have been conservation, agroforestry, organic farming, and transboundary ecotourism.

The most recent FORMADAT meeting was held in Long Layu', Kalimantan in November 2007, and it was attended by three of the five co-authors of this paper. At this meeting, there was agreement that the respective districts would continue to work closely with

governmental agencies and national and international NGOs to ensure the on-the-ground implementation of activities within the Heart of Borneo initiative, focusing on conservation and economic, social, and cultural programs that will directly benefit the local highland communities. At this meeting, F. L. Apu, chairman of the Bario-Ba' Kelalan Nature Guide Association, delivered a presentation on "Transboundary Tourism in the Heart of Borneo," in which she outlined and described many of the challenges facing the further development of community-based transboundary ecotourism initiatives, which will be discussed in the next section of this paper. As many of the attendees of her presentation were themselves guides on the Kalimantan side of the border, they were especially eager to hear of the challenges on the Sarawak side, and likewise, those attending from Sarawak listened to challenges from the Kalimantan side. Thus, the FORMADAT meeting became a venue for the active exchange of information and ideas that will benefit ecotourism development on both sides of the border. To date, both the Bario-Ba' Kelalan Nature Guide Association in Sarawak and the LSM Tanah Tam in Kalimantan have begun to act on the challenges discussed at this meeting. The next FORMADAT meeting will be held in January 2009 in Long Pasia', Sabah, Malaysia, and the guides from both sides of the border are expected to give updates and exchange further ideas on transboundary ecotourism at that time. The attention given to transboundary ecotourism development at this meeting demonstrates the commitment of the local communities on both sides of the border to expand and improve ecotourism in the heart of Borneo.

Challenges for Ecotourism Development in the Kelabit and Kerayan Highlands

Protection of Forests and Cultural Sites

As clearly stated by Rodgers (2005:19) in his study on the long-term sustainability of ecotourism in the Kelabit Highlands, "The logging of the forests in the Kelabit Highlands is the

single largest threat to the future of ecotourism in the region." Ecotourism is unlikely to survive if the forests of the Kelabit Highlands are destroyed. The negative consequences of logging in Sarawak and elsewhere have been well-documented, and it is obvious that logging and large-scale clearing of forests would have a deleterious effect on ecotourism. Areas south of Bario are already unfit for ecotourism (Cluny and Chai 2007); the well-known Bario Loop, a 5-7 day trek between Kelabit villages which is still being advertised in the tourist literature, has been damaged since 2002, and now it is impossible without hiking long stretches on logging roads or through cleared areas. As a result, ecotourism efforts by the Guide Association will be focused on the areas north of Bario and within and bordering PTNP in Sarawak, and the Guide Association and LSM Tanah Tam will have to work together to create new trails for transboundary trekking that bypass logged areas. The Guide Association also plans to take an active lead in fencing the cultural sites in the Kelabit Highlands that could be marketed as tourist attractions. Fencing and demarcating the sites on the ground are necessary to prevent destruction of these sites by logging activities, and the Kelabit community has recently received RM80,000 of funding from several international organizations (the U.S. Cultural Foundation, a foundation of the U.S. Embassy to Malaysia, and the Oxbridge Society of the U.K.) to help subsidize the costs of this demarcation.

Tourists visiting the Kelabit Highlands often express concern to community members about the logging, and often offer their support. Many are active in NGO organizations in their home countries and quite a few keep internet blogs of their travels. These blogs, in addition to the comments they leave in visitors' books in the lodges and homestays in the Kelabit Highlands reveal activist (or at least sympathetic) leanings, with varying degrees of knowledge about the true situation on the ground. One such illustrative comment, from a young American man, is: "If

there is any danger of logging and palm oil plantations threatening this area, please email me and we will join your campaign against such travesties." A Japanese student wrote: "I'm sure to work for the environment in Asia, especially against logging, after going back to Japan." Finally, a middle-aged English man promised: "We will do all we can to help to stop the logging. You have support in England." The recent ITTO document (2007: 17), also notes that: "Tourists have complained about trekking through logged over and damaged forests."

Many members in the local community hope to "convince the Sarawak State Government to halt the continuation of logging in some areas of the Kelabit Highlands that are regularly used by, and therefore, a valuable asset to the local tourism industry" (Rodgers 2005). Rurum Kelabit Sarawak (The Kelabit Association of Sarawak) has been in negotiation with Samling, the logging company in possession of the logging concessions for the Kelabit Highlands, and has met with some success in having certain areas set aside as communal forest reserves which can be used for ecotourism and other local needs. They have also initiated discussions with the logging company regarding the responsibilities of the communities to mark cultural sites and the company's responsibility not to disturb them. However, logging is ongoing, and it continues to pose a serious threat to the future of ecotourism in the Kelabit Highlands.

Communication

In addition to logging activities that threaten the ecosystems of the Kelabit and Kerayan Highlands, a second major challenge to transboundary ecotourism development is the difficulty of communication between villages, guides, and lodges on both sides of the border. Means of communication are limited; the Kelabit Highlands only has a few telephones that use satellites and solar power, and these only function intermittently. There is an internet telecentre in Bario in the Kelabit Highlands, but there are currently no internet capabilities in the Kerayan Highlands.

It is possible to use mobile phones in some villages on the Indonesian side of the border, but not on the Malaysian side. To date, there are no fax machines on either side of the border. Communication tends to be written or verbal, and these methods are not always reliable. While it is expected that the Kerayan Highlands will soon receive an internet center and that the Kelabit Highlands will soon receive a tower that will enable the use of mobile telephones, for now this uneven technological development in the Kelabit and Kerayan Highlands makes communication difficult. This lack of communication technology is a key reason that urban-based tour operators in Sarawak are reluctant to organize tour packages to the Kelabit Highlands. It also obviously creates major complications for tourists who need to make advance bookings with guides and lodges, especially when they want to trek across international borders.

Promotion

There is very little printed information on the Kelabit Highlands. The Visitors' Centre in Kuching, an important place for tourists arriving in Sarawak to make plans and book excursions during their vacations, has only minimal information regarding the Kelabit Highlands. Interviews with the staff revealed that although they do know quite a lot about conditions in the Kelabit Highlands, they are not very forthcoming with the information and prefer to steer tourists to better-known and more widely visited destinations. Similarly, visits with many of the tour operators in Kuching and Miri yielded very little information about traveling to the Kelabit Highlands. Tourists that do visit the Kelabit Highlands do so based on the recommendation of other tourists or on information found in tourist guide books or on web-based tourist blogs. LSM Tanah Tam has produced promotional brochures available in both English and Indonesian for ecotourism packages in the Kerayan Highlands, and if similar brochures on ecotourism in the

Kelabit Highlands were circulated in visitor centers, airports, and hotels in Sarawak, the number of tourists visiting the Kelabit Highlands would likely increase.

The Sarawak Tourism Board is also eager to promote Kelabit Highlands (through direct marketing and inclusion of the area in overseas package tours), but according to CEO Gracie Geikie, what is needed first is an updated website with current information regarding guides (experience, areas of expertise, fees, and direct contact information), lodges and homestays (locations, attractions, and costs), transportation (options and costs), and tourist itineraries. LSM Tanah Tam in Kalimantan already has a detailed website (www.borneo-ecotourism.com). There is some information for tourists on two Kelabit-run websites (www.kelabit.net and www.ebario.net), and the Guide Association in the Kelabit Highlands is currently working to create an updated and more detailed website.

Preparation and Equitable Distribution of Benefits

Due to the remoteness of the Kelabit Highlands, currently only accessible by air (though this will change soon, as Bario will soon be connected to a nearby logging road), it is difficult and costly for community members to import many items from the cities that would be needed to support more tourists visiting the Kelabit Highlands. There is also limited surplus food produced in the Kelabit Highlands, since export of foodstuffs is likewise expensive. According to community members in Bario and other Kelabit villages, to accommodate more tourists with maximum benefit to the local communities, it would be beneficial to produce more food, particularly fruits, vegetables, and domesticated animals within the highland villages. This local production of food would also help to spread the benefits of tourism more evenly among community members through contracts with farmers, gardeners, and gatherers of wild fruits and vegetables. Currently the main beneficiaries of tourism in the Kelabit Highlands are

accommodation providers, guides, and handicraft sellers. Shops and cafes make little money directly from tourists, since lodges tend to include all meals in the cost of accommodation (Rodgers 2005). Increased local food production could help to address the common problem of elite capture of benefits in ecotourism ventures in rural areas (Schilcher 2007; Azarya 2004; Milne and Ateljevic 2001; Reed 1997; Richter 1989).

There is potential for the local Kelabit communities to derive more income from ecotourism, by increasing both the number of tourists and the amount of money spent locally by tourists (Harris 2002). It has been estimated that as of 2003, around 1000 tourists visit Bario each year, up from about 350 per year in 1997 (Rodgers 2005), and each spends an average of USD110. If Bario could attract 3000 guests per year and encourage them each to spend an average of USD540 (by encouraging longer stays with more options and by increasing prices and fees for guides, porters, and lodging), the increase in the amount of cash flow into the Kelabit Highlands from ecotourism would be substantial (Harris 2002). It has been estimated that tourism, branded mostly as ecotourism, could bring revenues of up to RM6 million into the Kelabit Highlands per year based on the existing labor and infrastructure[4], and almost all of this money would be held in the community. There would be very few economic leakages to outside interests, as right now all lodges, homestays, restaurants, and shops are locally-owned, and all guides are self-employed (except for the occasional guide that comes with a tour agency in Miri).

This is an ambitious figure, which falls well short of tourism revenue that currently flows into the Kelabit community, but it does demonstrate the potential revenue that could be generated in the Kelabit Highlands with the current infrastructure and labor available. Further infrastructure development for tourism could potentially have either positive or negative effects

[4] This figure has been calculated by the authors, by assuming full capacity of all lodges and homestays, full-time employment of all guides for most of the year, as well as income generated from transportation, handicraft and souvenir sales, and sales of food and drinks.

for the local communities, depending greatly on how much of the revenue from ecotourism continues to circulate within the communities. As noted earlier, the future for the highlands is uncertain, and the fate of this area may ultimately be in the hands of government agencies and the private sector. Large-scale logging, land conversion to agricultural plantations, and the connection of roads to the Kelabit Highlands would all affect the future of ecotourism, and the fate of this area may ultimately be in the hands of government agencies. Large-scale logging, land conversion to agricultural plantations, and the connection of roads to the Kelabit Highlands would all affect the future of ecotourism and the flows of money into, within, and out of the communities. But for now, ecotourism seems like a viable option, especially given the regional and international support for the Heart of Borneo initiative.

Improvement of Tourism Infrastructure

Currently, tourism is limited by the flight system into the Kelabit Highlands, as only small 19-passenger planes are able to land at the Bario airport, and many of these flights are full with residents traveling back and forth to the city or with cargo. Plans to increase the length of the runway to accommodate larger planes have been submitted, in addition to requests for more flights and varied routes that would make it more convenient for tourists visiting other destinations in Sarawak to come directly to Bario. One recent development in the flight schedules that could have direct impact on transboundary ecotourism is the cancellation of the weekly flight between Bario and Ba' Kelalan. A popular route for tourists interested in long-distance trekking, the Bario-Ba' Kelalan route passes through part of Indonesia, and many tourists who hike from the Malaysian side of the border to the Indonesian side (or vice versa) choose to leave things at the airport in either Bario or Ba' Kelalan with the intention of taking the return flight to pick these up; the cancellation of this flight creates problems for tourists with that

plan. Because it has only been a few months since this flight route was cancelled, it is too soon to judge the repercussions on transboundary ecotourism, but it is the opinion of the authors that there will be negative impact for ecotourists intending cross- border treks. Further, the cancellation of this flight makes communication between villages on both sides of the border much more difficult, which will most definitely hinder inter-community transboundary cooperation of any kind.

A paradoxical problem often faced by local communities who engage in ecotourism ventures with the goals of generating income while simultaneously preserving their natural resources and cultural traditions is that once too many tourists visit their communities, the place loses its appeal to tourists as being remote and underdeveloped (Azarya 2004; Ponting 2001; Abram and Waldren 1997; Nuttall 1997; Farrell and Runyan 1991). This can force local communities to offer new and different options that might conflict with their other goals. It can also "lead service providers [i.e. tour operators] to open up new frontiers and to move them further away as some of them become well traveled" (Azarya 2004:952), possibly leading to decreasing tourist arrivals to destinations where local communities have become dependent on income from tourism. Finally, infrastructure development in the Kelabit Highlands, such as roads, a larger airport, widespread electricity, or construction of other tourist attractions such as spas, golf courses, resorts, or hotels, would also without doubt change not only the number and type of tourists, but also the flows of money from tourism. It is highly likely that such changes would benefit outside investors more than local community members, leading to economic leakage, which is a common problem in ecotourism development (Schilcher 2007; Azarya 2004; Ponting 2001; Mowforth and Munt 1998). Mohamed (2002) and Yacob et al. (2007) note that in Malaysia, most profits from ecotourism go to resort and hotel owners, not local communities,

and that much of the money spent by ecotourists leaks out and is not re-circulated within the local communities. So the issues regarding the improvement of infrastructure for the purposes of tourism must be carefully weighed and thoughtfully implemented, with a broad view of potential impacts on the local economy and the ecology of the area.

Legality of International Border Crossings

One particularly crucial obstacle to encouraging and promoting transboundary ecotourism between the Kelabit Highlands of Malaysia and the Kerayan Highlands of Indonesia is that it is technically illegal for people to cross these borders on foot. There are immigration stations on both sides of the border, in both the Kelabit and Kerayan Highlands, and these immigration officers have the responsibility to write letters authorizing tourists and locals to cross the border at the appointed mountain passes and to ask tourists and locals for letters from immigration officers on the other side of the border. But immigration officers on neither side of the border have the means to conduct rigorous background checks or to interview or interrogate people requesting to cross the border, nor do they have the authority to stamp the passports of locals or tourists. According the Head of Immigration of the state of Sarawak, Malaysia, himself a Kelabit from the Kelabit Highlands, this issue regarding the legality of border crossings by both tourists and locals cannot be resolved at the state level; it must be addressed by the federal governments of both Malaysia and Indonesia. A Memorandum of Understanding must be signed between the two countries, and immigration officers at the outstations on the border would require additional training and technological capabilities that are not currently available. There is awareness that these capabilities are necessary anyway, for issues of transnational security, and in September 2008 immigration officers from Sarawak visited villages in Kalimantan to discuss transborder immigration control. The outcome of this and other discussions regarding

transborder crossings by locals and tourists will likely affect the future of transboundary ecotourism. So while international border crossings by locals and tourists are now tolerated by the respective state and national governments, the negotiation of legal issues regarding transboundary trekking would make these tourism options easier to promote at national and international levels. Currently, this is a point of confusion for tourists, guides, and local immigration officers on both sides of the border.

Local Control

While all forms of tourism, including cultural tourism and ecotourism, have been criticized by scholars to the degree that academic literature on tourism has become known to some scholars as a "protest genre" (Din 1997:111), in this area in the interior of Borneo, it can safely be stated that so far the local people have remained in control of ecotourism endeavors, support the further development of ecotourism options, and are actively engaged in solving the inevitable problems associated with ecotourism, and the specific challenges of transboundary ecotourism. The organization, influence, and level of activity of the three main local organizations involved in ecotourism (The Bario-Ba' Kelalan Nature Guide Association, LSM Tanah Tam, and FORMADAT) demonstrate that local communities have the desire and the capability to successfully manage ecotourism.

Conclusion: The Future of Community-based Transboundary Ecotourism in the Heart of Borneo

With the current attention on ecotourism in the multi-national Heart of Borneo initiative and among the local communities themselves, there is a high level of local, state, national, and international support for community-based transboundary ecotourism development in the Kelabit and Kerayan Highlands. However, for ecotourism to be successful, or even feasible, in the future, several key challenges need to be overcome.

First among them is protection of the ecological and cultural context which draws travelers to these highlands in the first place. Other issues, such as communication and infrastructure limitations, will most likely be addressed in the near future. So long as these technologies and developments are used wisely and for the benefit of local communities and not just private companies or larger governments, these can be key factors in the improvement of community-based transboundary ecotourism. Legal issues surrounding border crossings by tourists and guides must be managed at an inter-governmental level, the solutions perhaps pushed by local organizations most affected by these laws. Ecological monitoring of the effects of increased ecotourism on the ecosystems in the Kelabit and Kerayan Highlands will require assistance from forest departments on both sides of the border and perhaps independent botanists, biologists, hydrologists, and other scientists.

Issues related to equitable distribution of benefits within and between communities must be addressed by local organizations, and these organizations must continue to guide the vision, pace, and trajectory of ecotourism development if this is to truly remain a community-based venture in the future. Communities on both sides of the border can potentially benefit ecologically, economically, and socially from increased and improved community-based transboundary ecotourism, so long as they proceed carefully, by learning from the successes and failures of similar projects in other parts of the world and by directly addressing their own unique challenges.

References Cited

Abidin, Zaaba Zainol
1999 The Identification of Criteria and Indicators for the Sustainable Management of Ecotourism in Taman Negara National Park, Malaysia: A Delpi Consensus. Unpublished dissertation to Department of Recreation, Parks and Tourism Resources at West Virginia University, U.S.A. 287 pp.

Abram, Simone and Jackie Waldren
1997 Introduction: Tourists and Tourism - Identifying with People and Places. *In* Tourists and Tourism: Identifying with People and Places. Simone Abram, Jackie Waldren and Don V.L. Macleod, eds. Pp. 1-11. Oxford: Berg Publications.

Archabald, Karen and Naughton-Treves, Lisa
2001 Tourism Revenue-Sharing around National Parks in Western Uganda: Early Efforts to Identify and Reward Local Communities. Environmental Conservation 28 (2), 135-149.

Armesto, Juan J., Cecilia Smith-Ramirez, and Ricardo Rozzi
2001 Conservation Strategies for Biodiversity and Indigenous People in Chilean Forest Ecosystems. Journal of the Royal Society of New Zealand 31(4):865-877.

Azarya, Victor
2004 Globalization and International Tourism in Developing Countries: Marginality as a Commercial Commodity. Current Sociology 52(6):949-967.

Belsky, Jill M.
1999 Misrepresenting Communities: The Politics of Community-Based Rural Ecotourism in Gales Point Manatee, Belize. Rural Sociology 64(4):641-666.

Berno, Tracy
2003 Local Control and Sustainability of Tourism in the Cook Islands. *In* Pacific Island Tourism. D. Harrison, ed. Pp. 94-109. New York: Cognizant Communication Corporation.

Briedenhann, Jenny and Eugenia Wickens
2004 Tourism Routes as a Tool for the Economic Development of Rural Areas – Vibrant Hope or Impossible Dream? Tourism Management 25(1):71-79.

Brohman, John
1996 New Directions in Tourism for Third World Development. Annals of Tourism Research 23(1): 48-70.

Burns, Georgette Leah
2003 Indigenous Responses to Tourism in Fiji: What is Happening? *In* Pacific Island Tourism. David Harrison, ed. Pp. 82-93. New York: Cognizant Communication Corporation.

Carrier, James G. and Don V. L. Macleod
2005 Bursting the Bubble: The Socio-Cultural Context of Ecotourism. Royal Anthropological Institute 11, 315-334.

Chambers, Erve
2000 Native Tours: The Anthropology of Travel and Tourism. Prospect Heights, IL: Waveland Press.

Chiew, S. P.
2007 Geomorphology and Soils of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Chin, Cynthia L. M., Susan A. Moore, Tabatha J. Wallington, and Ross K. Dowling
2000 Ecotourism in Bako National Park, Borneo: Visitors' Perspectives on Environmental Impacts and Their Management. Journal of Sustainable Tourism 8(1):20-35.

Cluny, Wilhelmina and Paul Chai
2007 Cultural Sites of the Northern Highlands of Sarawak, Malaysia. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Cohen, Erik
1988 Authenticity and Commoditization in Tourism. Annals of Tourism Research 15(3):371-386.

Crick, Malcolm
1989 Representations of International Tourism in the social sciences: Sun, Sex, Sights, Savings and Servility. Annual Review of Anthropology 18, 307-344.

Dagang, P.a.
2007 Big mammals of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Davison, Geoffrey
1995 Ecotourism in Malaysia: The Present and the Future. Kuching, Malaysia: Sarawak Tourism Board.

de los Monteros, Roberto Lopez-Espinosa
2002 Evaluating Ecotourism in Natural Protected Areas of La Paz Bay, Baja California Sur, Mexico: Ecotourism or Nature-Based Tourism? Biodiversity and Conservation 11(9):1539-1550.

Din, Kadir H.
1997 Tourism and Cultural Development in Malaysia: Issues for a New Agenda. *In* Tourism and Cultural Development in Asia and Oceania. S. Yamashita, K. H. Din, and J. S. Eades, eds. Pp. 104-118. Bangi, Selangor, Malaysia: Penerbit Universiti Kebangsaan Malaysia.

Dowling, Ross K.
2005 Borneo Ecotourism Conference 2005. Paper prepared for Borneo Ecotourism Conference. 12-13 April 2005. Kota Kinabalu, Sabah, Malaysia. 9 pp.

Farrell, Tracy A. and Jeffrey L. Marion
2001 Identifying and Assessing Ecotourism Visitor Impacts at Eight Protected Areas in Costa Rica and Belize. Environmental Conservation 28 (3), 215-225.

Farrell, Brian H. and Dean Runyan
1991 Ecology and Tourism. Annals of Tourism Research 5(2):217-237.

Global Forest Coalition (GFC)
2008 Life as Commerce: Ecotourism in India. In Life as Commerce: The Impact of Market-Based Conservation on Indigenous Peoples, Local Communities and Women. Pp. 47-57. Full case study at www.globalforestcoalition.org.

Gössling, Stephan
1999 Ecotourism: A Means to Safeguard Biodiversity and Ecosystem Functions? Ecological Economics 29(2):303-320.

