12 ⁕ *Culturing the Rainforest: The Kelabit Highlands of Sarawak*

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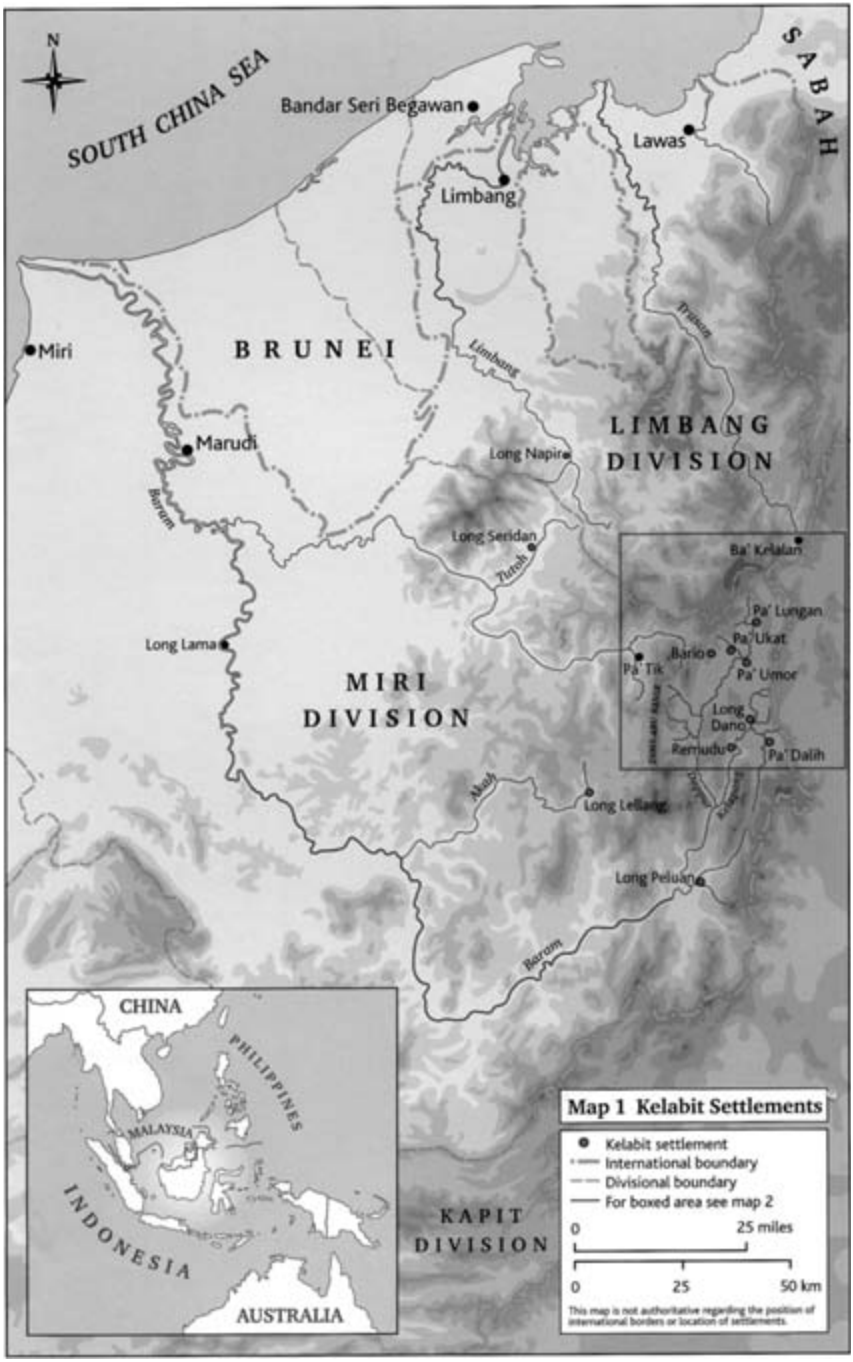
The Kelabit Highlands and Its Inhabitants

The Kelabit Highlands in the Malaysian state of Sarawak is part of a tableland about 3,500 feet above sea level broken by lower ranges of mountains and hills, extending into East Kalimantan in the Indonesian part of Borneo (figure 12.1). This tableland is distinctive for the presence of numerous megalithic monuments, for the practice of wet as well as dry rice cultivation, and for the feasts of merit at which, until the 1950s, megaliths were still erected. It is inhabited by a group of peoples speaking what Hudson (1977) describes as Apo Duat languages, after the mountain range between the Kelabit Highlands and the Indonesian part of the tableland; this should more properly be described as Apad Uat, the local term for the range, meaning "root mountains" in the local languages.

Today the Kelabit Highlands are inhabited by a people who are known as, and call themselves, Kelabit. Eastern Penan, who are not Apad Uat-speaking people, have also lived in the Kelabit Highlands in the past and still live in areas immediately to the south and west of the Kelabit Highlands.[1] While the Kelabit are rice growers, the Penan were, until recently, dependant on wild sago palms as their main source of starch food. Since World War II, most Penan have become settled or semisettled (figure 12.2) and have begun to grow rice, although some groups continue to be primarily reliant on wild sago.