Hall, C. Michael
1998 Making the Pacific: Globalization, Modernity and Myth. *In* Destinations: Cultural Landscapes of Tourism. G. Ringer, ed. Pp. 140-153. London: Routledge.

Harris, Roger
2002 Electronic Commerce for Community-Based Pro-Poor Tourism [proposal to infoDev Core program for e-tourism project in the Kelabit Highlands of Sarawak]. http://rogharris.org/E-tourism%20proposal.pdf

International Tropical Timber Organization (ITTO) and Government of Malaysia
2003 Transboundary Biodiversity and Conservation: The Pulong Tau National Park, Sarawak State, Malaysia. ITTO Project Document, Serial number PD 224/03 Rev. 1 (F).

International Tropical Timber Organization (ITTO) and Government of Malaysia
2007 Transboundary Biodiversity and Conservation area: The Pulong Tau National Park, Sarawak State, Malaysia – Phase II. ITTO Project Document, Serial number PD 451/07 Rev. 1 (F).

Isaacs, Jack Coburn
2000 The Limited Potential of Ecotourism to Contribute to Wildlife Conservation. Wildlife Society Bulletin 28(1):61-69.

Jamal, Tazim and Hyounggon Kim
2005 Bridging the Interdisciplinary Divide: Towards an Integrated Framework for Heritage Tourism Research. Tourist Studies 5(1):55-83.

King, Victor T.
1993 Tourism and culture in Malaysia. *In* Tourism in Southeast Asia. M. Hitchcock, Victor T. King and Michael J.G. Parnwell, eds. Pp. 99-116. London: Routledge.

King, David A. and William P. Stewart
1996 Ecotourism and Commodification: Protecting People and Places. Biodiversity and Conservation 5(3):293-305.

Kirkpatrick, Jamie B.
2001 Ecotourism, Local and Indigenous People, and the Conservation of the Tasmanian Wilderness World Heritage Area. Journal of the Royal Society of New Zealand 31(4):819-829.

Langholz, Jeff
1999 Exploring the Effects of Alternative Income Opportunities on Rainforest Use: Insights from Guatemala's Maya Biosphere Reserve. Society and Natural Resources 12(2):139-149.

Lim, G. L.
1999 Strategi Pemasaran Ecotourism oleh Agensi Pelancongan di Malaysia (Ecotourism Marketing Strategies by the Tourism Agency of Malaysia). Unpublished thesis submitted to Universiti Sains Malaysia.

Maharana, I., S. C. Rai, and E. Sharma
2000 Valuing Ecotourism in a Sacred Lake of the Sikkim Himalaya, India. Environmental Conservation 27(3):269-277.

Maikhuri, Rakesh K., U. Rana, K. S. Rao, Sunil Nautiyal, and Krishna Gopal Saxena
2000 Promoting Ecotourism in the Buffer Zone Areas of Nanda Devi Biosphere Reserve: An Option to Resolve People-Policy Conflict. International Journal of Sustainable Development and World Ecology 7(4):333-342.

Mbaiwa, Joseph E.
2008 The Realities of Ecotourism Development in Botswana. In Responsible tourism: Critical Issues for Conservation and Development. Anna Spenceley, ed. Pp. 205-224. London: Earthscan.

McLaren, Deborah
1997 Rethinking Tourism and Ecotravel: The Paving of Paradise and What You Can Do To Stop It. Bloomfield, CT: Kumarian Press.

Milne, Simon and Irena Ateljevic
2001 Tourism, Economic Development and the Global-Local Nexus: Theory Embracing Complexity. Tourism Geographies 3(4):369-393.

Mohamed, B.
2002 The Development of Tourism in Malaysia: Is It Really Sustainable? Paper presented at the International Year of Ecotourism 2002: Community-based ecotourism in Southeast Asia. Chiang Mai, Thailand, 3-7 March 2002.

Mowforth, Martin and Ian Munt
1998 Tourism and Sustainability: New Tourism in the Third World. London: Routledge.

Nuttall, Mark
1997 Packaging the Wild: Tourism Development in Alaska. *In* Tourists and Tourism: Identifying with People and Places. S. Abram, J. Waldren and D.V.L. Macleod, eds. Pp. 223-238. Oxford: Berg Publications.

Nyanti, L. and J. Grinang
2007 Fish Fauna of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Pearce, Katherine G.
2006 The Flora of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Ponting, Jess
2001 Managing the Mentawais: An Examination of Sustainable Tourism Management and the Surfing Tourism Industry in the Mentawai Archipelago, Indonesia. Master Thesis, University of Technology, Sydney.

Reed, Maureen G.
1997 Power Relations and Community-Based Tourism Planning. Annals of Tourism Research 24(3):566-591.

Richter, Linda K.
1989 The Politics of Tourism in Asia. Honolulu: University of Hawaii Press.

Rodgers, Christopher
2005 A Case Study of Ecotourism in the Kelabit Highlands: Is It Sustainable? Master's Thesis, Lund University, Centre for East and South-East Asian Studies.

Ross, Sheryl and Geoffrey Wall
1999 Evaluating Ecotourism: The Case of North Sulawesi, Indonesia. Tourism Management 20(6):673-682.

Russell, Dianne and J. Stabile
2003 Ecotourism in Practice: Trekking the Highlands of Makira Island, Solomon Islands. *In* Pacific Island Tourism. D. Harrison, ed. Pp. 38-57. New York: Cognizant Communication Corporation.

Scheyvens, Regina
1999 Ecotourism and the Empowerment of Local Communities. Tourism Management 20(2):245-249.

Schilcher, Daniela
2007 Growth versus Equity: The Continuum of Pro-Poor Tourism and Neoliberal Governance. Current Issues in Tourism 10(2/3):166-193.

Sreedharan, Satish (Slim)
2006 An Ornithological Report of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Stronza, Amanda
2005 Hosts and Hosts: The Anthropology of Community-Based Ecotourism in the Peruvian Amazon. NAPA Bulletin 23:170-190.

Stronza, Amanda
2001 Anthropology of Tourism: Forging New Ground for Ecotourism and Other Alternatives. Annual Review of Anthropology 30:261-283.

Suich, Helen
2008 Tourism in Transfrontier Conservation Areas: The Kavango-Zambezi TFCA. *In* Responsible Tourism: Critical Issues for Conservation and Development. Anna Spenceley, ed. Pp.187-203. London: Earthscan.

Tsai, L. M.
2006 Ecological Survey of Forests in the Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Tucker, Hazel
1997 The Ideal Village: Interactions through Tourism in Central Anatolia. *In* Tourists and Tourism: Identifying with People and Places. Simone Abram, Jackie Waldren and Don V.L. Macleod, eds. Pp. 107-128. Oxford: Berg Publications.

Twining-Ward, Louise and T. Twining-Ward
1998 Tourism Development in Samoa: Context and Constraints. Pacific Tourism Review 2:261-271.

van den Berghe, Pierre L.
1980 Tourism as Ethnic Relations: A Case Study of Cuzco, Peru. Ethnic and Racial Studies 3(4):375-392.

Wahab, T. B.
2007 Amphibians of Pulong Tau National Park. Project Report for "Transboundary Biodiversity and Conservation Area: The Pulong Tau National Park, Sarawak State, Malaysia, Serial number PD 224/03 Rev. 1 (F)." Yokahama and Kuching: International Tropical Timber Organization, Sarawak Forest Department and Sarawak Forestry Corporation.

Wearing, Stephen and M. Wearing
1999 Decommodifying Ecotourism: Rethinking Global-Local Interactions with Host Communities. Loisir and Societe-Society and Leisure 22(1):39-70.

Weaver, David Bruce
1998 Peripheries of the Periphery: Tourism in Tobago and Barbuda. Annals of Tourism Research 25(2):292-313.

West, Paige and James Carrier
2004 Ecotourism and Authenticity: Getting Away from it All? Current Anthropology 45:483-498.

Wood, Robert Everett
1997 Tourism and the State: Ethnic Options and Constructions of Otherness. *In* Tourism, Ethnicity and the State in Asian and Pacific Societies. Michel Picard and Robert Everett Woods, eds. Pp. 1-34. Honolulu: University of Hawaii Press.

Wood, Robert Everett
1993 Tourism, Culture and the Sociology of Development. *In* Tourism in Southeast Asia. M. Hitchcock, Victor T. King and Michael J.G. Parnwell, eds. Pp. 48-70. London: Routledge.

World Wide Fund for Nature (WWF) Denmark, in collaboration with WWF Indonesia
2006 Kayan Mentarang National Park: In the Heart of Borneo. Lena Topp and Cristina Eghenter, eds. Copenhagen and Jakarta: World Wide Fund for Nature.

Yacob, Mohamed Rusli, Ahmad Shuib, Mohamed Farid Mamat, and Alias Radam
2007 Local Economic Benefits of Ecotourism Development in Malaysia: The Case of Redang Island Marine Park. International Journal of Economics and Management 1(3):365-386.

Yoko, Hayami
2006 Negotiating Ethnic Representation Between Self and Other: The Case of Karen and Eco-Tourism in Thailand. Southeast Asian Studies 44(3):385-409.

Young, Emily H.
1999 Balancing Conservation with Development in Small-Scale Fisheries: Is Ecotourism an Empty Promise? Human Ecology 27(4):581-620.

Zeppel, Heather
1997 Meeting "Wild People": Iban Cultured Longhouse Tourism in Sarawak. *In* Tourism and Cultural Development in Asia and Oceania. Shinji Yamashita, Kadir H. Din, and J. S. Eades, eds. Pp. 119-140. Bangi, Selangor, Malaysia: Penerbit Universiti Kebangsaan Malaysia.

# CHAPTER 6

# AMBIGUITY ACROSS SCALES:

# EXPLORING THE INSTITUTIONAL LANDSCAPE OF THE HEART OF BORNEO[1]

[1] Hitchner, S. L. Submitted to *Conservation and Society* 06/04/2009.

Abstract

The Heart of Borneo (HoB), a tri-national conservation network initiative led by the World Wide Fund for Nature (WWF), embodies several key struggles in conservation today, as articulated in the literature relating to the political ecology of conservation. First, HoB has been criticized for being very ambiguous, and I argue that this ambiguity is both a strength and weakness for conservation. Second, HoB raises the perennial issue in conservation of how to simultaneously operate on multiple scales (geographical, political, institutional, economic), and I show how different decisions regarding trade-offs are made about HoB at each of these scales. Third, there are often tensions regarding who benefits the most from large conservation projects, and I indicate how different actors perceive the distribution of benefits from HoB.

This paper collates perspectives on HoB gathered from multiple sources: the author's three years of ethnographic fieldwork in Sarawak, interviews with diverse actors in Borneo and with attendees of the World Conservation Congress in Barcelona, Spain in October 2008, and consultation of published interviews with other conservationists knowledgeable about HoB. Further inquiry will help to untangle the institutional networks involved in HoB, analyze how decisions about HoB are made and by whom, and more fully describe the linkages (or lack thereof) between what happens at an institutional level versus what happens on the ground.

Introduction

Led by WWF, the Heart of Borneo (HoB) is a large-scale, tri-national transboundary initiative that aims to tie ecological conservation with sustainable development in the geographical middle (or 'heart') of the island of Borneo. It covers a very large area that includes parts of three countries (Indonesia, Malaysia, and Brunei Darussalam) with three very different political contexts, and aims to create a mosaic of land uses that encourage sustainable

development around core protected areas (PAs) , as well as corridors between extant PAs and the creation of new (or expansion of old) PAs.

The HoB initiative embodies several key struggles in conservation today, as articulated in the literature relating to the political ecology of conservation. First, HoB has been criticized by detractors for being very ambiguous, and I argue that this ambiguity is both a strength and weakness for conservation. Second, HoB raises the perennial issue in conservation of how conservation projects must often simultaneously operate on multiple scales (geographical, political, institutional, economic), and I indicate how different decisions regarding trade-offs are made about HoB at each of these scales. Third, there are often tensions regarding who benefits the most from large conservation projects, and I discuss how different actors perceive the distribution of benefits from HoB.

This paper collates perspectives on HoB gathered from multiple sources: the author's three years of ethnographic fieldwork in Sarawak; interviews with diverse actors in Borneo and with Indonesian and Malaysian attendees of the World Conservation Congress (WCC) in Barcelona, Spain in October 2008; and printed and online interviews with other conservationists knowledgeable about HoB. Further inquiry will help to untangle the institutional networks involved in HoB, analyze how decisions about HoB are made and by whom, and more fully describe the linkages (or lack thereof) between what happens at an institutional level versus what happens on the ground. In analyzing these linkages and decision-making processes among the many actors in HoB, questions regarding the flows of information between actors rise to the surface, and they could be investigated more fully and compared with information networks within other large-scale conservation initiatives.

Political Ecology of Conservation

Political ecology stresses the dialectical relationship between human social and political systems and the ways that resources are defined and used by different groups of people (Blaikie and Brookfield 1987; Greenberg and Park 1994; Zimmerer and Bassett 2003). It seeks to unravel the complex political forces that determine access to land and natural resources, processes of resource management, and the transformations of resource management systems in response to changing political and economic circumstances (Pelling 2003; Robbins 2004). A central tenet of political ecology is careful attention to issues of scale and scalar politics (Brown and Purcell 2005; Swyngedouw and Heynen 2003; Adger et al. 2001; Brown and Purcell 2005). Using a political ecology framework, scholars and conservation and development practitioners can critique the dominant models and discourses of modernization and development (Shiva 1991; Bryant 1991; Gupta 1995; Scott 1998) and also propose more ecologically sustainable and socially just alternatives (Colchester 1992; Bebbington et al. 1993; Escobar 1999; Gibson et al. 2000; Robbins 2004). Recognizing that there are many forms of knowledge leads to the conclusion that there are in fact "plural political ecologies" (Escobar 1996) that can lead to many different strategies for examining political, economic, and social underlying changes in resource management systems.

In the context of conservation, political ecology examines the roles of various cultural institutions in determining environmental policies (Neumann 1992; Sheridan 1988). Many different governmental and nongovernmental organizations are dedicated to preserving biodiversity and ecological functions, and these organizations have different, and sometimes conflicting, conservation goals (Igoe 2002; Jepson and Whittaker 2002; Redford et al. 2003). A political ecology framework can add valuable insights into how non-governmental

environmental groups interact with one another, with local communities, and with regional and national governments. Ethnographic inquiries can add insights into these local and translocal networks, technologies of control over natural resources, and the definitions of "conservation" and "community" (Western and Wright 1994; Dwivedi 1997; Fischer 1997; Horta 2000). There is great need for various conservation actors to accept and respect their differences and to create specific conservation goals for particular areas, especially when addressing the big questions about how conservation should be done and how much area needs to be protected to reach these goals (Redford and Richter 1999; Redford et al. 2003).

The scale at which conservation is practiced is an important political, as well as ecological, question. Large-scale conservation, which can include bioregional/ecoregional conservation and transboundary protected areas, presents a more holistic vision of functional landscapes that must be protected at greater spatial and temporal scales if conservation plans are to be effective at all (Soulé and Terborgh 1999; Noss 2002; Younge 2002). Small protected areas are necessary, but are not always sufficient for broader conservation goals. Aside from the fact that some species need a lot of space to survive, sometimes plans to enhance local biodiversity can have the opposite effect on a regional or global scale (Noss 2002). Ecoregional conservation requires cooperation across many political scales and academic disciplines; it combines methods from many fields, including landscape ecology, ecosystem management, sociology and anthropology, and policy development (Brunkhorst 2000). However, ecoregional conservation plans are often criticized for being top-down and superimposed on existing land management systems (Brosius and Russell 2003; Wolmer 2004), thus negating the roles that local peoples play in maintaining or enhancing biodiversity and ecological function.

The politicized framing of the loss of biodiversity as a global environmental crisis (Soulé and Terborgh 1999) has led to numerous policies that restrict the livelihoods of people in areas with high levels of biodiversity (Colchester 1992; Peluso 1994; Brown 1998; Escobar 1998; Chapin 2004). Local communities have developed local land use and resource management systems that have worked for many generations (Berkes 1985; Appell 1986; McKay and Jentoft 1987; Cramb and Wills 1990; Schlager and Ostrom 1992; Folke and Berkes 1995; Rudel 1995), and these systems are often either ignored or banned in areas deemed to be of conservation importance (Redford and Stearman 1993; Colchester 2000; Schwartzman et al. 2000). When parks and protected areas are created on lands inhabited by indigenous peoples, those peoples often lose their rights to the land and essentially become "squatters" on state land; their traditional subsistence or income activities also often become considered criminal activities (Horowitz 1998; Colchester 2000). Rural peoples are often displaced or further marginalized by such types of "coercive conservation" (Lynch and Alcorn 1994; Pimbert and Pretty 1997).

However, community-based conservation (CBC) projects have attempted to both counterbalance the inequities that marginalized peoples have faced in biologically diverse regions and to improve conservation practices by incorporating local knowledge and land use systems into science-based conservation plans (Colchester 1994; Fairhead and Leach 1994; Western and Wright 1994; Colfer and Soedjito 1996; Colfer et al. 1997; Horowitz 1998; Russell and Harshbarger 2003). A problem with many "participatory" conservation plans is that they are not truly participatory; the rhetoric appears on paper but is not practiced on the ground (Murphree 1994; Goodwin 1998; Pimbert and Pretty 1997; Brosius and Russell 2003; Sheil and Lawrence 2004; Wolmer 2004). For CBC to be successful, communities need to have the capacity to act as equal partners, which includes self-representation, self-determination, and

secure tenurial rights (Lynch and Alcorn 1994; Goodwin 1998; Brosius and Russell 2003; Wolmer 2004). Further, CBC plans should be site-specific and tailored to the current economic, political, social, and cultural realities of the communities involved (Sheil and Lawrence 2004; Coward 2005), as well as flexible and self-adaptive (Murphree 1994).

The Heart of Borneo (HoB) conservation initiative exemplifies complexities on the ground regarding: (1) who is making decisions about conservation in this tri-national interior area; (2) which individuals, organizations, or agencies control land management and conservation practices on the ground; and (3) at which scale conservation plans in this area should be implemented. Drawing upon a political ecology framework, this article provides a multiplicity of perspectives on these issues. It shows how different actors have critiqued the dominant models of conservation and this project specifically, and how these actors have tried (or not) to address these critiques. It also illuminates various tensions between various groups: national and state governments and governmental agencies, non-governmental organizations, and local communities, and emphasizes the tensions inherent within these groups as well (with a focus on non-governmental conservation organizations). Because HoB covers such a large area, issues regarding scale must be in the forefront of any critical analysis of the project; HoB aims to operate on multiple scales simultaneously, from the ecoregional down to the community level. This article shows that this is problematic for several reasons particularly the vast differences in political and natural resource management structures of the three countries involved and the specific challenges of implementing a community-centered approach to conservation and sustainable development in Sarawak. Finally, this article discusses how the HoB initiative embraces (or not) the political, social, cultural, and economic complexities of the interior of Borneo.

Context: Borneo

That Borneo is an island of global ecological importance, and that its numerous species[2], watersheds, and ecosystems are acutely threatened, are points that hardly need elaboration or justification. All major international conservation organizations cite Borneo as an area of high priority, as do a plethora of national and local conservation groups. The transboundary HoB area is approximately 200,000 km² and is home to at least 200 bird species, 150 reptile and amphibian species, and around 100 mammal species (Wakker 2006:19); and many of these are endemic, as well as endangered or threatened, including 'charismatic megafauna' such as the orangutan, clouded leopard, Sumatran rhino, Bornean gibbon, and pygmy elephant. The sources of 14 of the 20 major rivers in Borneo are in the HoB area; the health of these rivers is vital to not only villages in the HoB area, but also to the coastal cities whose waters they supply. Destruction or siltation of these watersheds would adversely affect the island's hydrological cycles, and would likely increase the frequency and severity of floods, droughts, and fires. The HoB area is also home to around half a million people, many of them indigenous, from at least 50 culturally and linguistically distinct ethnic groups[3] (WWF-Malaysia and WWF-Indonesia 2007). Local livelihoods, centered on rice production and ecotourism, are dependent on intact forests and watersheds.

There are already at least sixteen national parks and other protected areas (PAs) in the HoB area (and at least another seven proposed). However, 'any forest protection initiative in Borneo is also overshadowed by the caveat that protected areas have not fared well on the island – especially in the Indonesian territory of Kalimantan – over the past decade' (Butler 2007). A

[2] Borneo is a repository of incredible biodiversity, much of it endemic, and between 1994 and 2004, at least 361 new species were described (WWF-Germany 2005).
[3] There are at least 220 different languages and dialects spoken on Borneo as a whole (WWF-Indonesia and WWF-Malaysia 2007).

2004 study 'showed that between 1997 and 2002 nearly 79 percent of forest loss took place within the boundaries of designated or proposed protected areas' (Fuller et al. 2004)[4]. Alternative conservation strategies, which include timber[5] and oil palm certification[6] programs that adhere to international standards, may be more effective than declaring new PAs.

Many natural forests in Borneo, including those within the HoB region, have been clearcut to make way for oil palm plantations. Butler (2008b) writes that while the Malaysian Palm Oil Council (MPOC) has, 'flatly denied that natural forest has been cleared for the establishment of oil palm plantations, ground and satellite evidence proves the claims quite false.' Also, analysis of UNFAO land-cover data reveals that 'during the period 1995-2005, 55-59 percent of oil palm expansion in Malaysia, and at least 56 percent of that in Indonesia, occurred at the expense of forests' (Koh and Wilcove 2008). Much encroachment into forests has occurred in Sabah, the country's leading palm oil-producing area (Koswanage and Bhui 2009).

Although the federal government of Malaysia has prohibited the clearing of forests for the establishment of oil palm plantations, as announced in late June 2008 by former Prime Minister of Malaysia, Datuk Seri Abdullah Ahmad Badawi (*New Straits Times Online* 2008), in Sarawak, the Chief Minister, Tan Sri Abdul Taib Mahmud, said that the federal ban on logging for oil palm 'does not apply to the state' since these forests have been slated for agriculture since the 1950s (quoted by Butler 2008a). Despite numerous research studies proving the devastating ecological effects of conversion of forest to plantation and despite a series of protests and land

[4] Another study using satellite images and GIS and field-based analyses showed that between 1985 and 2001, protected lowland forests in Kalimantan declined 56 percent (Curran et al. 2004).
[5] The Malaysian Timber Certification Council (MTCC) scheme started in October 2001 and uses standards for forest management based on criteria and indicators of the ITTO. Currently MTCC certification is not recognized by the Forest Stewardship Council (FSC), because of fundamental differences in opinion about the issue of indigenous rights.
[6] The Malaysian Palm Oil Council (MPOC), in its efforts to market palm oil produced in Malaysia as sustainable, has joined the Roundtable on Sustainable Palm Oil (RSPO), an international non-profit which was officially launched in 2004 which has developed guidelines for its own certification system.

claims cases by indigenous communities whose communal lands have been destroyed by plantations, the Chief Minister maintains that 'there are no reasons not to continue opening up more land' (Butler 2008a).

Meanwhile, in February 2008, Indonesia lifted a year-long ban on establishing new oil palm plantations on peat land, claiming that new regulations would ensure that oil palm is produced sustainably (Murray 2009). The lifting of this ban is good news for Malaysian oil palm companies who are expanding into Kalimantan now that most land in Sarawak is already cultivated, unsuitable for oil palm, or within PAs[7]. China is also now investing heavily in oil palm schemes in Kalimantan for the production of biofuels.

However, at the WCC in October 2008, during a special event held by WWF, Mrs. Herman Roosita, Indonesia's Deputy Minister of Environment, announced that Indonesia will ban the conversion of forests to monocrop plantations. She emphasized her country's dedication to its forest-carbon initiative, and said Indonesia would 'adopt a sustainable development model that uses ecosystem-based spatial planning' (quoted by WWF 2008). She also reiterated the country's commitment to achieving zero net deforestation by 2020, first announced at the CBD COP9 in Bonn, Germany in May 2008.

But despite Indonesia's very public commitments to stricter environmental regulations, the country is also making plans to establish the world's largest oil palm plantation, the Kalimantan Border Oil Palm Mega-project (KBOPM), which would blast a huge hole right through the centre of Borneo. First announced in April 2004 and made public in March 2005, this mega-project, funded mostly by Chinese, Indian, and Malaysian investors in addition to the Indonesian government, covers 1.8-2 million hectares in the HoB area and threatens to destroy

[7] There are great fears among conservation organizations that 'as Malaysia improves the environmental performance of oil palm within its borders, Malaysian firms have lower standards when operating in neighboring Indonesia where much expansion is taking place' (Butler 2008c).

large parts of Borneo's largest national park, Kayan Mentarang (1.4 million hectares), as well as cut through protection forests and production forests. Wakker (2006:19) states that 'the deforestation and species loss resulting from the mega-project would be colossal and unprecedented.'

It seemed that the KBOPM was cancelled after Indonesia's public commitment to HoB at the CBD COP8 in Brazil in 2006, which seemed a victory for WWF and many other NGOs, scientists, and local communities that had protested it. But now it appears the mega-project has been revised (the 'border' now extends 100 km from the boundary with Malaysia, instead of the 5-10 km in the previous plan), revamped (with conservation and human rights-related rhetoric duly added), and repackaged (as being necessary for 'national security').[8] However, the KBOPM could force the removal of many indigenous communities and/or force the destruction of their ancestral lands to make way for oil palm plantations by means of a new Presidential Regulation (Pepres Nr. 36/2005), which allows the government to take community land for reasons of 'public interest' (Wakker 2006). The Indonesian government received a stern warning from the United Nations Committee for the Elimination of Racial Discrimination to immediately address the human rights issues involved in this mega-project,[9] but they have missed several deadlines to respond already. If the KBOPM moves forward, there will likely be little natural forest left to save along the Indonesian side of the border in the HoB. The agreement of the three nations to

[8] According to *The Jakarta Post*, Indonesian Defense Minister Juwono Sudarsono claims that it is imperative that other governmental departments support this plan to protect Indonesia from 'sovereignty threats form neighbouring countries' and for the plantations to act as 'a non-military deterrent to any encroachment on Indonesian territory' (quoted by Sihaloho 2009).

[9] A letter dated 13 March 2009 from UNCERD Chairperson Fatimata-Binta Victoire Dah to the Indonesian Deputy Permanent Resident to the U.N., Mr. Gusti Agung Wesaka Puja, states very clearly that UNCERD is concerned that the Indonesian government has not shown how it will 'safeguard the rights of indigenous communities whose territories are threatened by projects such as the Kalimantan Border Oil Palm Megaproject.'

cooperate in transboundary conservation issues is encouraging, but clearly lip service from the governments is not enough to ensure that the area is actually protected.[10]

Heart of Borneo Conservation Initiative

The World Wide Fund for Nature (WWF), the world's largest international conservation organization, is based in Gland, Switzerland and coordinates offices in over 100 countries. WWF helps to develop global conservation priorities and policies, initiates and strengthen global partnerships, and coordinates international campaigns. HoB is one of WWF's high-profile Network Initiatives, which refers to 'particular programs that focus on a set issue, place or species, that critically (and hence the name) have the backing of the entire WWF Network of offices around the world' (personal communication). Network Initiatives also call on WWF's partners: local communities, other NGOs, governmental agencies, corporations and key businesses. WWF uses the full force of its global networks and partnerships to influence national conservation policies and intergovernmental agreements.

The idea of a transboundary conservation project in central Borneo was first discussed by several large international NGOs in 2000. In November 2003, there was a meeting in Singapore with WWF, CI, TNC, and WCS. At this meeting, all the NGOs present supported the effort and agreed to let WWF lead the project, which later became known as the Heart of Borneo. In April 2005 a workshop was held in Brunei, attended by UNESCO, ASEAN, IUCN, ITTO, WCS, TNC, CI, WWF, WCS, CIFOR, GTZ, RAMSAR, TRAFFIC, as well as members of other NGOs, research institutes, and governmental ministries (WWF 2005). Following the meeting in Brunei, later the same month there was an international conference in Leiden from 25-28 April at which many academics presented papers on research conducted in the HoB area. In December

[10] The ATBC, in its 'Resolution concerning the Heart of Borneo transboundary conservation initiative,' 'urges the transboundary nations to recognize that the Heart of Borneo initiative, while of enormous importance, will not be sufficient in and of itself to protect Bornean biodiversity' (www.atbc2008.org).

2005, the HoB initiative was given wide support at the ASEAN Leaders Summit, encouraged by supportive statements from then-Prime Minister of Malaysia (and Chairman of ASEAN), Datuk Seri Abdullah Ahmad Badawi. At this meeting, the HoB was selected as a 'Flagship Programme' in the 5-year development plan for BIMP-EAGA (Brunei Darussalam, Indonesia, Malaysia, Philippines East Asian Growth Area), a decision endorsed by all four nations. Following this meeting, the governments of Indonesia, Malaysia, and Brunei publicly committed to a cooperative conservation initiative at the CBD COP8 meeting in Curitiba, Brazil in March 2006. The official HoB Declaration was signed in Bali by representatives of these countries on 7 February 2007.

At the first trilateral meeting in Brunei in July 2007, the three governments reached consensus on many issues including the HoB Project Documents for each country. In April 2008, at the second trilateral meeting in Indonesia, the three governments adopted a tri-national Heart of Borneo Strategic Plan of Action (SPA), which focuses on the following five categories of activities to be undertaken jointly: transboundary management, protected areas management, sustainable natural resource development, ecotourism development, and capacity building. Some of the specific proposed actions for transboundary collaboration include 'establish a mechanism or coherent and effective information-sharing; undertake collective and/or joint research and studies, especially on the areas of biodiversity and socio-economic including social and demographic assessment; and undertake joint spatial planning of the HoB area' (Governments of Brunei, Indonesia, and Malaysia 2008:7). Each country must find its own funding for conservation projects within its borders; the SPA suggests finance mechanisms such as government funding, individual or corporate donors, payment for environmental services (PES), and carbon trade. WWF plans to have a stronger presence on the ground in the near future, to

implement specific measures agreed upon in these various tri-national meetings. There has also been much support for HoB from foreign governments[11].

Methodology

I have been conducting ethnographic fieldwork in the Kelabit Highlands of Sarawak, Malaysia, which borders Kalimantan within the HoB area, since September 2006 (with preliminary fieldwork in May-July 2005), and have participated in several inter-community workshops and dialogues funded by WWF as part of the HoB initiative. I have discussed with at least fifteen local community members on both sides of the border their conceptions of what HoB is and its importance. I have also observed WWF's efforts on the ground with local communities in the HoB area and interviewed WWF staff members directly involved in the HoB initiative in Sarawak, Sabah, and Kalimantan, as well as senior staff of WWF in Kuala Lumpur and Jakarta. I have also interviewed fourteen members of other NGOs in Sarawak, Sabah, and Kalimantan to learn of their perception of and degree of involvement in the HoB project; seven of these interviews took place at the WCC in October 2008, and the other seven took place elsewhere. Finally, I have had discussions with three local government officials regarding the state's role in the HoB. These conversations are all ongoing, and so far have been focused mainly on Sarawak and Kalimantan, so conclusions drawn for this article are preliminary; but they can provide a platform from which to examine some of the key struggles facing conservation today.

In compliance with IRB confidentiality requirements to protect the identity of my informants, I have not identified any of the people with whom I have spoken by name or organization; names are only given here when I am quoting a published source. It is important to

[11] In 2006, then-U.S. Secretary of State Condoleeza Rice officially backed HoB and pledged USD100,000 donation for its implementation. Later, in 2007, the U.K. Government followed suit and donated £25,000 to WWF for HoB. In late October 2008, Prince Charles of Wales visited the Heart of Borneo, and in a written statement about HoB, Prince Philip, now President Emeritus of WWF-International, said: 'This is a last chance initiative, and it simply has to succeed.'

note here that in Malaysia, and especially in Sarawak, criticism of any policy or practice of the ruling government is seen as oppositional, and conservation is a particularly sensitive topic. Since many of my informants have directly criticized the Malaysian federal government and/or the Sarawak state government, it is imperative their identities remain private. In most cases it is too revealing to even mention their affiliation, especially in Sarawak where so few conservation NGOs currently operate.

## Results

### Ambiguity in Conservation: Strength or Weakness?

HoB is not a conventional conservation project, with a predetermined budget, measurable goals, and deliverable outputs, that occurs within set boundaries. As a WWF Network Initiative, it is much more ambiguous, and while the general goals stay the same, the methods to achieve them are multiple, shifting, and opportunistic. New projects embedded within the initiative are implemented in different places at different times, and these projects often occur simultaneously. Someone closely involved with WWF-Indonesia told me that HoB 'is a very loose network, and any organization that wants to do conservation in the area and call it cooperation with the HoB can.' However, someone from WWF-Malaysia said that 'it's not good if just anyone can say they are working with HoB.' He expressed the opinion that now that HoB is 'gaining successes,' other NGOs and corporations may want to claim to be part of it, even if officially they are not.

There is ambiguity about the level of involvement of conservation NGOs other than WWF in HoB, which can lead to confusion among actors (and potential actors). WWF's HoB website lists TNC, WCS, CI, Tropenbos, and the Indonesian Institute of Sciences (LIPI) as its partners. Many of the members of other NGOs in Malaysia and Indonesia with whom I have spoken expressed that they have felt excluded from the HoB project, although at first the project

was proposed as a coalition merely led by WWF. The director of one conservation organization based in Malaysia said that his NGO is not directly involved in HoB, but that he is 'cheering on WWF' with the project (interview at WCC 2008). An Indonesian scientist working in Kalimantan told me that 'some individuals and organizations have the perception that HoB is a WWF project, and that WWF does not want others involved.' When I asked the leader of an indigenous rights NGO in Malaysian Borneo about HoB, he told me that:

> Apart from WWF, I don't really know about people who are doing the heart of Borneo conservation project. So far there is no participation of Indigenous Peoples (IPs) in the initiative or even initiative to involve the IPs to that particular conservation project. Looks like just another WWF conservation gimmick….. Well, even you ask me about heart of Borneo – I would not know much actually because we never participated or were invited to any of the meetings. (personal email communication, April 2009)

A Malaysian ecologist working with another conservation NGO said that his organization was also not invited to meetings. But, he said bluntly, 'we don't want to be associated with HoB anyway. It's going to fail, it's not doing anything, it's self-destructing, so we don't want anything to do with it.' However, members of some of these organizations have attended HoB planning meetings in the past. Several people that work with WWF in Malaysia and Indonesia have told me that at first, all the NGOs wanted to be part of HoB, but then they stopped attending meetings. One person working with HoB in Malaysia said that: 'we invite them, but they don't come.' Another person working with WWF told me that: 'other NGOs are just jealous.' It is not clear at this point how the ambiguity surrounding who is and who is not involved in HoB affects conservation work on the ground, but recognizing the nature of the critiques of HoB (and WWF) is useful in understanding the relationships between actors and possibly ways to improve them.

Another major source of ambiguity regarding HoB is its actual size and the location of its boundaries. The dimensions keep changing, mostly as a result of Sarawak continually removing chunks. Initially, Sarawak pledged 6.1 million hectares, then around 4 million hectares, and now about 2.2 (as of May 2009). HoB currently covers 200,000 km² (down from 240,000 and then 220,000). The boundaries will never be marked on the ground, so its size and shape are determined roughly by watersheds.

A third source of ambiguity surrounding the HoB project is that it does not just include protected areas, although the three nations have agreed to use 'best management practices' in their timber extraction, large-scale agriculture, and other extractive or exploitative industries. But as stated clearly by WWF-Indonesia (2005): 'This ecologically inter-connected area will neither change the current legal status nor reduce the locals' rights.' The HoB pushes the metaphorical boundaries of what a conservation project entails, and leaves it open to interpretation by different actors, which can be either good or bad (or both).

One advantage of ambiguity in a large-scale conservation initiative such as this is that the official governmental embrace of HoB opens the door to more conservation work. The HoB Declaration, which is extraordinarily vague, can be used as leverage to pressure the government to allow more conservation projects or to follow through on their environmental promises. The director of one Malaysian conservation NGO said that although his organization has to be sure never to criticize the government, they are careful to highlight the government's commitment to conservation in order to 'embarrass them into doing the right thing' (interview at WCC 2008). Following the guidelines of the governmentally-backed HoB Declaration can be a 'jalan tikus' (literally 'mouse trail' in Bahasa Indonesia) or an unobtrusive, non-confrontational way to

quietly skirt some of the more oppressive restrictions against conservation (especially in Sarawak) and possibly open the field for more actors to contribute to conservation planning.

However, the ambiguity of the HoB initiative saddles it with inherent weaknesses. Many people I interviewed expressed the opinion that HoB does not 'do' anything; it is not a PA, and there is no monitoring of activities within its boundaries. There are no penalties for governments that give out concessions to clearcut large areas of land within the HoB or convert natural forests to oil palm plantations. Critics compare HoB to 'paper parks' all over the world that look great on a map but don't conserve anything on the ground. With even less legal status than a national park or nature reserve, they say that HoB is just 'clever branding' by WWF with nothing more substantial than some 'nice ideas about conservation' behind it. In a published online interview, tropical ecologist Rhett Harrison says that: 'My personal opinion is that the Heart of Borneo project is mostly a publicity stunt by WWF. As a strategy to protect Borneo's biodiversity it falls way short of what's needed and is in fact diverting attention away from where it should be focused' (quoted by Butler 2007). But several respondents expressed the opinion that because HoB doesn't 'do' anything is precisely the reason that the three governments are so willing to agree to it. The publicity surrounding their signing of the declaration enhances their environmental images, which two of the three (Malaysia and Indonesia) are especially keen to do, so long as it doesn't involve actually 'doing conservation.'

The fact that HoB is so ambiguous can be both a blessing and a curse. It can serve as an umbrella under which multiple conservation projects can occur simultaneously and open the door for more collaboration. But it can be difficult to measure success when there are no clear definable goals and no consequences for the countries if they break their promises.

The Perennial Problem of Conservation: Navigating Multiple Scales

Actors in most conservation projects must simultaneously navigate multiple scales: geographical, political, and institutional. The HoB initiative, with its multitude of actors operating on different levels of each of these scales, illuminates how decisions regarding trade-offs must be made at different scales.

The first and most obvious scale for HoB is that of geographical scale; HoB covers a huge area. The HoB is very ambitious but has to be, because a smaller scale approach would be insufficient. In a published interview, Rahimatshah Amat, the Chief Technical Officer for the HoB project with WWF-Malaysia, says that: 'This is the only place [in Southeast Asia] where tropical rainforest can still be conserved on a large-enough scale to remain permanently viable' (quoted by Stone 1997: 192). And entomologist Carsten Brühl says that the large scale of the HoB project 'is very promising, since size does matter for biodiversity conservation in tropical forest habitats.' (quoted by Stone 1997: 192). However, many interviewees with whom I spoke noted that there are always trade-offs between the size of a conservation area and its capacity to be managed and expressed concern over HoB's size. One person said that:

> Even if there were some authority to enforce the tri-lateral agreements regarding conservation and sustainable development, and even supposing for a minute that all three nations were sincere in their desires to pursue this initiative, the area covered is just too large to be properly managed. It is unrealistic to expect WWF to oversee all of this and make sure that it happens on the ground. The area is just too big. (interview at WCC 2008)

Many people have suggested that perhaps what is needed is commitment from the governments to protect extant protected areas and to practice sustainable resource extraction methods.

HoB operates on the entire spectrum of political levels, from a global and transnational level down to the level of individual communities. HoB is part of a global network, and it also requires tri-national cooperation from three countries that have vast differences in their socio-economic statuses, political structures, and natural resource management structures. Forest management is authoritarian and strictly top-down in Sarawak, while decentralization policies have led to more regional autonomy in Kalimantan. The sultanate of Brunei, rich from oil and natural gas revenues, can easily afford to conserve large areas of forest. Agreement on transboundary cooperative measures of any kind from these three governments is a challenge. Many of the people I interviewed, even those with the harshest criticism for both HoB and WWF, praised WWF for its ability to facilitate cooperation at an international level.

Many people express doubts about the sincerity of the three national governments, and especially about the state government of Sarawak, and thus about the likelihood of the success of HoB. One person said that there is 'not much hope for HoB, especially in Sarawak, at least until the government changes hands' (interview at WCC 2008). A member of another Malaysian NGO said that the main reason that the state governments of Sabah and Sarawak were keen to sign on to the HoB and to declare the HoB boundaries was not necessarily to demarcate the areas for conservation, but rather to demarcate the areas for logging and land conversion. He said, speaking specifically of Sarawak, 'right now the lines are fuzzy about where they [the government] can put in new oil palm plantations, due to some confusion over Native Customary Land and ongoing land claims cases against the government. But once these boundaries are drawn, they'll know exactly where they can *not* practice sustainable development' (interview at WCC 2008).

A WWF member involved with HoB conceded that: 'Sarawak is not working the way we want. But we've only been there for two years, so we won't give up yet… we are already engaging in some areas' (interview in Malaysia 2009). He said that HoB has been more successful in Sabah where there is no more conversion of undamaged forest to plantations, no more state land given to oil palm, more intensive methods of farming, and no more coal plants. Indonesia, as mentioned, still seems to be moving forward with its Kalimantan Border Oil Palm Mega-project, which prompted the director of one NGO in Borneo to say: 'I have been hearing about this very hilarious proposal by the Malaysian and Indonesian governments with regards to the border development involving oil palm plantations, and I could not see how this thing fits into the heart of Borneo. Maybe they should call it the "Oil Palm Heart of Borneo" (personal communication 2009). Each of the three national governments will ultimately be responsible for the success (or the failure) to live up to their promises regarding HoB, and this complex political landscape presents many challenges, as well as opportunities, for HoB.

HoB also operates on multiple institutional scales, including: the tri-national political relationships; in-country political networks and hierarchies of ministries, governmental departments, and individual politicians; complex connections between various international, national, and local NGOs operating in each place; and the heterogeneous mosaic of local communities that live in the HoB area. Some people have pointed to a disconnect between what happens on the ground in the HoB area versus what decisions are being made about the area by people who neither live there nor have even necessarily been there. In this section I will briefly describe what has happened with conservation and the HoB initiative in the Kelabit Highlands (KHs) of Sarawak since I began my initial fieldwork there in May 2005. Pulong Tau National Park (PTNP), which borders the KHs and is within the HoB area, was officially gazetted on 24

March 2005 (at 59,817 hectares, down from the original 164,500 hectares proposed in the early 1980s). In the KHs there is an ongoing project, proposed by the International Tropical Timber Organization (ITTO)[12] and implemented by the Sarawak Forest Department (SFD) and the Sarawak Forestry Corporation (SFC), to extend the borders of PTNP and link it to KMNP, thus creating a large transboundary conservation area. The state government approved this project, even though it had already given out most of the area as a logging concession. Recently (in 2009) the SFD has been able to secure one of the proposed extension areas in the northern KHs for PTNP, so the park is now transboundary, which fits the goals of HoB. However, the SFD claims that the Sarawak state government has developed its own Strategic Plan for Heart of Borneo which does not include WWF (interview 2009).

Meanwhile, WWF just opened its Sarawak office in May 2007,[13] and representatives from WWF-Malaysia visited Bario, the administrative centre of the KHs, on 1-4 December 2007 to explore opportunities for WWF to support conservation here, specifically the establishment of a transboundary wildlife corridor between PTNP and KMNP (Alfred and Bili 2008). Several members of WWF-Malaysia have visited the KHs since then, most recently in April 2009. WWF is now assisting the Kelabit community in a reforestation project in a communal forest reserve area that was logged and then given to the community. Some community members in the KHs would like to promote the main Kelabit village of Bario as the 'Gateway to the Heart of Borneo,' as a means of promoting tourism and attracting international attention to the KHs.