This chapter is based on data gathered in the Kelabit Highlands since 1986 by Janowski, chiefly in the community of Pa' Dalih in the Kelapang valley, and data gathered in the Kelabit Highlands and surrounding areas by a team including the three authors, as part of the three-year research project (from April 2007 to April 2010), *The Cultured Rainforest* (http://www.arch.cam.ac.uk/cultured-rainforest/), funded by the UK Arts and Humanities Research Council. This draws on anthropology, archaeology, environmental science, botany, and the use of GIS to investigate, compare, and store information about the present and past human uses of and relationship with the landscape and the natural environment in the Kelabit Highlands.



12.1. The Kelabit Highlands

12.2. The Penan camp at Ba Puak to the west of the Kelabit Highlands, July 2008. Source: Photo, Monica Janowski.

Before the project began, no significant archaeological data[2] or data on environmental history was available for the highlands, and there is minimal written information available. According to the Kelabit, their ancestors have always lived in the highlands. They tell of a race of superhuman giants, the Rabada people, living in the area in the ancient past, who were, they say, their ancestors. There is a story relating that all the peoples of the world originate in the Apad Uat Mountains, and that there was a flood in ancient times that carried everyone downstream except the Kelabit and related peoples.[3] The Penan say that their ancestors have roamed the area, which includes the highlands, for as far back as they know.

Culturing the Forest

The rainforest of the highlands is predominantly oak, with wet peaty areas, some scrubby *kerangas* vegetation (Browne 1952), and, on the mountains, cloud forest. The impact of human use is most clearly visible through the presence of wet rice fields, secondary growth deriving from recent dry swidden cultivation of rice and other crops, and buffalo pastures. Around the northern, western, and southern sides of the highlands on the Malaysian side, logging is taking place. A national park, Pulong Tau, was gazetted on

March 24, 2005, which focuses on the Tama Abu range of mountains extending along the western side of the Kelabit Highlands.

The forest of the highlands is central to the livelihoods of its inhabitants. The Eastern Penan, until recently, depended entirely on the resources of the forest (*tana* in Penan, using the same word that refers to the earth itself). They relied on sago starch as their staple starch, which they harvest from a variety of palms, but mainly *Eugeissonia utilis*. The Kelabit also rely heavily on the forest (*polong* in Kelabit) for much of their subsistence (Janowski 2004). All meat eaten on a daily basis by both Kelabit and Penan is from wild animals. Although in Pa' Dalih an increasing proportion of vegetable food is from plants in new-style *kebun* gardens, which are quite highly managed, much is still gathered in areas of young secondary growth after rice-farming or is from other crops planted in dry rice fields and the *ira* gardens, which are made on previously cultivated rice fields; these plants are in many ways treated as though they were wild (Janowski 1995, 2004).

The status of the highland forest as a truly wild place, independent of human intervention, is debatable. Much of the highland forest, except on high ridges, is likely to be at least to some extent anthropic and possibly anthropogenic.[4] This is both through rice cultivation and through past and present movement, manipulation, and cultivation of many other plants, both indigenous and exotic.

Despite their heavy dependence on the forest, the Apad Uat peoples of the highlands, including the Kelabit, organize their lives around the cultivation of rice. At present we have no idea how long rice has been grown in the highlands; it has been suggested that the Kelabit may belong to an originally "horticultural" complex of peoples (Sellato 1994), relying until a few hundred years ago on roots and tree crops, rather than grains. It is possible taro may have been grown in areas that are now wet rice fields, and that rice at some point, gradually or suddenly, supplanted taro as the crop of choice. Even if this is true, however, rice cultivation may be very old in the highlands; it may well have been grown in swampy areas in Borneo, including those in the highlands, before it was grown using dry methods (Janowski 2004). Nowadays, the Kelabit grow taro at the edges of wet rice fields, as well as many other crops together with rice in dry fields.

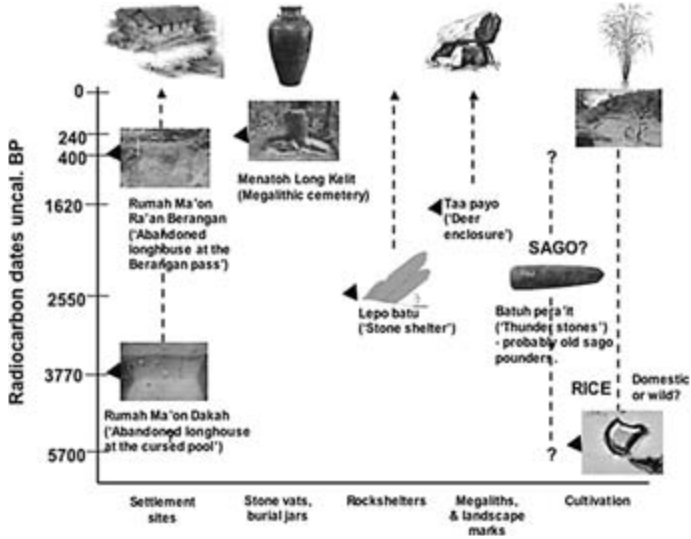
Rice cultivation, the cultivation and management of other plants, and the use of wild resources may be seen as "entangled" with each other. There is a patchy mosaic of forest types from dry rice fields to forest that may never have been farmed, intermingled with areas of secondary growth, full of species that have been planted, transplanted, or have become feral. The Kelabit, like the Penan, encourage favored wild resources. They do this in situ, leaving plants where they are and clearing undergrowth around them; they also