[12]Transboundary biodiversity and conservation area: The Pulong Tau National Park, Sarawak State, Malaysia. 2003. (ITTO Project Document, Serial number PD 224/03 Rev.1[F]), International Tropical Timber Organization (ITTO) and Government of Malaysia, unpublished.

[13] Following worldwide criticism of Sarawak's policies on logging and indigenous rights in the 1980s (the height of the publicity of Penan blockades and the era of Bruno Manser), many NGOs were either 'kicked out' or 'starved out' of Sarawak, including WWF. WWF was not forcefully evicted, but they lost the support of the government and could not engage in meaningful projects on the ground, so they decided to work in places where they could be more effective (interview in Malaysia 2009).

WWF is also supporting (both financially and logistically) the FORMADAT, or the Alliance of the Indigenous People of the Highlands in the Heart of Borneo (Forum Masyarakat Adat [Asli] Dataran Tinggi Borneo), a transboundary community-based organization led by village headmen of various ethnic groups living on both the Malaysian and Indonesian sides of the border. Their mission is to 'increase awareness and understanding about the highland communities, build local capacity, and encourage sustainable development in the Heart of Borneo.' FORMADAT has held meetings roughly once a year since 2000, which are largely organized and funded by WWF, and it has been more active in Kalimantan, where WWF-Indonesia has been working closely with the local people for many years during the establishment of KMNP as Indonesia's first park co-managed with local communities. As I will discuss in the next section, there is debate over how active the local communities have been in the HoB and how much they expect to benefit from it.

The Other Nagging Question of Conservation: Who Benefits?

Anyone involved with conservation on ground knows that trade-offs are inevitable in conservation projects, and that some actors benefit more than others, if not at the expense of others. The question of who will benefit the most from HoB was a recurring theme among my interviews, and opinions are widespread.

At its largest scale, if the HoB is successful in protecting 30 percent of the island of Borneo, the entire planet and all living things on it stand to benefit. The 'heart' of Borneo is also considered a 'lung' of the planet, since tropical rainforests absorb air pollution and store so much carbon in their soils and vegetation; it also could be seen as a 'liver' that filters water and air pollution. All people could potentially benefit from newly discovered plants in this area that could hold the keys to cures for or vaccines against deadly diseases. And the more biodiversity

retained within the global ecosystem, the more resilient that system will be. However, as noted, some people have criticized HoB for allocating too many conservation resources for an area in which it is unlikely to succeed and say those resources would be better utilized elsewhere.

The three countries involved also stand to benefit from HoB, in terms of improving their battered environmental reputations and also financially. Several interviewees said that the three governments were willing to participate in HoB because they expected to get money through REDD[14] incentives, trading of carbon credits, and PES[15] schemes[16] (interviews at WCC 2008). However, in reality, these incentives may not be enough to convince the governments and development corporations and extractive industries to favor conservation over large-scale logging and land conversion.[17]

NGOs can also benefit from HoB. Because WWF leads HoB, it has received both the most money for the project, and also the bulk of the accusations of profiting from it. Aside from the usual (and often highly justified) complaints from smaller NGOs about the large sums of money given to large international NGOs (interviews at WCC 2008 and in Malaysia and Indonesia in 2007-2009), they said HoB is WWF's 'publicity stunt' and 'conservation gimmick' to raise money for the organization. A senior officer in WWF, who is involved with HoB, explained that WWF does not take money from governments, as some other NGOs assume,[18] and that WWF would not profit from carbon credits or PES schemes. Instead, he says, the money

[14] REDD: Reducing Emissions from Deforestation and Degradation
[15] PES: Payment for Environmental (or Ecosystem) Services
[16] In 2007, over 11,000 people met at the UN Climate Change Conference, which was held in Indonesia, to negotiate the basis for a new treaty on global climate change to follow the closing of Phase 2 of the Kyoto Protocol. One of the main topics of discussion at this summit was the 'avoided deforestation' framework for developing countries, which includes millions or billions of dollars earmarked for forest conservation in tropical countries in the form of carbon credits.
[17] REDD-inspired incentives for preserving forests do not compare with profits that can be made from establishing oil palm; the former can bring in around $2,077.50 per hectare, while the latter earns $4,826.11 per hectare (Koswanage and Bhui 2009). The problem is compounded by the fact that in Borneo and elsewhere, oil palm companies have tried to claim compensation from carbon credits for 'reforesting' lands that have been logged with oil palms – even if those lands were clearcut for the purpose of establishing oil palm plantations.
[18] He said, 'We offered the Sarawak government money for HoB, and they were too proud to take it.'

is generated from within their own networks of individual donors, foundations, and corporations (non-extractive ones, not oil and gas, logging, mining, etc.). In addition to complaints against large international NGOs, especially WWF, one Malaysian conservationist told me the money for HoB is also going to government-organized NGOs, which, he said, were not very legitimate conservation organizations but rather 'puppets of the state that are talking conservation but not doing it.' So there are clearly accusations that NGOs benefit from HoB. A comparative analysis of various perceptions about which NGOs benefit and how much and in what ways from HoB and other large conservation initiatives could possibly inform strategies for future initiatives.

Finally, HoB has the potential to benefit local communities. WWF-Indonesia has already funded capacity-building training programs to help them co-manage KMNP in Kalimantan, and has helped to run community mapping programs; it also provides financial and logistical support for the FORMADAT. As mentioned, WWF-Malaysia is assisting the Kelabit community with a reforestation project. But a common perception by local community members about large conservation projects is that large international NGOs use them to gain publicity and funding, and this area is no exception. One community member claimed that the idea of '*Jantung Borneo*' ('Heart of Borneo') was used by local people long before WWF came and proposed it. Others wonder where all the money is that is being given to WWF for HoB and question why they are not seeing any benefits from it (interviews in Indonesia and Malaysia 2006-2009). Many local people are willing to work with WWF in the hopes that WWF can help to protect some of the resources on which they depend, especially since many feel disappointed in the federal and state governments. Other members of the local community in Sarawak are hesitant to work too closely with WWF or other conservation organizations for fear that they will be branded as anti-government or anti-development. They fear this could lead to individuals being blacklisted or to

villages being left out of government-sponsored development projects. So the question of who will ultimately benefit the most from HoB is, not surprisingly, answered differently by various actors and affects how they respond to and plan to be involved in the initiative.

Conclusion

A detailed analysis of the HoB conservation initiative reveals a number of issues that go straight to the 'heart' of the struggles faced by conservationists today. Many of the critiques (or outright criticisms) of the HoB project are aimed at the political and economic context of the countries in which it is situated or at the particular NGO leading it. Analysis of these critiques can elucidate tensions inherent in conservation projects all over the world, no matter the context or the scale. There are perennial questions of trade-offs being negotiated at different scales (geographical, political, institutional, etc.) and inevitable concerns about which actors benefit the most from conservation projects. Because the HoB is not one project, but rather consists of a number of simultaneous projects, there is a lot of room for interpretation about what HoB is and what it can do and whom it can benefit.

There is also a lot of space to explore the relationships between various actors, and the ways that information flows (or doesn't) among them. Questions regarding who is making decisions about HoB and what information is being consulted to make them are inevitable. These can lead to constructive conversations concerning the production and/or manipulation of knowledge used to make conservation and development decisions, and can address the gaps that often occur in large-scale conservation projects between what is going on at an institutional level and what is happening on the ground. Comparative analysis of HoB and other large-scale conservation initiatives could reveal linkages and strategies that could inform and improve future conservation work.

This article provides background information on HoB and the context in which it is situated and provides a plurality of perspectives on several salient issues facing conservation today. While these issues are neither new nor confined to HoB, examining them in this context from a variety of perspectives can be useful in understanding how perceptions of a conservation project can affect its ultimate success. More interviews, particularly with WWF staff members directly involved (presently or in the history of the initiative), examination of more internal documentation about how and when certain decisions were made and by whom, and fieldwork in an area where WWF and HoB are more active, may shed more light on these questions. While the future of the HoB – both the conservation initiative and the geographical area – is uncertain, conservationists can learn some important lessons by observing how WWF and other NGOs react to shifts in the political, social, economic, ideological, and ecological climates of Borneo.

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References Cited

Adger, W. Neil, Tor A. Benjaminsen, Katrina Brown, and Hanne Svarstad
2001 Advancing a Political Ecology of Global Environmental Discourses. Development and Change 32(4):681-715.

Alfred, R. and R. Bili
2008 Field Visit to Bario. Green Heart of Borneo 2:8.

Appell, George N.
1986 Kayan Land Tenure and the Distribution of Devolvable Usufruct in Borneo. Borneo Research Bulletin 18(2):1-24.
Berkes, Fikret
1985 The Common Property Resource Problem and the Creation of Limited Property Rights. Human Ecology 13:187-208.

Bebbington, Anthony J.; Hernan Carrasco; Lourdes Peralbo; Galo Ramon; Jorge Trujillo; Victor Torres
1993 Fragile Lands, Fragile Organizations: Indian Organizations and the Politics of Sustainability in Ecuador. Transactions of the Institute of British Geographers, New Series 18(2): 179-196.

Blaike, Piers and Harold Brookfield
1987 Land Degradation and Society. London: Methuen.

Brosius, J. Peter and Diane Russell
2003 Conservation from Above: An Anthropological Perspective on Transboundary Protected Areas and Ecoregional Planning. Journal of Sustainable Forestry. 17(1/2):39-65.

Brown, J. Christopher and Mark Purcell
2005 There's Nothing Inherent about Scale: Political Ecology, the Local Trap, and the Politics of Development in the Brazilian Amazon. Geoforum 36(5):607-624.

Brown, Katrina
1998 The Political Ecology of Biodiversity, Conservation, and Development in Nepal's Terai: Confused Meanings, Means, and Ends. Ecological Economics 24(1):73-87.

Bruckhorst, David J.
2000 Bioregional Planning: Resource Management Beyond the New Millenium. London: Taylor and Francis Publishing.

Bryant, Raymond
1991 Putting Politics First: The Political Ecology of Sustainable Development. Global Ecology and Biogeography Letters 1.

Butler, Rhett
2007 Law Enforcement Key to Saving Borneo's Rainforests: An Interview with Borneo Scientist Rhett Harrison. http://news.mongabay.com/2007/1113-interview_harrison.html. Posted 13 November 2007. Accessed 10 May 2009.

Butler, Rhett
2008a Sarawak to Continue Logging Forests for Oil Palm Plantations. http://news.mongabay.com/2008/0630-palm-oil.html. Posted 30 June 2008. Accessed 10 May 2009.

Butler, Rhett
2008b Biodiversity of Rainforests Should Not Be Compared with Oil Palm Plantations Says Palm Oil Council Chief. http://news.mongabay.com/2008/1111-palm-oil.html. Posted 11 November 2008. Accessed 10 May 2009.

Chapin, Mark
2004 Losing Touch: Conservationist NGOs and Indigenous and Traditional Peoples. World Watch.

Colchester, Marcus
2000 Self-Determination or Environmental Determinism for Indigenous Peoples in Tropical Forest Conservation. Conservation Biology 14(5):1365-1367.

Colchester, Marcus
1994 Sustaining the Forests: The Community-Based Approach in South and South-East Asia. Development and Change 25:69-100.

Colchester, Marcus
1992 Pirates, Squatters and Poachers: The Political Ecology of Dispossession of the Native Peoples of Sarawak. Global Ecology and Biogeography Letters 3 (4/6):58-179.

Colfer, Carol J. Pierce and Herwasono Soedjito
1996 Food, Forests, and Fields in a Bornean Rain Forest: Toward Appropriate Agroforestry Development. *In* Borneo in Transition: People, Forests, Conservation, and Development. Christine Padoch and Nancy Lee Peluso, eds. Pp. 162-186. Oxford: Oxford University Press.

Colfer, Carol J. Pierce, with Nancy Peluso and Chin See Ching
1997 Beyond Slash and Burn: Building on Indigenous Management of Borneo's Tropical Rain Forests. Bronx: New York Botanical Garden.

Coward, Walter
2005 Building Models of Community-Based Natural Resource Management: A Personal Narrative. *In* Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management. J. Peter Brosius, Anna Tsing and Charles Zerner, eds. Pp.91-104. Walnut Creek, CA: Altamira Press.

Cramb, Robert A. and I. R. Wills
1990 The Role of Traditional Institutions in Rural Development: Community-Based Land Tenure and Government Land Policy in Sarawak, Malaysia. World Development 18(3): 347-360.

Curran, Lisa M., Simon N. Trigg, A. K. McDonald, Dwi Astiani, Y. Martin Hardiono, P. Siregar, Izefri Caniago, and E. Kasischke.
2004 Lowland Forest Loss in Protected Areas of Indonesian Borneo. Science 303(5660):1000-10003.

Dah, F. Victoire
2009 Letter to Mr. I. Gusti Agung Wesaka Puja. www.fern.org/search_results.html?subject=175. Posted March 2009. Accessed 8 May 2009.

Dwivedi, Ranjit
1997 Parks, People and Protest: The Mediating Role of Environmental Action Groups. Sociological Bulletin 46(2).

Escobar, Arturo
1999 After Nature: Steps to an Antiessentialist Political Ecology. Current Anthropology 40 (1):1-30.

Escobar, Arturo
1998 Whose Knowledge, Whose Nature? Biodiversity, Conservation, and the Political Ecology of Social Movements. Journal of Political Ecology 5:53-82.

Escobar, Arturo
1996 Constructing Nature: Elements for a Poststructural Political Ecology. *In* Liberation Ecologies: Environment, Development, Social Movements. Richard Peet and Michael Watts, eds. London: Routledge.

Fairhead, James and Melissa Leach
1996 Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic. Cambridge: Cambridge University Press.

Fisher, William
1997 Doing Good? The Politics and Antipolitics of NGO Practices. Annual Review of Anthropology 26:439-64.

Folke, Carl and Fikret Berkes
1995 Mechanisms that Link Property Rights to Ecological Systems. *In* Property Rights and the Environment. S. Hanna and M. Munashinghe, ed. Washington, DC: Beijer International Institute of Ecological Economics and Work Bank.

Fuller, D. O., T. C. Jessup, and A. Salim
2004 Loss of Forest Cover in Kalimantan, Since the 1997-1998 El Niño. Conservation Biology 18(1):249-254.

Gibson, Clark C., Elinor Ostrom, and Margaret McKean
2000 Forests, People, and Governance: Some Initial Theoretical Lessons. People and Forests; Communities, Institutions, and Governance. Clark Gibson, Margaret McKean, and Elinor Ostrom, eds. Pp. 227-242. Cambridge: MIT Press.

Goodwin, Philip
1998 'Hired Hands' or 'Local Voice': Understandings and Experience of Local Participation in Conservation. Transactions of the Institute of British Geographers, New Series 23(4): 481-499.

Governments of Brunei, Indonesia, and Malaysia
2008 Heart of Borneo Strategic Plan Of Action: Bridging Conservation and Sustainable Development in Three Countries. www.wwf.or.id/attachments/pdf/HOB_SPA.pdf. Posted 27 May 2008. Accessed 3 February 2009.

Greenberg, James and Thomas Park
1994 Political Ecology. Journal of Political Ecology 1(1):1-12.

Gupta, Anil K.
1995 Blurred Boundaries: The Discourses of Corruption, the Culture of Politics and the Imagined State. American Ethnologist 22(2):375-402.

Horowitz, Leah Sophie
1998 Integrating Indigenous Resource Management with Wildlife Conservation: A Case Study of Batang Ai National Park, Sarawak, Malaysia. Human Ecology 26(3):371-403.

Horta, Korinna
2000 Rainforest: Biodiversity Conservation and the Political Economy of International Financial Institutions. *In* Political Ecology; Science, Myth, and Power. Philip Stott and Sian Sullivan, eds. Pp. 179-202. New York: Oxford University Press.

Igoe, Jim
2002 Conservation and Globalization: A Study of National Parks and Indigenous Communities from East Africa to South Dakota. Wadsworth Publishing.

Jepson, Paul and Robert Whittaker
2002 Ecoregions in Context: A Critique with Special Reference to Indonesia. Conservation Biology 16(1):42-57.

Koh, Lian Pin and David S. Wilcove
2008 Is Oil Palm Agriculture Really Destroying Tropical Biodiversity? Conservation Letters. 2(1):1-5.

Koswanage, Niluksi and Aloysius Bhui
2008 Economic Woes May Damage Moves to Slow Deforestation. http://www.reuters.com/article/latestCrisis/idUSKLR460422. Posted 29 April 2009. Accessed 8 May 2009.

Lynch, Owen J. and Janis B. Alcorn
1994 Tenurial Rights and Community-Based Conservation. *In N*atural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Washington, D.C.: Island Press.

McCay, Bonnie and S. Jentoft
1987 The Question of the Commons: The Culture and Ecology of Communal Resources. Tucson: University of Arizona Press.

Murphree, Marshall W.
1994 The Role of Institutions in Community-Based Conservation. *In* Natural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Pp. 403-427. Washington, D.C.: Island Press.

Murray, James
2009 Indonesia Lifts Ban on Palm Oil Plantations. www.businessgreen.com/business-green.news/2236825/Indonesia-lifts-ban-palm-oil. Posted 19 February 2009. Accessed 11 May 2009.

Neumann, Roderick P.
1992 Political Ecology of Wildlife Conservation in The Mt. Meru Area of Northeast Tanzania. Land Degradation and Rehabilitation 3:85-98.

New Straits Times Online
2008 Stop Clearing Forests, States Told. www.orangutans.come.au/Manager/Item.aspx?id=Malaysia-bans-clearing-of-forests-for-oil-palm&AspxAutoDetectCookieSupport=1. Posted 26 June 2008 on website of Borneo Orangutan Survival Australia. Accessed 10 May 2009.

Noss, Reed
2002 Context Matters: Considerations for Large-Scale Conservation. Conservation in Practice 3(3):10-19.

Pelling, Mark
2003 Toward a Political Ecology of Urban Environmental Risk: The Case of Guyana. *In* Political Ecology: An Integrated Approach to Geography and Environment-Development Studies. Zimmerer, Karl and Thomas Bassett, eds. Pp. 73-93. New York: The Guilford Press.

Peluso, Nancy Lee
1994 Rich Forests, Poor People: Resource Control and Resistance in Java. Berkeley: University of California Press.

Peterson, Garry
2000 Political Ecology and Ecological Resilience: An Integration of Human and Ecological Dynamics. Ecological Economics 35(3):323-336.

Pimbert, Michele and J. Pretty
1997 Parks, People and Professionals: Putting 'Participation' into Protected Area Management. *In* Social Change and Conservation: Environmental Politics and Impacts of National Parks and Protected Areas. K. Ghimire & M. Pimbert, eds. London: Earthscan.

Redford, Kent, Peter Coppolillo, Eric W. Sanderson, Gustavo A. B. Da Fonseca, Eric Dinerstein, Craig Groves, Georgina Mace, Stewart Maginnis, Russell A. Mittermeier, Reed Noss, David Olson, John G. Robinson, Amy Vedder, and Michael Wright
2003 Mapping the Conservation Landscape. Conservation Biology 17(1): 116-131.

Redford, Kent & B. Richter
1999 Conservation of Biodiversity in a World of Use. Conservation Biology 13(6):1246-1256.

Redford, Kent and Allyn Maclean Stearman
1993 Forest-Dwelling Native Amazonians and the Conservation of Biodiversity: Interests in Common or in Conflict? Conservation Biology 7(2):248-255.

Robbins, Paul
2004 Political Ecology: A Critical Introduction. London: Blackwell.

Rudel, Timothy K.
1995 When Do Property Rights Matter: Open Access, Informal Social Controls, and Deforestation in the Ecuadorian Amazon. Human Organization 54(2):187-194.

Russell, Diane and Camilla Harshbarger
2003 Groundwork for Community-Based Conservation: Strategies for Social Research. Walnut Creek: Altamira Press.

Schlager, Edella and Elinor Ostrom
1992 Property Rights Regimes and Natural Resources: A Conceptual Analysis. Land Economics 68(3):249-262.

Schwartzman, Stephen, Daniel Nepstad and Adriana Moreira
2000 Arguing Tropical Forest Conservation: People Versus Parks. Conservation Biology 14(5):1270-1374.

Scott, James C.
1998 Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed. New Haven: Yale University Press.

Sheil, Douglas and Anna Lawrence
2004 Tropical Biologists, Local People, and Conservation: New Opportunities for Collaboration. TRENDS in Ecology and Evolution.

Sheridan, Thomas E.
1988 Where the Dove Calls: The Political Ecology of a Peasant Corporate Community in Northwestern Mexico. Tucson: University of Arizona Press.

Shiva, Vandana
1991 Ecology and the Politics of Survival: Conflicts over Natural Resources in India. London: Sage Publications.

Sihaloho, Marcus Junianto
2009 Plan to Develop Kalimantan Border Proposed. The Jakarta Globe. www.thejakartaglobe.com/news/article/8484.html. Posted 4 February 2009. Accessed 12 May 2009.

Soulé, Michael and John Terborgh
1999 The Policy and Science of Regional Conservation. *In* Continental Conservation: Scientific Foundations of Regional Reserve Networks. Michael Soulé and John Terborgh, eds. Washington, D.C.: Island Press.

Stone, Richard
2007 Biodiversity on Tropical Islands: Last-Gasp Effort to Save Borneo's Tropical Rainforests. Science 317(5835):192.

Swyngedouw, Erik and Nikolas C. Heynan
2003 Urban Political Ecology, Justice and the Politics of Scale. Antipode 35(3):898-918.

Wakker, Eric
2006 The Kalimantan Border Oil Palm Mega-Project. Report commissioned by Milieudefensie – Friends of the Earth Netherlands and the Swedish Society for Nature Conservation. 50 pp.

Western, David and R. Michael Wright
1994 The Background to Community-based Conservation. *In* Natural Connections: Perspectives in Community-Based Conservation. David Western and R. Michael Wright, eds. Washington, D.C.: Island Press.

Wolmer, William
2004 Tensions and Paradoxes in the Management of Transboundary Protected Areas. Policy Matters 13:137-147.

WWF-Germany
2005 Borneo: Treasure Island at Risk. Frankfurt am Main: WWF-Germany.

WWF-Malaysia and WWF-Indonesia
2007 The Human Heart of Borneo. Kuala Lumpur and Jakarta: WWF.

Younge, Amanda
2002 An Ecoregional Approach to Biodiversity Conservation in the Cape Floral Kingdom, South Africa. *In* Biodiversity, Sustainability and Human Communities: Protecting Beyond the Protected. T. O'Riordan and S. Stoll-Kleemann, eds. Cambridge: Cambridge University Press.

Zimmerer, Karl S. and Thomas J. Bassett
2003 Future Directions in Political Ecology: Nature-Society Fusions and Scales of Interaction. *In* Political Ecology: An Integrated Approach to Geography and Environment-Development Studies. Karl Zimmerer and Thomas Bassett, eds. Pp. 274-296. New York: The Guilford Press.

# CHAPTER 7

# CONCLUSION

## Kelabit Engagements with Conservation and Development

The Kelabit, an indigenous community in an "out-of-the-way" place (Tsing 1993), are in the process of actively negotiating their cultural identity and changing roles in national life amidst a plethora of potential futures, many of which are being imagined and mapped by outside actors. The Kelabit have always interacted with other ethnic groups and other places; they have never been completely isolated in the remote Kelabit Highlands of interior Borneo. But the nature and the pace of their engagements with the outside world have changed dramatically in the last one hundred years or so, and especially since World War II and *Konfrontasi* in the 1960s. Numerous external forces have acted upon the Kelabit community, directly and indirectly, from colonialism to missionization to globalization. The Kelabit have had little control over some of these forces; but neither have they been passive recipients of changes wrought by these forces. They have always displayed great agency, ingenuity, pride, entrepreneurship, and political savvy during their interactions with the world outside the plateau. They have also been known as much for their individual differences as for their coherence as an ethnic group, whose solidarity was most likely artificially constructed as the result of colonial misinterpretation. There is no "typical" Kelabit, and as Tom Harrisson (the first Westerner to live with Kelabit) noted, "No Kelabit issue is EVER simple" (Harrisson 1954:118).

If, in the past, the Kelabit were limited by their lack of opportunities for broader engagement with the outside world, by their lack of exposure to other ideas, or by their religious beliefs in which omens dictated the events of their daily lives, many of these limitations no longer exist. Kelabit now are literate and have access to education in Sarawak and around the

world, and have proven highly successful in many academic, business, and political endeavors. Even in the remote Kelabit Highlands, thanks to their own initiative, they now have access to digital information and mobile telephone technology. They also now have a road that reaches Bario, giving them more power to bypass the restrictions placed on the travel of people and goods into and out of the Kelabit Highlands. Perhaps most importantly to them, they have left the oppression of their pre-Christian religious beliefs behind them; as they characterize it, they have entered a new era dictated not by omens, spirits, and fear, but instead guided by the ideals of Christianity. Many Kelabit admit that conversion to Christianity, exposure to education, and increased opportunities for engagement cannot be separated. Now, with literacy, and especially a growing digital literacy, the Kelabit are more integrated into the global system, and Christianity identifies them with a much larger global group that cuts across cultural boundaries. Kelabit have always had pride in their willingness to embrace new opportunities; perhaps this is best symbolized by the *kawang*[1] made in the Pengepawan Range in Bario in 2000 to symbolize a passage for new ideas to flow freely into the Kelabit Highlands. Through emphasis on education and career success, intermarriage with other ethnic groups, and a worldwide diaspora, the Kelabit have chosen to not be isolated and have been able to overcome the remoteness of their homeland. They have also chosen to engage with the world on their own terms and not simply be passive recipients of changes instigated by others.

Further, they have been proactive in their negotiations regarding the future of the Kelabit Highlands. Led by *Rurum Kelabit Sarawak* (RKS) and prominent community members living in the coastal cities of Kuching and Miri, Kelabit have initiated numerous negotiations with political representatives and representatives of the timber companies, who were given the

[1] *Kawang*: notch in a ridgetop treeline, as discussed in Chapter 3.

logging licenses by the state. RKS was successful in convincing the timber company to extend its road to Bario proper, thus linking Bario directly to the coastal city of Miri, and RKS has also extracted promises from the company not to destroy any more cultural sites and to proceed carefully in areas where such sites are known to exist. RKS has also had extensive negotiations with the company regarding financial compensation agreements for logs extracted from the Kelabit Highlands, including a price per ton of wood (which goes to a fund for scholarships for Kelabit youth and other programs that benefit the Kelabit community), annual "Christmas gifts" to each village, and monthly "salaries" for some members of each village. Some community members in the villages and the cities have benefitted financially from negotiations with the timber company.

As happens with many communities, negotiations with the timber company have also created new tensions within the Kelabit community and exacerbated old ones. Logging operations have spurred the drive for villages to mark and map their own boundaries, since compensation to the villages and to some members within the villages depends on where those lines are drawn. This has led to some renegotiations of boundaries among heads of various villages. There have also been recent tensions between "rural" and "urban" Kelabit as discussed in Chapter 2 (though as also mentioned, the distinction between rural and urban Kelabit is problematic, as the categories are fluid). There is dependence among rural Kelabit on urban Kelabit to initiate negotiations with authority figures in all matters of development, since they often have more financial resources, political connections, and access to information than villagers do. But there are also hints of distrust and suggestions that some urban-based Kelabit may be profiting financially at the expense of both rural villagers and the physical landscape of the Kelabit Highlands, on which the survival of urban Kelabit does not depend.

In addition to causing social disruptions (as well as new opportunities for financial gain or infrastructural development), logging also is destructive of the natural environment of the Kelabit Highlands. Ecosystems are becoming fragmented, watersheds are silting and rivers have turned cloudy, and game animals have become scarcer in areas most affected by logging. Also, as much of the revenue that flows into the Highlands comes from tourists seeking long-distance trekking opportunities in intact forests, logging is particularly detrimental to the tourism business and leads to a loss of income for guides and homestay owners (as discussed in Chapter 5). This has proven especially true in the southern Kelabit Highlands, where logging began several years ago. As discussed in several chapters, particularly Chapters 2, 5, and 6, there have been several efforts to promote conservation in the Kelabit Highlands area. The two that have drawn the most attention are: (1) the project led by the International Tropical Timber Organization (ITTO) to extend the boundaries of Pulong Tau National Park (PTNP) to the Indonesian border, connecting it with Kalimantan's Kayan Mentarang National Park (KMNP) and thus creating a very large transboundary conservation area; and (2) the Heart of Borneo initiative led by the World Wide Fund for Nature (WWF), which encompasses around 220,000 km² of land in Sarawak, Sabah, Kalimantan, and Brunei.

The ITTO project is now in its second phase, after having completed and published the findings of their baseline studies and having purportedly implemented several of the projects in their initial proposal. Many Kelabit living in the Kelabit Highlands still do not know what ITTO is and how their project is related to conservation; they see instead that ITTO has bought plastic chairs for their churches and orange polo shirts for the women's groups and built one fish pond in Bario (that promptly failed when the fish died because it was built at the base of a hill where agricultural chemicals were dumped). Some Kelabit say that ITTO conducted this project as a

way to merely distract the people while the logging continued; some use the word *mataso'* to describe the strategies of the ITTO and the Sarawak Forest Department (SFD) in the Kelabit Highlands, a word which generally means "to pacify a child" or "to give a baby a toy so it will stop crying." Many community members have commented on the inaccuracies and the incompleteness of the reports published by ITTO during the first phase of their transboundary conservation project; many are also still uncertain as to how the creation of PTNP affects their daily lives or what an extension of the park might mean in terms of enforcement of laws regarding harvesting of wild game or prevention of logging (legal or illegal).

Many Kelabit are aware of the severe limitations that the state government places on conservation NGOs, and a few know the contentious history of WWF in Sarawak (as described in Chapters 2 and 6). Some are surprised that WWF is operating in Sarawak again and are unsure of WWF's current relationship with the state, which leads to reluctance among some community members to become involved with WWF. But quite a few community members expressed hopes that WWF can do more to protect the forests of the Kelabit Highlands than the ITTO has done so far; they see WWF as a genuine conservation organization, whereas they view the main motivation of ITTO as simply longer-term timber extraction. Despite this skepticism, RKS and the community members living in the Kelabit Highlands welcome members of both organizations, and have assisted in setting up community meetings with these representatives. Several community members are aware of the long-term efforts of WWF in Kalimantan that have led to the designation of KMNP as one of the first co-managed parks in Southeast Asia (Eghenter 2008, 2002, 2000) and hope that the same level of community participation in conservation planning can happen in Sarawak with the help of WWF. Due to the oppressive top-down nature of the state government, as opposed to Indonesia's policies regarding the

decentralization of natural resource management, it is unlikely that the state will relinquish any control over the forests of the Kelabit Highlands. It is also unlikely that the state government will genuinely collaborate with WWF or any other international conservation NGO, or that the Heart of Borneo initiative will find the levels of governmental support in Sarawak that it does in Sabah, Kalimantan, and Brunei (as discussed in Chapter 6).

Knowing that they are limited by the authoritative nature of a state government that cajoles, threatens, or blacklists its detractors and takes away beneficial state-funded development projects from communities that critique the policies or practices of the government or question state ownership of land, most Kelabit have chosen to be non-confrontational and non-oppositional to government-backed logging activities. They have instead wielded their intellectual and political power to negotiate (to the extent possible) with representatives of governmental agencies, non-government organizations, and private corporations about the future of the Kelabit Highlands. But, as Amster (2008) notes, there remains a high level of anxiety within the community over the future, due to a feeling of powerlessness to change the course that others have set out for their homeland. Kelabit are aware that various government agencies, and possibly corporations or potential investors, are currently mapping (literally and figuratively) the future of the Kelabit Highlands landscape, and that numerous maps already exist that show the past and present land uses of the area. Kelabit living in the Kelabit Highlands today have seen only a few of these maps. They are, however, currently engaged in creating their own maps that document their long-term occupation of the area and the cultural history embedded in this highly anthropogenic landscape.

Community members have also initiated many activities to preserve their own culture in response to ongoing development in the Kelabit Highlands and to high levels of rural-to-urban

migration and intermarriage with other ethnic groups. As discussed in Chapter 2, the Kelabit have faced many changes in a short amount of time; this rapid transition toward modernization has led to the loss of tangible and intangible cultural features including knowledge of traditional cultural activities, history, and even language; many Kelabit feel these losses deeply. They are now in the midst of a process of sorting out which elements of their cultural heritage to keep during these changing times, and which elements are detrimental to their progress and best discarded. Their active engagement both within their diasporic community and between the community and outside actors demonstrates the proactive and entrepreneurial characteristics for which Kelabit have always been known by outsiders.

Challenges of Research

As an anthropologist, it has been interesting to watch the Kelabit community organize and implement responses to outside interventions in the Kelabit Highlands and confront the problems within their community during this transitional phase in their history. It was equally fascinating to observe emergent community initiatives, and to gauge what degree of support they received from other community members and which activities mobilized community action. Many changes occurred during my time in the field, several with which I was actively involved. Several of the more transformative changes (or processes of change) in the Kelabit Highlands, which are described in the previous chapters, include: (1) the acquisition of funding for the RKS-led cultural audit project, which built upon the collaborative documentation of cultural sites and landscape modifications described in Chapter 3 and utilized the GPS units and the GIS database donated to RKS through my research; (2) the formation and initialization of the Bario Nature Guide Association, which has helped standardize itineraries and costs for tourists and has played important roles in my research, the RKS project and other community-led cultural revitalization

efforts; (3) the installation of the CelCom tower that allowed the use of cellular telephones in the villages; (4) the ongoing efforts by community members to standardize the written Kelabit language, teach children to speak Kelabit, and translate the Bible into Kelabit; (5) the connection of Bario to Miri by logging road; (6) the ongoing ITTO transboundary conservation and sustainable development project; and (7) the reintroduction of WWF into Sarawak and efforts to initialize conservation projects in the Kelabit Highlands as part of the tri-national Heart of Borneo initiative. As described, the Kelabit community has been actively involved in all these events, each of which is an important transformative moment in Kelabit history, and it has been interesting for me to view these events through the lens of an ethnographer.

During my time in Sarawak, I developed close personal relationships with many of the people driving these changes (or in some cases, resisting them). I also played an active role in many of the community functions (as discussed in the introduction), and my intention to initiate a collaborative project focused on documenting the cultural sites in the Kelabit Highlands was well-received as it came at an opportune time. Referring to this project, many community members told me: "This is something we should have done for ourselves ten years ago." I received a lot of positive feedback on the way that I conducted research, holding numerous meetings with community members describing my intentions, providing updates on the status of the project at regular intervals, negotiating which aspects of the research would eventually be published and which would not, and co-writing one article with several prominent community members living in the Kelabit Highlands.

I stayed in the field much longer than I had originally anticipated (almost three years instead of just one), mainly because I felt that the process of documenting the cultural sites was not complete. I did not originally intend to spend so much time (and money) on that aspect of the

research, but complied as community members continually asked me to help map other sites in order to protect them. Eventually I did not have the time or funds to continue, and by then the RKS cultural audit project was underway. I am still in the process of transferring data collected during my time in the Kelabit Highlands to RKS and consulting with the members working on the project to coordinate our databases. All the GPS data have been repatriated to the community, and I have agreed not to publish the data or the maps created using the GIS database without prior approval from RKS. I have also provided RKS and several community members with raw ethnographic data collected during interviews conducted by myself and with collaborators (without compromising confidentiality agreements with interviewees), as well as photographs of sites and events. I will continue to share the data with RKS and other community members, in addition to seeking their feedback on drafts of papers based on my experiences in the Kelabit Highlands prior to submission and publication.

These methods of conducting fieldwork and writing about them are very time-consuming and at times highly confusing, and there has been a steep learning curve for me in how to best share information with, and seek feedback from, the community. At times during the research I failed to clearly articulate my motivations and decisions, and tensions did at times arise over whom I was working with and where. The introduction of new technologies to community members should have been accompanied by more clear articulations of who was responsible for them and how they were to be used. It is a struggle well-documented by other researchers trying to develop and implement participatory projects that address the critiques of conventional ethnographic approaches (as described in the introduction), and yet the politically sensitive nature of the state government and the diasporic and multi-vocal nature of the Kelabit community presented unique challenges for collaborative work of this kind.

The articles contained in this dissertation do not tell the whole story (as no ethnographic writing can or necessarily should); many details have been intentionally left out. Because of the nature of the articles, being published internationally, several in open-access online journals, and because of my awareness that not only community members, but also government officials, NGO members, fellow anthropologists, and others will read them, there are elements and observations I have chosen to omit. The politically restrictive climate in some cases hampered my ability to present the full context; other researchers have been asked to leave (or simply not had their research visas renewed) for exposing corruption or criticizing government policies, especially those regarding indigenous rights (and especially land rights) and environmental concerns. The official state policy of *Konsep Baru* ("New Concept") to "develop" "idle" lands, those lands that are not being actively exploited or made "productive" through agriculture or development, encourages communities to cooperate with private companies in joint venture schemes in which the long-term beneficiaries are the investors, corporate shareholders, and company owners (McCarthy and Cramb 2009; Cooke 2006, 2003, 2002). People, especially foreigners, who criticize this policy or expose its shortcomings, are subject to political retribution. As a researcher, I had to renew my research visa each year through the State Planning Unit of Sarawak; to obtain these renewals, government officials had to be convinced of my status as a student researcher, not an activist with a political or environmental agenda. Now that my dissertation research is completed, I still do not want to jeopardize my ability to obtain research permission in Sarawak in the future, so I continue to write carefully about contentious topics like conservation, land rights, and logging.

For this reason, and to remain sensitive to community concerns that I not "reveal too much" about the inner-community tensions I observed (and experienced), I have in many of

these articles, presented the information in an authoritative, journalistic voice, striving to record the plurality of voices, contextualize the issues, and detach myself from the events. This seems to counter the emerging tendency among ethnographic researchers to write reflexively and collaboratively; I chose this writing style deliberately as it best fit the context. In Chapter 3, I did discuss several of the challenges of conducting the research on cultural sites, but there were other challenges not discussed, especially as this article will be published in Sarawak.

Many researchers have worked with the Kelabit community, several conducting long-term projects (one year or longer in residence) and many conducting short-term research projects, and a number of Kelabit are researchers themselves (often studying aspects of their own culture and history), so there is a high degree of familiarity with the processes of research among the Kelabit. There is also a wide range of responses to these research processes and a rightful concern over how researchers interact with community members and portray the community in their writings. Community members expressed anxiety about what I would write about them; some of these anxieties resulted from misrepresentations by anthropologists in the past (as discussed in Chapter 2 and in Bala 2002). However, as one community member told me, "These researchers don't ever want to tell the truth about us because they're afraid of hurting our feelings. Go ahead and just tell the truth; we want to know what you really think." Walking the fine line between "telling the truth" and being responsive to community and political sensitivities is a constant struggle I have faced in writing about my research with the Kelabit. As many scholars have noted, most anthropologists now work with literate societies and the time has passed when they could write without concern over how the host community members would react to their interpretations (Westbrook 2008; Wolcott 2008; Brettell 1993; Glazier 1993; Greenberg 1993; Wolf 1992; Geertz 1988).

In sum, my main challenges in writing about the issues facing the Kelabit community today and my role in observing and researching these issues consist of finding ways to write that: (1) recognize the political sensitivities of the issues and that do not jeopardize my ability to conduct research again in Sarawak (or even visit Sarawak); (2) do not strain my relationships with Kelabit community members by violating agreements with them about what to publish or not, by portraying them in ways that are not accurate or favorable, or by showing favoritism to particular people, families, or villages; and (3) demonstrate quality academic scholarship through a detailed understanding of the political, social, historical, cultural, economic, and ecological contexts of the Kelabit Highlands. Finally, I have addressed critiques of conventional ethnography by scholars and community members alike by acknowledging and demonstrating that there is no such thing as objectivity of a researcher. As a researcher, I played a role in shaping events about which I have written, and I believe that research should be undertaken in a truly collaborative manner from the conception of the project through reflexive writing about it.

These articles present a snapshot of Kelabit life from 2005 to 2009, and the conditions that inspired them will inevitably change. In five or ten years, all the articles could be updated to present another snapshot of a different segment of Kelabit history. The Kelabit community and the Kelabit Highlands landscape are changing rapidly, and in dialectical fashion; changes in one influence changes in the other. As the Kelabit continually remake their cultural identity in order to better secure their place in larger society and not lose their "Kelabitness" in the process, so too do they continually remake the forests, mountains, rivers, and megaliths of the Kelabit Highlands in order to actively negotiate the changes that they and outside forces are initiating in their homeland.

References Cited

Amster, Matthew
2008 Where Spirit and Bulldozer Roam: Environment and Anxiety in Highland Borneo. Journal for the Study of Religion, Nature and Culture 2(1):74-92.

Bala, Poline
2002 Changing Borders and Identities in the Kelabit Highlands: Anthropological Reflections of Growing Up in a Kelabit Village near the International Border. Dayak Studies Contemporary Society Series, No. 1. Institute of East Asian Studies. Kuching: Unit Penerbitan Universiti Malaysia Sarawak.

Brettell, Caroline, ed.
1993 When They Read What We Write: The Politics of Ethnography. Westport: Bergin and Garvey.

Cooke, Fadzilah Majid
2006 Expanding State Spaces Using 'Idle' Native Customary Land in Sarawak. *In* State, Communities and Forests in Contemporary Borneo. Fadzilah Majid Cooke, ed. Pp. 25-44. Canberra: Australian National University Press.

Cooke, Fadzilah Majid
2003 Maps and Counter-Maps: Globalised Imaginings and Local Realities of Sarawak's Plantation Agriculture. Journal of Southeast Asian Studies 3/ 4(2):265-284.

Cooke, Fadzilah Majid
2002 Vulnerability, Control and Oil Palm in Sarawak: Globalization and a New Era? Development and Change 33(2):189-211.

Eghenter, Cristina
2008 Whose Heart of Borneo? Critical issues in Building Constituencies for Equitable Conservation. In Reflections on the Heart of Borneo. Gerard A. Persoon and Manan Osseweijer, eds. Pp. 131-140. Wageningen, the Netherlands: Tropenbos International.

Eghenter, Cristina
2002 Planning for Community-Based Management of Conservation Areas: Indigenous Forest Management in the Kayan Mentarang National Park, East Kalimantan, Indonesia. *In* Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement, and Sustainable Development. Dawn Chatty and Marcus Colchester, eds. Pp. 329-353. London: Berghahn Books.

Eghenter, Cristina
2000 What is *Tana Ulen* Good For? Considerations on Indigenous Forest Management, Conservation, and Research in the Interior of Indonesian Borneo. Human Ecology 28(3):331-357.

Geertz, Clifford
1988 Works and Lives: The Anthropologist as Author. Stanford: Stanford University Press.

Glazier, Stephen D.
1993 Responding to the Anthropologist: When the Spiritual Baptists of Trinidad Read What I Write about Them. *In* When They Read What We Write: The Politics of Ethnography. Caroline Brettell, ed. Pp. 37-48. Westport: Bergin and Garvey.

Greenberg, Ofra
1993 When They Read What the Paper Say We Wrote. *In* When They Read What We Write: The Politics of Ethnography. Caroline Brettell, ed. Pp. 107-118. Westport: Bergin and Garvey.

Harrisson, Tom
1954 Outside Influences on the Upland Culture of Kelabits of North Central Borneo. Sarawak Museum Journal VI: 104-125.

McCarthy, John F. and Robert A. Cramb
2009 Policy Narratives, Landholder Engagement, and Oil Palm Expansion on the Malaysian and Indonesian Frontiers. The Geographical Journal 175(2):112-123.

Tsing, Anna Lowenhaupt
1993 In the Realm of the Diamond Queen: Marginality in an Out-of-the-Way Place. Princeton: Princeton University Press.

Westbrook, David A.
2008 Navigators of the Contemporary: Why Ethnography Matters. Chicago: University of Chicago Press.

Wolcott, Harry F.
2008 Ethnography: A Way of Seeing. Walnut Creek: Altamira Press.

Wolf, Margery
1992 A Thrice Told Tale: Feminism, Postmodernism and Ethnographic Responsibility. Stanford: Stanford University Press.

# APPENDICES

## Appendix A: Glossary of Place Names in the Kelabit Highlands[2]

### Descriptors of Natural Characteristics of the Landscape

#### Rivers/Streams/Water

*Arur:* stream
*Ating:* rocks that go across a river
*Da'an:* branch of a river (or tree)
*Dayeh:* upriver / upstream
*Dudtur:* land near the bend of a river
*Lino:* clear (water) ("*lino-lino*" is calm water)
*Lio:* clear (water)
*Long:* the area where a smaller river or stream flows into a larger river or stream (named for the smaller river or stream)
*Lutut:* muddy (river)
*Pa':* river (abbreviation of "*ebpa*'" or "water")
*Patar:* flat area near a river
*Puneng:* the source of a stream / a spring
*Rebaru'* or *Rebaruh:* a place in the river, usually at a bend in the river, where the water gets wider and deeper
*Ru'eb:* waterfall
*Rupan:* a natural pond from which animals drink
*Rupen:* a place where humans can drink the water
*Saug:* bend of a river that has been cut off as a result of the river changing course - a natural oxbow of a river / the deepest part of a river / oxbow that has been drained to make padi fields
*Takung:* pond
*Tang:* long, flat, calm stretch of a river
*Tepalang:* a stream that connects two parallel streams
*Ukat:* the steep river banks where the water erodes away the soil when the river is high (also the markings made in the ground when someone uses a hoe)
*Ulu:* upriver or headwaters of a river

#### Forests

*Mela:* forest that is not thick or dense/open forest; like "*patepu*"
*Patepu:* forest that is not thick or dense (forest that you can see through); like "*mela*"
*Paya:* *kerangas* (heath) forest
*Ulung:* a place where the whole area is left undisturbed

[2] These terms are in the Kelabit language unless noted otherwise. Also, this glossary corresponds to the place names listed in Index 1 of Chapter 3.

Mountains/Hills/Earth/Stones

*Abuh* or *Aboh:* ash ("*abuh tana'*" is "earth ash" or "dust")
*Arang:* coal
*Ating:* rocks that go across a river
*Bada:* sand
*Batuh:* stone
*Batuh Patong:* coal (literally "stone that makes light")
*Beritan:* a gorge or steep area
*Bina:* foothill or place at the foot of a mountain
*Buduk:* mountain
*Gerau:* a range of mountains or ridges
*Liyu':* slippery (usually refers to mud)
*Lubang:* hole or cave
*Puun:* hill
*Rekad:* a place at the foothill of a mountain
*Tana':* land/earth

Colors

*Birar:* yellow
*Buda':* white
*Sia':* red

Animals

*Balang:* tiger
*Berangad:* silver-leaf monkey
*Bera'uk:* toad
*Beruang:* bear
*Buang:* beetle
*Buang balang:* a type of wasp
*Kekelit:* bats found in caves
*Kelabet:* gibbon (also "*kalabat*" or "*kelabat*")
*Kelelati:* earthworm
*Menarang:* cobra
*Menedtung:* animal (also *puung*)
*Payo:* deer
*Payuh:* bear cat
*Terutung:* porcupine
*Uku':* dog

Plants

*Atong:* a type of bracken fern (also a boy's name)

*Bako:* a type of tree
*Belaban:* a type of tree (with very hard wood)
*Berangan:* a type of wild nut
*Berebpeh:* a large type of *pandanas* (reed used for making hats and mats)
*Berenabur:* a type of grass
*Bulu':* bamboo
*Bulu' barit:* a type of bamboo that is yellow with green stripes
*Bulu' puren:* a small bamboo that is woven into baskets
*Buyo:* orange (fruit)
*Buyo tuan:* pomelo
*Datu':* cultivated durian tree
*Ilad:* a type of palm whose leaves are used to make sun hats or *samit* (raincoats)
*Ilung:* seed
*Kaber:* pineapple
*Kedti:* a type of fruit (also an expression used by girls and women to mark emphasis)
*Kenangan:* wild sago palm
*Keramut:* a type of fruit (a very small mango)
*Kiran:* a type of fruit
*Meritem:* a type of fruit (a type of *mata kuching / longan*)
*Namam:* a type of bracken fern found in the mountains
*Payang:* a type of wild nut
*Puak:* a type of fruit
*Salad:* a type of oak tree
*Talal:* a type of fruit
*Tara':* a type of tree
*Terap:* a type of fruit
*Tumu':* a type of tree – dammar or Shorea *spp*.
*Udung:* the crown of a tree
*Uwar:* liana
*Wat:* roots

Other

*Bariew:* wind / windy (or bario)
*Langit:* sky

Descriptors of Anthropogenic Characteristics of the Landscape

People

*Anak:* child
*Aran / Aren:* a boy's name
*Atong:* a boy's name (also a type of bracken fern)
*Bulan:* a girl's name (also "moon")
*Lingan:* Saba'an name
*Lungan:* a girl's name
*Mada:* a girl's name
*Paran:* a boy's name

*Pun:* elder or grandparent
*Rini:* a boy's name
*Seraya:* shortened form of "*dedtur rayeh*" or "grand old lady"
*Tayun:* a boy's name
*Tepu':* grandparent
*Ubar:* a girl's name ("*Ubar Uwih*" means "my Ubar," meaning that Ubar is loved)
*Uwih:* mine

Objects

*Aba:* supports for firewood
*Angan:* support for kettles in a fireplace
*Arit:* design (also "*narit*" and "*barit*")
*Badung:* wok (for cooking)
*Barat:* platform or veranda
*Belanai:* jar
*Bengar:* plank
*Bera:* rice (husked and ready to cook)
*Beret:* belt
*Bilit:* reeds tied together and stretched out
*Binatuh:* pre-Christian burial site or graveyard
*Biung:* a gourd used to catch fish
*Dalan:* road or path
*Kubo':* fort
*Lawat:* barbed wire
*Lepo:* rice hut
*Libung:* fence
*Liling:* small woven mats
*Lungun:* burial (adjective)
*Mayung:* spear
*Natad:* a garden or cleared space
*Negari:* state (Malay)
*Pade:* unhusked rice
*Palad:* palm of the hand
*Palang:* when people sleep horizontally instead of vertically on a bed
*Parir:* poison
*Peta:* beaded hat
*Pupung:* roof made of bamboo
*Sida'an:* footprints
*Sungak:* a stone that is erected at a slant, resting on another stone (also means to look up quickly)
*Tanem:* Christian burial site or graveyard
*Tekalan:* an anvil on which people hit metal with stones to make the blade of a *parang*
*Tesag:* a floor made from bamboo
*Tumid:* heel (of foot) ("*numid*" means to "kick with the heel")
*Ulo:* a round drum fastened to the posts of rice huts to keep out the mice

*Uluh:* head
*Ulung:* a monument erected when someone died

Historical Events or Human Actions / Conditions

*Atang:* to carry something with a pole (also the beam of a house)
*Bake:* leprosy
*Bala:* famous
*Baya':* community work or to go together
*Emung:* to bring together (similar to "*umung*" which is "to come together")
*Ideb:* when a person's skin gets darker from being in the sun
*Ipak:* to chop
*Iung:* a place where people pound rice
*Katu:* to join two or more things together
*Layan:* to serve (Malay)
*Liwan:* to look back on / to reflect on
*Lupu:* when water boils over from a kettle over the fire
*Magut:* to pull someone by his/her hair
*Menang:* to win (Malay)
*Marada:* to give chase
*Metapu':* to put together
*Muko:* to transplant seedlings
*Natang:* when two people carry something tied to a pole
*Nedtung:* when people are in mourning
*Nelayan:* fisherman (Malay)
*Ngaba:* when people go and make salt
*Ngelala:* when a plant that is near a fire wilts from the heat
*Ngilal:* to put meat directly over a flame
*Ngukut:* to dig something up ("*kukut*" is the thing that is dug up)
*Nia':* to criticize
*Nuang:* to fill a field with water and then drain it (also "infected")
*Nubung:* in the past, if there was a drought, people would stuff pieces of bamboo with straw, light them on fire, and run around the longhouse to make it rain (this process is to "*nubung*")
*Numid:* to kick with the heel of the foot ("*tumid*" means "heel")
*Nutung:* to cook something in bamboo
*Paratutun:* to test one's strength
*Patarad:* place where there was a fight
*Patong:* lighter / something that makes light
*Pelela:* people running away from something
*Pereh:* to make pots by mixing in pieces of old pottery to harden the new pottery
*Pelukung:* to carry something on one's back
*Piang:* to cut or break something in half
*Putan:* a place where someone jumps from
*Singkulub:* to put a baby on its stomach (or "*nekulub*")

*Sungak:* to look up quickly (also a stone that is erected a slant and resting on another stone)
*Tuduk:* to put a head on a pole (after a headhunting raid); also to swear, curse, make an oath
*Tuked:* to climb up (also a support for a window)
*Ukat:* marking made in the ground when you use a hoe (also the steep river banks where the water erodes away the soil when the river is high)
*Umung:* to come together (similar to "*emung*," which is "to bring together")
*Upu:* to jump

Other

*Barit* or *narit:* design
*Tepun:* good (in reference to a person)

Miscellaneous Terms

*Ada':* ghost or spirit
*Adan:* starting point
*Adi':* small or young
*Asal:* original (Malay)
*A'ur:* echo or response
*Baa':* wet
*Baliu:* to change or transform (also "*benaliu*")
*Bang:* in
*Bara':* swollen
*Batuh iran:* a sharpening stone
*Besar:* big (Malay)
*Bila:* broken
*Burok:* rotten
*Daker* or *Dakeh:* a kind of taste / texture (like old cooking oil or *tengayen*)
*Dalem:* deep
*Dera'an:* bloody
*I'it:* small
*Kaang:* halfway there
*Kapal:* thick
*Kating:* to go through / cut through
*Ketikung:* to go in a circle (also "kitung")
*Kura:* old or large (or primary, as in "*pulung kura*" or "primary forest")
*Laam:* sour
*Lem:* in the
*Liang:* under or below
*Lidung:* corner
*Lun:* on (also "people")
*Luyu':* dirty
*Main:* sweet

| | |
|---|---|
| *Manid:* | means “everyone has one” |
| *Meseb:* | burned or to burn |
| *Nangan:* | supported |
| *Ngen:* | in |
| *Niat:* | to breathe |
| *Nupan:* | fed |
| *Paad:* | equal or level |
| *Paden:* | equal |
| *Piuk:* | to advance or move forward |
| *Rawir:* | long |
| *Rayeh:* | large or big |
| *Rebpun:* | smoke or smoky |
| *Renabur:* | mixed or stirred |
| *Ribuh:* | thousand (Malay) |
| *Rupa’:* | faded |
| *Singel:* | a bottleneck |
| *Sinuped:* | standing or erected |
| *Tabun:* | covered |
| *Teku’:* | the sound of knocking |
| *Telipa:* | something that is undisturbed because of its position (“*lipa*” means “on the side”) |
| *Teluh:* | three |
| *Teneb:* | cold |
| *Tera:* | hard |
| *Tupu:* | only |
| *Ulun:* | life, living |
| *Umor:* | age (Malay) |
| *Utak:* | brain |

Appendix B. Fruits Often Found at Previous Kelabit Settlement Sites

| English | Kelabit | Scientific Name | Family |
|---|---|---|---|
| Breadfruit | *Bua' kiran* | *Artocarpus altilis* | Moraceae |
| Jackfruit | *Bua' budok* | *Artocarpus heterophyllus* | Moraceae |
| Mango | *Bua' laam* | *Mangifera indica* | Anacardiaceae |
| Langsat | *Bua' langaat* | *Lansium domesticum* | Meliaceae |
| Longan | *Bua' bubuh* | *Dimocarpus longan* ssp. *Malesianus* var. *echinatus* | Sapindaceae |
| Guava | *Bua' libuh* | *Psidium guajava* | Myrtaceae |
| Durian (cultivated) | *Bua' datu'* | *Durio* spp. | Bombacaceae |
| Durian (wild) | *Bua' bindalah* | *Durio zibethinus* | Bombacaceae |
| Pomelo | *Bua' tuyan* | *Citrus maxima* | Rutaceae |
| Orange | *Bua' buyo* | *Citrus* spp. | Rutaceae |
| Lemon/sour orange | *Bua' buyo laam* | *Citrus* spp. | Rutaceae |
| Lime | *Bua' buyo laam adik* | *Citrus* spp. | Rutaceae |
| Papaya | *Bua' majan* | *Carica papaya* | Caricaceae |
| Banana | *Bua' ba'ung* | *Musa* spp. | Musaceae |
| Pineapple | *Bua' kaber* | *Ananas* spp. | Bromeliaceae |
| Mangosteen (cultivated) | *Bua' manggis* | *Garcinia* spp. | Guttiferae |
| Mangosteen (wild) | *Bua' raku'* | *Garcinia mangostana* | Guttiferae |
| Rambutan | *Bua' rambutan / bua' sia'* | *Nephelium lappaceum* | Sapindaceae |
| Tampoi | *Bua' puak* | *Baccaurea racemosa* | Euphorbiaceae |
| Cassava/tapioca | *Ubih kayuh* | *Manihot* spp. | Euphorbiaceae |
| Forest legume | *Bua' petai* | *Parkia speciosa* | Leguminosae |

Appendix C: Cultural Sites in the Kelabit Highlands

I. Pa' Lungan
   a. Megaliths
      i. Batuh Sinuped Pun Pitan
      ii. Batuh Sinuped Udan Turun
      iii. Batuh Sinuped (fallen, in Pa' Lungan)
      iv. Batuh Sinuped (near Pa' Terap)
      v. Batuh Sinuped (near Long Rebpun)
      vi. Batuh Narit Patar Laliyu' (Rebaruh Idang)
      vii. Batuh Nangan (near Long Rebpun)
      viii. Batuh Pun Tumid / Lepo Batuh / Binatuh Arur Binatuh
      ix. Batuh Ritung
      x. Batuh A'ur A'ur
      xi. Batuh Menedtung
      xii. Lepo Pade Baliu / Batuh Baliu
   b. Binatuh / Lungun Belanai / Tanem
      i. Lungun Belanai / Batuh Pa' Terap
      ii. Lungun Belanai / Batuh Pa' Debpur
      iii. Lungun Belanai Arur Sebangiung
      iv. Lungun Belanai Singkulub
      v. Binatuh Paya Perabake / Lungun Belanai Pa' Dera'an (near Long Rebpun)
      vi. Binatuh / Tanem Pa' Lungan
   c. Perupun
      i. Perupun Rayeh Pa' Lungan
      ii. Perupun Pa' Lungan
      iii. Perupun Pa' Ramain
      iv. Perupun Lio
      v. Perupun Arur Tekanangan (Long Rebpun)
   d. Ruma' Ma'un
      i. Ruma' Ma'un Arur Kiran Pa' Lungan
      ii. Ruma' Ma'un Pa' Dera'an
      iii. Ruma' Ma'un Pa' Lupu'
      iv. Ruma' Ma'un Arur Sebangiung
      v. Ruma' Ma'un Pa' Ramain
      vi. Ruma' Ma'un Pa' Terutung
      vii. Ruma' Ma'un Long Terutung
      viii. Ruma' Ma'un Pa' Mekang
      ix. Ruma' Ma'un Long Pa' Lungan
      x. Ruma' Ma'un Tesag
      xi. Ruma' Ma'un Pa' Terap
      xii. Ruma' Ma'un Ulu Beritan
      xiii. Ruma' Ma'un Arur Mela
      xiv. Ruma' Ma'un Arur Tebelayun
      xv. Ruma' Ma'un Arur Berimitem / Beritem
      xvi. Ruma' Ma'un Arur Laam

xvii. Ruma' Ma'un Ilung
xviii. Ruma' Ma'un Buluh Barit
xix. Ruma' Ma'un Lem Patar
xx. Ruma' Ma'un Lun Puun
xxi. Ruma' Ma'un Telem Buko
xxii. Ruma' Ma'un Arur Rupen
xxiii. Ruma' Ma'un Arur Puak
xxiv. Ruma' Ma'un Arur Berera
xxv. Ruma' Ma'un Bulu' Puren
xxvi. Ruma' Ma'un Arur Bengar
xxvii. Ruma' Ma'un Bang Bengar
xxviii. Ruma' Ma'un Long Merariu'
xxix. Ruma' Ma'un Ketayan
xxx. Ruma' Ma'un Tabar
xxxi. Ruma' Ma'un Pa' Paden
xxxii. Ruma' Ma'un Rekad
xxxiii. Ruma' Ma'un Arur Terabila
xxxiv. Ruma' Ma'un Arur Atang Parir
xxxv. Ruma' Ma'un Arur Barit Balang
xxxvi. Ruma' Ma'un Arur Sekarut (4 sites)
xxxvii. Ruma' Ma'un Keduluh
xxxviii. Ruma' Ma'un Long Arur Keduluh
xxxix. Ruma' Ma'un Peta Lingan (Long Rebpun)
xl. Ruma' Ma'un Pa' Semarang
xli. Ruma' Ma'un Teluh
xlii. Ruma' Ma'un Arur Bado
xliii. Ruma' Ma'un Buduk Uwar
xliv. Ruma' Ma'un Pa' Nar
xlv. Ruma' Ma'un Ulung Kenangan
xlvi. Ruma' Ma'un Long Benaliu
xlvii. Ruma' Ma'un Perupu' Arur Rupan
xlviii. Ruma' Ma'un Arur Lepo Pupung
xlix. Ruma' Ma'un Arur Pulong Ati
l. Ruma' Ma'un Retanid
li. Ruma' Ma'un Ulung Palang
lii. Ruma' Ma'un Telem Buko
liii. Ruma' Ma'un Long Rebpun

e. Kawang / Nabang / Taka
i. Kawang Uyau Palad@Balang Tepun and Sinah Balang Lutu (Buduk Kaber)
ii. Kawang Sinah Balang Riwat (Buduk Kaber)
iii. Kawang Udan Turun (Buduk Kaber)
iv. Kawang Udan Tuna (Buduk Kaber)
v. Kawang Agan Urud (Buduk Kaber)
vi. Kawang Udan Turun (Buduk Murud)
vii. Kawang Aran Tuan (Buduk Murud)
viii. Kawang Akun (Buduk Murud)

ix. Kawang Pun Erang (Buduk Murud)
x. Nabang Pa' Libung (2 sites)
xi. Nabang Seluya'
xii. Nabang Terasan (Long Pa' Lungan)
xiii. Nabang Palad Balang (Long Pa' Lungan)
xiv. Nabang Buluh
xv. Nabang Pun Marada' Ulun (Long Arur Rupan)
xvi. Nabang Balang Tepun (Pa' Terutung)
xvii. Nabang Balang Tepun
xviii. Nabang Langit Matung (Long Pa' Lungan)
xix. Nabang Patar Taratan
xx. Nabang Sinah Panid
xxi. Nabang Balang Umung
xxii. Nabang Tapu' / Pun Metapu'
xxiii. Nabang Pun Lem Unud (Long Terutun)
xxiv. Nabang Ngutung Tepun
xxv. Nabang Seray
xxvi. Nabang Parupidu' (Long Rebpun)
xxvii. Taka Udung Buluh
xxviii. Taka Gia Ulang
xxix. Taka Rawir

f. Misc.
i. Ra'an Buluh Barit
ii. Ra'an Mekang
iii. Ra'an Sinapur
iv. Ra'an Abang Buluh
v. Ra'an Buluh

II. Pa' Umor

a. Megaliths
i. Batuh Sinuped Long Teribah
ii. Batuh Sinuped Ra'an Berangad (2 here – one is Batuh Sinuped Paran Matu)
iii. Batuh Sinuped Ra'an Benuang
iv. Batuh Sinuped Belaan Iyu (was in Long Nipat, moved to Long Mein)
v. Batuh Sinuped made by Sinah Bala Ngimet@Kareb Ayu and Bala Ngimet@Tapan Ulun for Bala Ngimet's paternal uncle
vi. Batuh Narit Arur Bilit
vii. Batuh Narit Long Arur Buang Balang
viii. Batuh Pun Dukung@Pasan Lemulun / Batuh Pelukung Long Nipat
ix. Batuh Buni
x. Batuh Ipak Upai Semaring
xi. Batuh Baliu

b. Binatuh / Lungun Belanai / Tanem
i. Binatuh Long Layan
ii. Binatuh Pa' Nelayan / Lelayan
iii. Binatuh Pa' Umor
iv. Binatuh Dudtur Isep

v. Binatuh Buluh Puren
vi. Kura Binatuh

c. Perupun
    i. Perupun Long Ideb

d. Ruma' Ma'un
    i. Ruma' Ma'un Long Ideb
    ii. Ruma' Ma'un Long Kerabut
    iii. Ruma' Ma'un Pa' Ramain
    iv. Ruma' Ma'un Long Ramain
    v. Ruma' Ma'un Lem Pipit
    vi. Ruma' Ma'un Arur Teng Nudun
    vii. Ruma' Ma'un Long Arur Rupan
    viii. Ruma' Ma'un Lem Patar
    ix. Ruma' Ma'un Arur Geriperah
    x. Ruma' Ma'un Pa' Semarang
    xi. Ruma' Ma'un Arur Mapung
    xii. Ruma' Ma'un Pa' Rarupan / Long Arur Bengkuir
    xiii. Ruma' Ma'un Arur Batang Putul
    xiv. Ruma' Ma'un Long Nipat
    xv. Ruma' Ma'un Long Arur Perambango
    xvi. Ruma' Ma'un Long Persengit (lubung)
    xvii. Ruma' Ma'un Long Teribah
    xviii. Ruma' Ma'un Lem Baleng
    xix. Ruma' Ma'un Pa' Umor

e. Kawang / Nabang / Taka
    i. Kawang Mula' (many)
    ii. Nabang Ra'an Berangad
    iii. Nabang made for Akun by Sinah Bala Ngimet@Kareb Ayu
    iv. Nabang made for Akun's mother by Sinah Bala Ngimet@Kareb Ayu
    v. Nabang made for Pun Uwad by Sinah Bala Ngimet@Kareb Ayu
    vi. Nabang made for Pun Bura' by Sinah Bala Ngimet@Kareb Ayu and Bala Ngimet@Tapan Ulun
    vii. Nabang made for Laba Ayu' by Sinah Bala Ngimet@Kareb Ayu and Bala Ngimet@Tapan Ulun
    viii. Nabang Pun Ratu
    ix. Taka Pun Ratu
    x. Taka Pun Kera'e

f. Misc.
    i. Main Keramut
    ii. Rupan Arur Lela
    iii. Ra'an Ere
    iv. Ra'an Mekang
    v. Ra'an Berua'
    vi. Ra'an Anak Adi'
    vii. Ra'an Buduk Tumu' / Tumuh
    viii. Ra'an Benuang

ix. Ra'an Tong Bera'
x. Ra'an Kawi
xi. Ra'an Menengang
xii. Ra'an Berangad
xiii. Long Pa' Payang
xiv. Apad Pani

III. Pa' Ukat
- a. Megaliths
  - i. Batuh Narit Pa' Ukat
  - ii. Batuh Nangan Pa' Ukat (Arur Baa')
- b. Binatuh / Lungun Belanai / Tanem
  - i. Lungun Belanai Pun Ripug
  - ii. Binatuh Arur Bengilal
  - iii. Binatuh Pa' Rembaya'
- c. Perupun
  - i. Perupun Paran Gelawat
- d. Ruma' Ma'un
  - i. Ruma' Ma'un Pa' Ukat
  - ii. Ruma' Ma'un Paran Gelawat / Pa' Gelawat
- e. Kawang / Nabang / Taka
- f. Misc.
  - i. Ra'an Bintangan
  - ii. Ra'an Buluh Barit

IV. Bario Asal (Bario)
- a. Megaliths
  - i. Batuh Sinuped Batuh Puluh (2 in padi field)
  - ii. Batuh Emik
- b. Binatuh / Lungun Belanai / Tanem
  - i. Binatuh / Tanem Puun Kubo'
  - ii. Binatuh Buduk Butal
  - iii. Binatuh Arur Lutut
  - iv. Binatuh/Lungun Belanai Lem Budud
  - v. Binatuh A'at (at primary school)
  - vi. Binatuh A'at 2 (at Ulung Palang)
  - vii. Binatuh / Lungun Belanai
  - viii. Tanem Rayeh
  - ix. Tanem Lem Budud
- c. Perupun
  - i. Perupun Lapo Apong (in Arur Lapo Apong – goes into Arur Dalan) (also in Lapo Apong – place to hide belongings from enemies)
- d. Ruma' Ma'un
  - i. Ruma' Ma'un Buduk Butal
  - ii. Ruma' Ma'un Ulung Palang
  - iii. Ruma' Ma'un Taka / Ribpa' Taka
  - iv. Ruma' Ma'un Lem Budud
  - v. Ruma' Ma'un Long Arur Pen Tumu (3 sites)

vi. Ruma' Ma'un Arur Lutut (2 sites)
vii. Ruma' Ma'un Arur Laab
viii. 2 Ruma' Ma'un near RM Arur Laab
ix. Ruma' Ma'un near Pa' Ramapuh
x. Ruma' Ma'un near Ulung Palang Beneh
xi. Ruma' Ma'un Pa' Merariu'
xii. Ruma' Ma'un Pun Mengiung
xiii. Ruma' Ma'un Batuh Emik
xiv. Ruma' Ma'un Arur Tegkang
xv. Ruma' Ma'un Abang Nukat
xvi. Ruma' Ma'un Long Arur Salad
xvii. Ruma' Ma'un Pa' Derung Lutut
xviii. Ruma' Ma'un Bario Asal @ Long Arur Dalan (2 sites)
xix. Ruma' Ma'un Bario Asal
xx. Ruma' Ma'un Lem Laman Raben Bawang
xxi. Ruma' Ma'un Lem Laman Paran Matu
xxii. Ruma' Ma'un Lem Pipit near Arur Pen Tumu
xxiii. Ruma' Ma'un Arur Telal Lun Puun (2 sites)
xxiv. Ruma' Ma'un Tetemu
xxv. Ruma' Ma'un Luun Puun
xxvi. Ruma' Ma'un Arur Telal Lem Payeh
xxvii. Ruma' Ma'un Tana' Rengung

e. Kawang / Nabang / Taka
i. Kawang Lega Rayeh made by Balang Tuan/Tepun (Puneng Pa' Tepalang)
ii. Kawang Puun Mulun (Puneng Pa' Tepalang)
iii. Kawang Ribuh Peratu (Puneng Pa' Tepalang)
iv. Kawang Semara' Langit (Puneng Pa' Tepalang)
v. Kawang Dita' Balang (Puneng Pa' Tepalang)
vi. Kawang Nadun Dita' (Puneng Pa' Tepalang)
vii. Kawang Balang Lipang (Puneng Pa' Tepalang)
viii. Kawang Batuh Bala (Pengepawan Ridge)
ix. Kawang Gerau Ribuh (Pengepawan Ridge)
x. Millennium Kawang (Pengepawan Ridge)
xi. 2 Kawang made for Balang Lipang by Tama' Uding and Pun Toni (Puneng Arur Laab)
xii. 2 Kawang made for Nadun Dita' by Sabuh Lawan and Pun Besara (Puneng Arur Laab)
xiii. Kawang made for Tae' Liling by Tuan Ribuh (Puneng Arur Laab)
xiv. Kawang made for Lawa Aran by Seragan Mudah (Puneng Arur Laab)
xv. Kawang at Puneng Arur Laab (don't know name/history)
xvi. Kawang made for Pu'un Mulun by Gerau Ribuh (Puneng Pa' Ramapuh)
xvii. Kawang made for Baya' Paran by Ribuh Paratu (Puneng Pa' Ramapuh)
xviii. Kawang made for Dita' Balang by Seragan Mudah (Puneng Pa' Ramapuh)
xix. Kawang at Puneng Pa' Ramapuh (don't know name/history)
xx. Kawang made for Pun Masiu by Semara Langit (Ra'an Durae)
xxi. Kawang made for Pun Masiu by Ukun Tepum (Ra'an Durae)

xxii. Kawang made for Sinah Tae' Liling by Pun Ngelipo (Buduk Batuh)
xxiii. Kawang Langit Aran – made for father (Pa' Derung)
xxiv. Kawang Nubung Langit – made for father (Pa' Derung)
xxv. Nabang made by Balang Tuan and Malayung Ulun for their father (Pengepawan, on old trail to Pa' Tik)
xxvi. Nabang Batuh Puluh by father of Ngubur Ngadan (Pengepawan, on old trail to Pa' Tik)
xxvii. Nabang Daluh Langit (Pengepawan, on old trail to Pa' Tik)
xxviii. Nabang Pun Balang Elung (on way to Pa' Ramapuh – very old)

f. Misc.
i. Rupan Arur Tegkang
ii. Rupan Arur Dalan
iii. Rupan Ruma' Ma'un Arur Lutut
iv. Rupan Arur Pen Tumu
v. Rupan Arur Pen Tumu (2 sites)
vi. Rupan Puneng Pa' Ramapuh
vii. Rupan Arur Ketisi (Pa' Derung)
viii. Rupan Puneng Arur Lutut (epidemic here because they were drinking directly from the rupan)
ix. Rupan Long Puak
x. Ra'an Ngaba
xi. Ra'an Tong Bera'
xii. Ra'an Arur Tukil
xiii. Ra'an Keramut
xiv. Ra'an Arur Lutut
xv. Ra'an Tetung Ubah (on way to Pa' Derung)
xvi. Ra'an Arur Pen Tumu
xvii. Ra'an Kedudai
xviii. Ra'an Arur Beng Dengen
xix. Ra'an Berua'
xx. Ra'an Kinidan
xxi. Ra'an Sinapur
xxii. Ra'an Buduk Batuh
xxiii. Ra'an Puak
xxiv. Ra'an Arur Beguar
xxv. Ra'an Arur Tegkang
xxvi. Ra'an Arur Puneng Bukut
xxvii. Ra'an Arur Ukem
xxviii. Ra'an Arur Kabah
xxix. Ra'an Arur Laab
xxx. Ra'an Arur Dalan
xxxi. Ra'an Arur Gemarang
xxxii. Ra'an Arur Gebedtae
xxxiii. Ra'an Pu'uh (Puneng Pa' Ramapuh)
xxxiv. Ra'an Arur Piden Bukut

V. Pa' Derung
   a. Megaliths
      i. Batuh Narit Batuh Beret (Pa' Ra')
      ii. Batuh Narit Pa' Ra'
      iii. Batuh Nangan Pa' Ra'
      iv. Batuh Senumid Ada'
      v. Batuh Emung Ada'
   b. Binatuh / Lungun Belanai / Tanem
      i. Binatuh Arur Salad
   c. Perupun
   d. Ruma' Ma'un
   e. Kawang / Nabang / Taka
   f. Misc.
      i. Rupan Arur Birar

VI. Pa' Berang
   a. Megaliths
      i. Batuh Sinuped Arur Tang Barat (5 stones)
      ii. Batuh Sinuped in Binatuh / Batuh Nawi Pa' Berang
      iii. "Stone bridge"
   b. Binatuh / Lungun Belanai / Tanem
      i. Binatuh / Batuh Nawi Pa' Berang
   c. Perupun
   d. Ruma' Ma'un
   e. Kawang / Nabang / Taka
   f. Misc.
      i. Main Pa' Berang

VII. Pa' Main
   a. Megaliths
      i. Batuh Sinuped Ra'an Berangad (2 stones)
      ii. Batuh Sinuped Ra'an Tuduk Uku'
      iii. Batuh Sinuped Ra'an Benuang
      iv. Batuh Sinuped Negeri Besar
      v. Batuh Sinuped
      vi. Batuh Sinuped Along Tigan (Pa' Tama'al)
      vii. Batuh Sinuped Pa' Reparu'
      viii. Batuh Sinuped (fallen)
      ix. Batuh Sinuped Along Tigan (Ra'an Teneb)
      x. Batuh Sinuped Gerau Bala
      xi. Batuh Sinuped Tepu' Luyu'
      xii. Batuh Sinuped Long Bada
      xiii. Batuh Narit Long Derung
      xiv. Batuh Narit Buduk Batuh
      xv. Batuh Nangan Luui Aran (Pa' Pereh)
      xvi. Batuh Nangan (Bua' Laam)
      xvii. Batuh Nangan Gerau Ribuh (Long Tama'al)

b. Binatuh / Lungun Belanai / Tanem
    i. Binatuh Tang Menerang Long Pakan / Long Deruyan
    ii. Binatuh Long Berungan
    iii. Binatuh Buduk Batuh
    iv. Lungun Belanai
    v. Lungun Belanai Pa' Bada / Long Arur Bina Puun
c. Perupun
    i. Perupun Teletang (Long Bada)
d. Ruma' Ma'un
    i. Ruma' Ma'un Berebpeh
    ii. Ruma' Ma'un Pa' Main
    iii. Ruma' Ma'un Meseb
    iv. Ruma' Ma'un Pa' Pereh
    v. Ruma' Ma'un Pa' Bisil
    vi. Ruma' Ma'un Pa' Belaban
    vii. Ruma' Ma'un Long Arur Tana'
    viii. Ruma' Ma'un Kadang (near Lawa Bua' Keramut / Padang Bol)
    ix. Ruma' Ma'un Lubung Bulu'
    x. Ruma' Ma'un Pereh Dayeh
    xi. Ruma' Ma'un Teluh (3 sites)
    xii. Ruma' Ma'un Rawir (3 sites)
    xiii. Ruma' Ma'un Pereh Lutut / Long Arur Lutut
e. Kawang / Nabang / Taka
    i. Kawang Ra'an Ere
    ii. Nabang Long Benuang (2)
    iii. Nabang Taka Tama'al
    iv. Nabang (on trail)
    v. Nabang Ra'an Berangad
    vi. Nabang Ra'an Tuduk Uku'
    vii. Taka Tama'al
f. Misc.
    i. Main Rabadui
    ii. Ra'an Ere
    iii. Ra'an Anak Adi'
    iv. Ra'an Buduk Tumu' / Tumuh
    v. Ra'an Benuang
    vi. Ra'an Ngororen
    vii. Ra'an Dalan
    viii. Ra'an Lilad
    ix. Ra'an Ngaba
    x. Ra'an Dalem
    xi. Ra'an Tuduk Uku'
    xii. Ra'an Kawi
    xiii. Ra'an Buduk Batuh
    xiv. Ra'an Menengang
    xv. Takung Balang (liang Tuduk Uku')

xvi. Kiran Patur
xvii. Old school site, Pa' Main
xviii. Old agriculture station
xix. Old British army camp (Konfrontasi)
xx. Long Pa' Payang
xxi. Kenangan Tayun
xxii. Puneng Arur Bubu'
xxiii. Ela Lilad
xxiv. Long Bada
xxv. Buduk Batuh Nulin
xxvi. Apad Lepiya'
xxvii. Tuked Ayen
xxviii. Buduk Uber
xxix. Puun Rayeh
xxx. Lumut (Apad Wat)

VIII. Pa' Mada
a. Megaliths
i. Batuh Sinuped Long Bada
ii. Batuh Sinuped
iii. Batuh Sinuped Pa' Remayung
iv. Batuh Sinuped Long Arur Tang Mirir
v. Batuh Narit Pa' Repudu' / Batuh Narit Pa' Mada
vi. Batuh Tuked Rini / Batuh Iran
vii. Batuh Bulan
viii. Batuh Paratutun (Arur Lino)
b. Binatuh / Lungun Belanai / Tanem
i. Binatuh Tang Belanai
ii. Binatuh Pa' Pa'it
iii. Binatuh Long Remain
iv. Binatuh Long Arur Kenangan
v. Binatuh Long Buko
vi. Binatuh / Batuh Angan
vii. Lungun Belanai Batuh Iran / Batuh Tuked Rini
viii. Lungun Belanai
ix. Tanem (1940-1986)
x. Tanem Arur Buluh Kapal
c. Perupun
i. Perupun Tang Kelemanang
ii. Perupun Pa' Mada
iii. Perupun Ra'an Pa' Remayung
iv. Perupun Long Bada
d. Ruma' Ma'un
i. Ruma' Ma'un Taka Bulan (4 sites)
ii. Ruma' Ma'un Paratarap
iii. Ruma' Ma'un Ra'an Pangat (Pa' Ngororen)
iv. Ruma' Ma'un Napur (Pa' Ngororen)

v. Ruma' Ma'un Pasam Biring (Pa' Ngororen)
vi. Ruma' Ma'un Pa' Butung (Pa' Ngororen)
vii. Ruma' Ma'un Barapah (Parapuh)
viii. Ruma' Ma'un Sika (Pa' Mada)
ix. Ruma' Ma'un Lanalang (Pa' Mada)
x. Ruma' Ma'un Ape Takung (Pa' Rapudu')
xi. Ruma' Ma'un Batuh Lumut (Pa' Mada)
xii. Ruma' Ma'un Arur Lubang Apui (3 sites – Pa' Mada)
xiii. Ruma' Ma'un Liang Patar (Long Rapudu')
xiv. Ruma' Ma'un Rebaruh Napang Ra'an Perah Mayung (Pa' Bengar)
xv. Ruma' Ma'un Lam Dusur Napung (Pa' Bengar)
xvi. Ruma' Ma'un Long Arur Luan, Ulong Tuou' (Pa' Bengar)
xvii. Ruma' Ma'un Raneb (Pa' Mada)
xviii. Ruma' Ma'un Arur Bulu' Bayu' (Pa' Mada)
xix. Ruma' Ma'un Bulu' Kapal (Pa' Mada)
xx. Ruma' Ma'un Long Dano (Lubung)
xxi. Ruma' Ma'un Long Dano, Long Belulung (Pa' Mada)
xxii. Ruma' Ma'un Manalad (Pa' Kelapang)
xxiii. Ruma' Ma'un Long Dano 1 (Pa' Mada)
xxiv. Ruma' Ma'un Seraya Ulo Sade' Ula (upper Pa' Ritan, Pa' Kelapang)
xxv. Ruma' Ma'un Ra'an Berangan
xxvi. Ruma' Ma'un Long Parara'it (Pa' Repudu')
xxvii. Ruma' Ma'un Takung Magut (upper Pa' Ritan)
xxviii. Ruma' Ma'un Tang Mirir (Pa' Bengar)
xxix. Ruma' Ma'un Nubur (dita' ra'an tana' – bulu' barit-mangai')
xxx. Ruma' Ma'un Main Abuh (Pa' Ngororen)
xxxi. Ruma' Ma'un Natad Apuh (Pa' Ngororen)
xxxii. Ruma' Ma'un Arur Ikup (Pa' Ngororen)
xxxiii. Ruma' Ma'un Long Terimah (Pa' Ngororen)
xxxiv. Ruma' Ma'un Bua' Libuh (Pa' Buko)
xxxv. Ruma' Ma'un Bua' Terung (Pa' Ngororen)
xxxvi. Ruma' Ma'un Takung Keburo (Pa' Ngororen)
xxxvii. Ruma' Ma'un Bulu' Iih (Pa' Ngororen)

e. Kawang / Nabang / Taka
i. Nabang Pun Dakurud (Long Pa'it)
ii. Nabang Maran Balang (Tang Belanai)
iii. Nabang Tuked Rini (Tang Belanai)
iv. Nabang Utud Paran (Pa' Semayo')
v. Nabang Sagan Balang (Pa' Manalad)
vi. Nabang Paturen Bala with Sinah Bua@Rapet Ulun (Arur Bulu' Bayuh)
vii. Nabang Ribuh Long (Puneng Bubuh)
viii. Nabang Lawan Aren (Puneng Bubuh)
ix. Nabang Pun Nibu (Ra'an Peramayung)
x. Nabang Raja Tepun (Pa' Ramain / Pa' Kelapang)
xi. Nabang Balang Daring
xii. Nabang Rapuren Tepun (Long Repudu')

xiii. Nabang Temagang Tepun (Long Repudu')

f. Misc.
   i. Ra'an Ngororen
   ii. Ra'an Dalan
   iii. Ra'an Lilad
   iv. Ra'an Dalem
   v. Buduk Uber
   vi. Ra'an Terap
   vii. Buduk Batuh Nulin
   viii. Tuked Ayen
   ix. Kenangan Tayun
   x. Puneng Arur Bubu'
   xi. Ela Lilad
   xii. Apad Lepiya'
   xiii. Long Arur Teneb
   xiv. Long Bada

IX. Pa' Bengar

a. Megaliths
   i. Batuh Sinuped Ra'an Tuduk Uku'
   ii. Batuh Sinuped Magung Bilung@Balang Pelaba
   iii. Batuh Sinuped Ruma' Ma'un Arur Lem Bua'
   iv. Batuh Sinuped Rebaru' Tana'
   v. Batuh Narit (on Apad Wat)
   vi. Batuh Nangan Arur Pereso
   vii. Batuh Sungak at Ruma' Ma'un Arur Buda' Uluh
   viii. Batuh Putan / Batuh Uput Adan
   ix. Batuh Natang Ada'

b. Binatuh / Lungun Belanai / Tanem
   i. Binatuh Pa' Bengar
   ii. Binatuh Long Bengar
   iii. Binatuh / Lungan Belanai Ra'an Sembariew
   iv. Binatuh Tang Retupu (lubang batuh)
   v. Tanem Liang Datu'

c. Perupun
   i. Perupun Long Liwan

d. Ruma' Ma'un
   i. Ruma' Ma'un Long Bada
   ii. Ruma' Ma'un Pa' Liwan
   iii. Ruma' Ma'un Liang Patepu
   iv. Ruma' Ma'un Arur Buda' Uluh
   v. Ruma' Ma'un Arur Tepalang
   vi. Ruma' Ma'un Arur Lem Bua'
   vii. Ruma' Ma'un Natad Bako
   viii. Ruma' Ma'un Tana' Sia'

e. Kawang / Nabang / Taka
   i. Kawang Pun Ngelala Tepun (Apad Wat)

ii. Kawang Balang Peliwan (Apad Wat)
iii. Kawang Tama' Julan (Apad Wat)
iv. Kawang Bayo'
v. Nabang Ra'an Tuduk Uku'
vi. Nabang
vii. Nabang Long Da'an
viii. Nabang (between Arur Meritem and Arur Merebur)
ix. Nabang Ruma' Ma'un Arur Tepalang

f. Misc.
i. Main Long Ramain
ii. Ra'an Tuduk Uku'
iii. Ra'an Remubung
iv. Ra'an Liwan
v. Ra'an Pebetunen
vi. Rupan Lem Balang
vii. Rupan Pa' Riso
viii. Rupan Rebaru' Tana'
ix. Rupan Arur Buda' Uluh
x. Rupan Arur Meritem
xi. Rupan Ra'an Tuduk Uku'
xii. Rupan Pa' Remunung
xiii. Rupan Arur Merabur
xiv. Rupan Ngen Singel
xv. Rupan Pa' Rararut
xvi. Takung Balang (liang Ra'an Tuduk Uku')
xvii. Kayu Parir
xviii. Tanem Pade (where rice was buried)
xix. Puneng Liwan (source of clay for pottery)
xx. Buduk Batuh Nulin
xxi. Puun Rayeh
xxii. Lumut (Apad Wat)

X. Pa' Dalih
a. Megaliths
i. Batuh Sinuped Menang Ribuh (Lem Saug)
ii. Batuh Sinuped Magung Bilung@Balang Pelaba
iii. Batuh Sinuped
iv. Batuh Sinuped Lem Saug
v. Batuh Sinuped (2001)
vi. Batuh Sinuped Pa' Da'an
vii. Batuh Sinuped Tana' Sia'
viii. Batuh Sinuped Puneng Meniat
ix. Batuh Narit Lubang Balang
x. Batuh Nangan Lem Saug
xi. Batuh Baliu Pa' Di'it
xii. Batuh Tekalan Penghulu Tingang

b. Binatuh / Lungun Belanai / Tanem
    i. Batuh Liban / Lungun Belanai / Binatuh Liban
    ii. Binatuh Kerayan
    iii. Binatuh / Batuh Nawi Pa' Di'it (Pa' Dalih/Batuh Patong)
    iv. Binatuh / Lungun Belanai Pa' Di'it (Pa' Dalih / Batuh Patong)
    v. Binatuh Payeh Belanai
    vi. Binatuh Long Arur Lidung
    vii. Lungun Belanai Batuh Kating
c. Perupun
    i. Perupun Pa' Rabiung
    ii. Perupun Pa' Da'an
    iii. Perupun Buyo Tuan
d. Ruma' Ma'un
    i. Ruma' Ma'un Long Di'it
    ii. Ruma' Ma'un (name unknown – 2 sites here)
    iii. Ruma' Ma'un Tang Berenabur Pengah Nupan
    iv. Ruma' Ma'un Ra'an Berangan
    v. Ruma' Ma'un Long Repayang
    vi. Ruma' Ma'un Rebaru' Liang Barat
    vii. Ruma' Ma'un Liang Apad
    viii. Ruma' Ma'un Puneng Dalih
    ix. Ruma' Ma'un Long Dalih Lutut
    x. Ruma' Ma'un Ra'an Retakung
    xi. Ruma' Ma'un Long Repiya
    xii. Ruma' Ma'un Buyo Tuan
    xiii. Ruma' Ma'un Long Retarung
    xiv. Ruma' Ma'un Lem Burok
    xv. Ruma' Ma'un Batuh Kating (Lem Saug / Pa' Rabiung)
    xvi. Ruma' Ma'un Pa' Rabiung (Lem Saug / Pa' Rabiung)
    xvii. Ruma' Ma'un Perupun (Lem Saug / Pa' Rabiung)
    xviii. Ruma' Ma'un Rebaru' Tang Barat (3 sites) (Lem Saug / Pa' Rabiung)
    xix. Ruma' Ma'un Liang Apad Batuh Tekalan (Lem Saug / Pa' Rabiung)
    xx. Ruma' Ma'un Long Repayan (Lem Saug / Pa' Rabiung)
    xxi. Ruma' Ma'un Long Menia' (Lem Saug / Pa' Rabiung)
    xxii. Ruma' Ma'un Tana' Sia' (Lem Saug / pa' Rabiung)
    xxiii. Ruma' Ma'un Takung Magut (Lem Saug / Pa' Rabiung)
    xxiv. Ruma' Ma'un Seraya Ulo Puneng Ritan (Lem Saug / Pa' Rabiung)
    xxv. Ruma' Ma'un Ra'an Berangan (Lem Saug / Pa' Rabiung)
    xxvi. Ruma' Ma'un Teku' Sakai (Lem Saug / Pa' Rabiung)
    xxvii. Ruma' Ma'un Lem Beru'uk (Lem Saug / Pa' Rabiung)
    xxviii. Ruma' Ma'un Tang Renabur (Lem Saug / Pa' Rabiung)
    xxix. Ruma' Ma'un Lem Liyu' (Lem Saug / Pa' Rabiung)
    xxx. Ruma' Ma'un Lidung Ra'ug (Lem Saug / Pa' Rabiung)
    xxxi. Ruma' Ma'un Tang Rapiuk (Lem Saug / Pa' Rabiung)
    xxxii. Ruma' Ma'un Long Kiran (Lem Saug / Pa' Rabiung)
    xxxiii. Ruma' Ma'un Lem Patar (Lem Saug / Pa' Rabiung)

e. Kawang / Nabang / Taka
    i. Kawang Raja' Umung
    ii. Kawang Liri@Langit Nubung
    iii. Nabang Menang Ribuh (Batuh Kating)
    iv. Nabang Ra'an Berangan
    v. Nabang
    vi. Nabang Long Da'an
    vii. Nabang Ruid Sakai
    viii. Nabang Pa' Reka'ang
    ix. Taka Lem Saug (Pa' Dalih)
f. Misc.
    i. Main Pa' Da'an
    ii. Ra'an Remubung
    iii. Ra'an Pebetunen
    iv. Ra'an Paad
    v. Lubang Balang
    vi. Apad Lepiya'

XI. Batuh Patong
a. Megaliths
    i. Batuh Sinuped Long Kelit
    ii. Batuh Kelabet
    iii. Batuh Narit Buduk Rapayung
    iv. Namam Batuh Narit
    v. Lepo Batuh Pa' Rarayeh (Pa' Di'it)
    vi. Lepo Batuh Pa' Ra'u / Ra'o
    vii. Lepo Batuh Pa' Piang
    viii. Ating Batuh Arang (Pa' Di'it)
    ix. Ruma' Batuh Baliu (Pa' Di'it)
b. Binatuh / Lungun Belanai / Tanem
    i. Binatuh / Batuh Nawi Pa' Di'it (Pa' Dalih / Batuh Patong)
    ii. Binatuh / Lungun Belanai Pa' Di'it (Pa' Dalih / Batuh Patong)
    iii. Binatuh Long Kelit
    iv. Binatuh Long Arur Tara'
    v. Binatuh Kerayan
    vi. Binatuh Batuh Patong
    vii. Binatuh Ra'an Terama'an
    viii. Binatuh Payeha Belanai (Pa' Di'it)
c. Perupun
    i. Perupun Pa' Buda' Rayeh
    ii. Perupun Pa' Buda' I'it
    iii. Perupun Long Kelit
    iv. Perupun Payeh Telipa
    v. Perupun Pa' Ra'u / Ra'o
    vi. Perupun Tabun Menerang (Pa' Kelapang)
d. Ruma' Ma'un
    i. Ruma' Ma'un Pa' Buda'

ii. Ruma' Ma'un Pa' Buda' (2 sites)
iii. Ruma' Ma'un Pa' Di'it (Pa' Di'it)
iv. Ruma' Ma'un Ra'an Tenawang (Batuh Patong)
v. Ruma' Ma'un Lun Bara' (Pa' Di'it)
vi. Ruma' Ma'un Long Beliling (Batuh Patong)
vii. Ruma' Ma'un Rebaru' Manuk (Batuh Patong)
viii. Ruma' Ma'un Takung Bera'uk (Batuh Patong)
ix. Ruma' Ma'un Long Kerasu / Keredtu (Pa' Di'it)
x. Ruma' Ma'un Batuh Patong (Batuh Patong/ Pa' Kelapang)
xi. Ruma' Ma'un Tang Pelamou (4 sites) (Batuh Patong / Pa' Kelapang)
xii. Ruma' Ma'un Tang Remanid (Batuh Patong / Pa' Kelapang)
xiii. Ruma' Ma'un Batuh Patong Patar Petarad (Batuh Patong / Pa' Kelapang)
xiv. Ruma' Ma'un Long Kelit (Long Kelit)
xv. Ruma' Ma'un Lun Berar (Pa' Di'it)
xvi. Ruma' Ma'un Liang Puak (Long Kelit)
xvii. Ruma' Ma'un Liang Ba'ung (Ulu Kelapang)
xviii. Ruma' Ma'un Liang Piang (Ulu Kelapang)
xix. Ruma' Ma'un Long Terama'an (Ulu Kelapang)
xx. Ruma' Ma'un Lun Ra'an Terama'an (Ulu Kelapang)
xxi. Ruma' Ma'un Katu Rawir (Apad Masia' / Pa' Kelapang)
xxii. Ruma' Ma'un Takung Balang (Apad Masia' / Ulu Kelapang)
xxiii. Ruma' Ma'un Buyo Duru' Long Rekaang (Batuh Patong)
xxiv. Ruma' Ma'un Rebaru' Dakeh (Pa' Kelit)
xxv. Ruma' Ma'un Long Terutung (Pa' Di'it)
xxvi. Ruma' Ma'un Lun Ra'an Apad Masia' (Pa' Kelapang)
xxvii. Ruma' Ma'un Long Karsu

e. Kawang / Nabang / Taka
i. Kawang Tama' Lian / Kawang Apad Bawang Runan (Pa' Di'it / Pa' Kelapang)
ii. Kawang Tuan (Apad Riku')
iii. Nabang Serayah Riboh (Long Di'it)
iv. Nabang Tama' Lian (Long Di'it)
v. Nabang Ubar Uwih (Long Di'it)
vi. Nabang Pun Tanid / Ra'an Kesi (Kedti) (Batuh Patong / Long Kelit)
vii. Nabang Pun Ngutak (Batuh Patong / Long Kelit)
viii. Nabang Long Buda' (Batuh Patong / Long Kelit)
ix. Nabang Natad Rupa' (Pa' Kelit / Long Di'it)
x. Nabang Ketuan Tapun / Ra'an Kesi (Kedti) (Batuh Patong / Pa' Buda')
xi. Nabang Arur Taba'
xii. Nabang Long Baliling
xiii. Nabang Arur Kukut

f. Misc.
i. Main Ra'an Terema'an / Main Abu' / Main Abuh
ii. Main Ra'u / Ra'o
iii. Main Sadang (3 sites)
iv. Main Paad (2 sites ) (Pa' Di'it)

v. Main Apad Masia'
vi. Main Aboh
vii. Ra'an Paad
viii. Rupan Rabe' (Pa' Di'it)
ix. Ru'eb Pa' Di'it (waterfalls – 2 sites)
x. Lubang Ka'ong (Pa' Di'it – 2 sites)

XII. Ramudu
- a. Megaliths
  - i. Batuh Sinuped Long Milyu
  - ii. Batuh Narit Long Tenarit / Batuh Narit Tuked Rini
  - iii. Batuh Narit Aran Tuan / Peru Padan Tepun@Tama' Liban@Penghulu Tinggang / Raja' Umung@Penghulu Miri / Long Kesi (Kedti)
  - iv. Batuh Narit ("loincloth")
  - v. Batuh Penagan
  - vi. Batuh Tuked Rini Long Tekuyang / Batuh Sida'an Tuked Rini
  - vii. "Stone stairs"
- b. Binatuh / Lungun Belanai / Tanem
  - i. Binatuh Lidung Kitung
  - ii. Binatuh Long Badung
  - iii. Binatuh Pa' Da'an
- c. Perupun
  - i. Perupun Kelepang
- d. Ruma' Ma'un
  - i. Ruma' Ma'un Long Ramudu 1
  - ii. Ruma' Ma'un Long Ramudu 2
  - iii. Ruma' Ma'un Kelelati
  - iv. Ruma' Ma'un Long Merubung
  - v. Ruma' Ma'un Batuh Penagan
  - vi. Ruma' Ma'un Pa' Ramudu
- e. Kawang / Nabang / Taka
- f. Misc.
  - i. Kawang Tuan
  - ii. Main
  - iii. Ra'an Terap

Appendix D: Documentation Status of the Cultural Sites in the Kelabit Highlands

| TYPE OF SITE | # LISTED | # DOCUMENTED WITH GPS | % DOCUMENTED WITH GPS |
|---|---|---|---|
| | | | |
| *RUMA' MA'UN* TOTAL | 119 | 57 | 48% |
| | | | |
| *Batuh Sinuped* | 38 | 21 | 55% |
| *Batuh Narit* | 20 | 11 | 55% |
| *Batuh Nangan* | 15 | 10 | 67% |
| *Batuh Baliu* | 5 | 2 | 40% |
| *Batuh Emong* | 2 | 1 | 50% |
| *Perupun* | 24 | 12 | 50% |
| Other megaliths | 16 | 2 | 13% |
| MEGALITHS TOTAL | 120 | 59 | 49% |
| | | | |
| *Binatuh* | 51 | 23 | 45% |
| *Lungun Belanai* | 20 | 16 | 80% |
| *Tanem* | 7 | 4 | 57% |
| BURIAL TOTAL | 78 | 43 | 55% |
| | | | |
| *Kawang* | 43 | 6 | 14% |
| *Nabang* | 64 | 18 | 28% |
| *Taka* | 6 | 3 | 50% |
| MODIFIED LANDSCAPE TOTAL | 113 | 27 | 24% |
| | | | |
| *Main* | 12 | 3 | 25% |
| *Ra'an* | 47 | 19 | 40% |
| *Rupan* | 22 | 3 | 14% |

| | | | |
|---|---|---|---|
| *Lubang* | 2 | 1 | 50% |
| *Ru'eb* | 2 | 1 | 50% |
| *Buduk* | 8 | 8 | 100% |
| *Takung* | 1 | 1 | 100% |
| Misc. | 19 | 16 | 84% |
| MISC. LANDSCAPE TOTAL | 113 | 52 | 46% |
| | | | |
| TOTAL CULTURAL SITES | 543 | 238 | 44% |

Appendix E: Figures

Figure 3.1: Batuh Sinuped Tepu' Lu'ui
(Pa' Main)

Figure 3.2: Batuh Sinuped Menang Ribuh
(Pa’ Dalih)

Figure 3.3: Batuh Sinuped Ra’an Tuduk Uku’
(Pa’ Main and Pa’ Bengar)

Figure 3.4: Batuh Sinuped Ra’an Berangad
(Pa’ Umor and Pa’ Main)

Figure 3.5: Batuh Sinuped Ra'an Teneb (Pa' Main)

Figure 3.7: Batuh Sinuped Magung Bilung @ Balang Pelaba (Pa' Dalih and Pa' Bengar)

Figure 3.6: Batuh Sinuped Udan Turun/Pa' Dera'an (Pa' Lungan)

Figure 3.8: Batuh Sinuped Negari Besar (Pa' Main)

Figure 3.9: Batuh Sinuped Pun Pitan (Pa' Lungan)

Figure 3.10: Batuh Kelabat (Batuh Patong)

Figure 3.11: Batuh Narit Pa' Repudu' / Pa' Mada (Pa' Mada)

Figure 3.12: Batuh Narit Long Derung (Pa' Main)

Figure 3.13: Batuh Narit Pa' Ukat (Pa' Ukat)

Figure 3.14: Batuh Narit Pa' Ukat (Pa' Ukat)

Figure 3.15: Batuh Narit Tuked Rini at Long Tenarit (Ramudu)

Figure 3.16: Batuh Narit Tuked Rini at Long Tenarit (Ramudu)

Figure 3.17: Batuh Pun Dukung@Pasan Lemulun / Batuh Pelukung Long Nipat (Pa' Umor)

Figure 3.18: Batuh Nangan Pa' Pereh (Pa' Main)

Figure 3.19: Batuh Ritung (Pa' Lungan)

Figure 3.20: Batuh Tuked Rini / Batuh Iran (Pa' Mada)

Figure 3.21: Batuh Nangan Pun Tumid / Lepo Batuh / Binatuh Arur Binatuh (Pa' Lungan)

Figure 3.22: Batuh Angan (Pa' Mada)

Figure 3.23: Lepo Pade Baliu / Batuh Baliu

Figure 3.24: Batuh Menedtung (Pa' Lungan)

Figure 3.25: Batuh A'ur A'ur (Pa' Lungan)

Figure 3.26: Two possible sites of Batuh Bulan (Pa' Mada)

Figure 3.27: Batuh Tuked Rini Long Tekuyang / Batuh Sida'an Tuked Rini (Ramudu)

Figure 3.28: Perupun Long Kelit (Batuh Patong)

Figure 3.30: Perupun Pa' Ramain (Pa' Lungan)

Figure 3.29: Perupun Pa' Buda' Rayeh

Figure 3.31: Perupun Pa' Rabi'ung (Pa' Dalih)

Figure 3.32: Batuh Nangan in Perupun Pa' Rabi'ung (Pa' Dalih)

Figure 3.33: Perupun Pa' Mada (Pa' Mada: 2006)

Figure 3.34: Perupun Pa' Mada (Pa' Mada: 2007)

Figure 3.35: Lungun Belanai Long Layan (Pa' Umor)

Figure 3.38: Lungun Belanai Pa' Debpur / Batuh Debpur (Pa' Lungan)

Figure 3.36: Batuh Liban (Pa' Dalih)

Figure 3.37: Binatuh Kerayan (Pa' Dalih)

Figure 3.39: Lungun Belanai Sebangiung (Pa' Lungan)

Figure 3.40: Lungun Belanai Batuh Kating (Pa' Dalih)

Figure 3.41: Lungun Belanai Singkulub

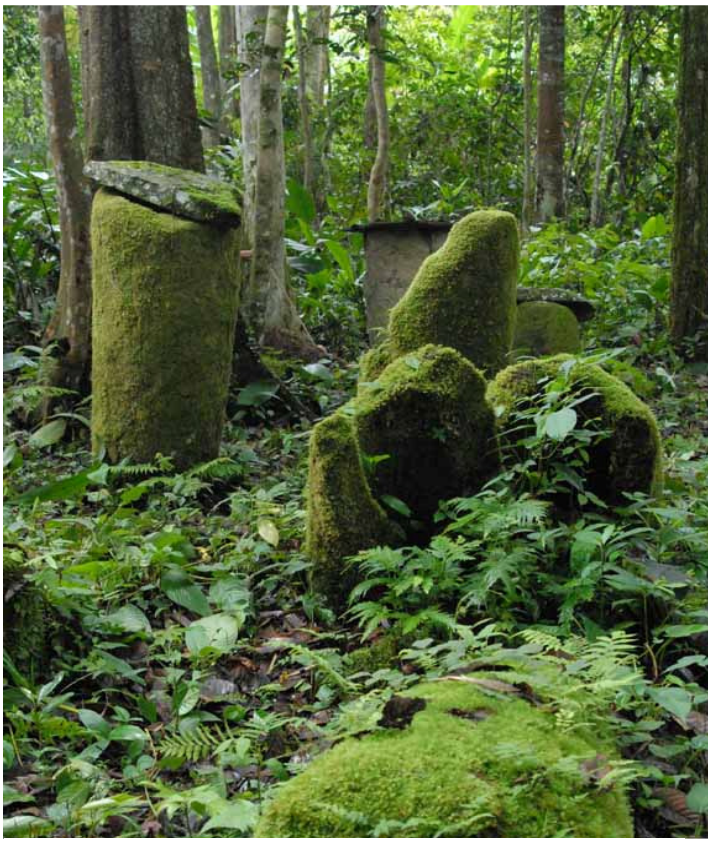

Figure 3.42: Binatuh Long Di'it (Pa' Dalih)

Figure 3.43: Lungun Belanai Long Di'it (Pa' Dalih)

Figure 3.44: Human bones inside a *lungun belanai* (Pa' Di'it)

Figure 3.45: *Batuh nawi* at Binatuh Long Badung (Ramudu)

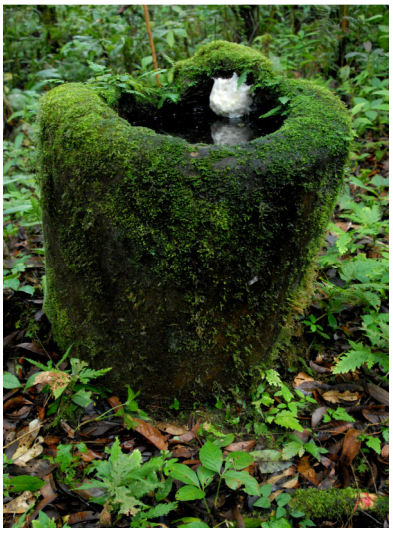

Figure 3.46: *Batuh nawi* at Binatuh Long Kelit (Batuh Patong)

Figure 3.47: *Batuh nawi* at Binatuh Pa' Da'an (Ramudu: 2006)

Figure 3.48: *Batuh nawi* at Binatuh Pa' Da'an (Ramudu: 2006)

Figure 3.49: *Bunga tubing* at Binatuh Long Pakan / Long Deruyan (Pa' Main)

Figure 3.50: Human skulls in Binatuh Lidung Kitung (Ramudu)

Figure 3.51: Tanem Puun Kubo' (Bario)

Figure 3.52: Tanem Pa' Lungan (Pa' Lungan)

Figure 3.53: Ruma' Ma'un Luun Puun (Pa' Lungan)

Figure 3.54: Ruma' Ma'un Arur Rupen (Pa' Lungan)

Figure 3.55: Buduk Kaber, site of five *kawang* (Pa' Lungan)

Figure 3.56: Millennium Kawang (Bario)

Figure 3.57: Nabang Batuh Kating (Pa' Dalih)

Figure 3.59: Nabang Buluh (Pa' Lungan)

Figure 3.58: Nabang Pa' Libung (Pa' Lungan)

Figure 3.60: Nabang Seluya' (Pa' Lungan)

Figure 3.62: Taka Tama'al (Pa' Main)

Figure 3.63: Taka Gia Ulung (Pa' Lungan)

Figure 3.61: Taka Udung Buluh (Pa' Lungan)

Figure 3.64: Main Rabadui' (Pa' Main)

Figure 3.65: Main Terema'an / Main Abu'/ Main Abuh

Figure 3.66: Takung Balang (liang Tuduk Uku')
(Pa' Main and Pa' Bengar)

Figure 3.67: Kiran Patur (Pa’ Main)

Figure 3.68: Lubang Balang (Pa’ Dalih)