plant and transplant wild plants into their dry rice fields, into *ira* gardens, and nowadays into *kebun*. Old rice fields are not clearly delineated from the forest, which is simply described as big or little, with no term equating to the English "virgin" forest, and no focus on the idea of forest that has not been affected by human activity. After the first year, sometimes two, in which rice is planted, a rice field becomes a space that partakes of both the domesticated and the wild. Transplanted plants and planted seeds generate a second growth forest on old rice fields. Fruit trees and bamboo groves are the longest lasting of this anthropogenic growth. They are usually planted during the first year of use and are harvested over many years once they are mature. The distribution of fruit trees and bamboo in the highlands is therefore due at least partly, and perhaps very greatly, to past human activity.

Sago palms are an important wild resource that is encouraged and managed, nowadays only by Penan, but quite possibly much more widely in the past. There are indications that the Penan care for, even manage, sago palms; the term *molong* is the Penan word for the harvesting of the palm with care, to ensure that it will regenerate (Brosius 1991; Langub 1989). As a result of management practices like these, the density of sago palms may have been affected by human activity, and the large groves of sago palm that are present in the highlands may be the result of human management. In the historical period, only the Penan, of the peoples living in and around the highlands, are known to have relied on sago starch; the Kelabit eat sago shoots but do not make starch from the trunk. However, it is likely that at some point or points in the past a large proportion of the population in the highland area, perhaps even the whole population of the highlands, may have depended partly or wholly on sago starch. Sago is a very ancient human food in Borneo; there is evidence at Niah on the coast of Borneo of sago consumption by humans before 40,000 BP (Barton 2005). There are indications that the Kelabit have relied on wild sago on long hunting trips (Harrisson 1959, 66) and that some Apad Uat peoples have relied on sago at times of rice shortages (Jayl Langub pers. comm.).

Rice-growing is also entangled with the use of wild resources in another way: it generates hunting and gathering areas by opening up areas for edible plants and by offering food to wild animals. A good deal of hunting and gathering by Pa' Dalih residents takes place in areas containing old-growth rice fields and, since the late 1800s when buffaloes were introduced to the highlands, in pastures created by their grazing. Thus, many hunting and gathering spaces are anthropic or anthropogenic, further blurring the distinction between wild and cultivated spaces.

Through *The Cultured Rainforest* project we are beginning to piece together a picture of the history of human manipulation of the environment



12.3. Human activity in the Kelabit Highlands: Summary of the key archaeological sites and associated radiocarbon dates from the first season of fieldwork of the *Cultured Rainforest* project. Boxes with triangles indicate radiocarbon date associated with that site. Question marks denote possible earlier, undated phases of human occupation. See Barker etal. (2008) for detailed description of all archaeological sites. Image prepared by Huw Barton.

in the highland area (see fig. 12.3). We have evidence for probable anthropogenic clearance for cultivation as early as 6,450 yrs BP[5] from an earth core at Pa' Buda,' an ancient river meander in the upper Kelapang now being used for rice cultivation. From archaeological excavation we have definite evidence of human presence and disturbance of the landscape soon after 3,770 yrs BP (Barker et al. 2008). However, no evidence of plants known to be cultivated or managed by humans has been found in the pollen or phytolith record as yet. Rice phytoliths have been found from before 6,450 BP, but these are likely to be of wild origin, as five species of wild rice are known to grow in Borneo (Gilliland 1971; Vaughan et al. 2008). Definite evidence of rice cultivation over the past 300 years, through phytolith, sediment, and microfossil identification, has been found in an earth core taken from a disused rice field at the edge of the village of Pa' Dalih (Barker et al. 2008).

That people in the highland area may have been engaged in altering the natural environment for a very long time is not a surprise. Humans have had a dynamic relationship with the forest and the landscape in Southeast Asia ever since our species entered the region. There are suggestions of anthropogenic burning in Borneo in the late Pleistocene (Anshari et al. 2004) and

strong evidence of it from the mid-to-late Holocene (Anshari, Kershaw, and Van Der Kaars 2001; Hope et al. 2004). At the Niah Caves near the coast in Sarawak, hunter-gatherers appear to have been capable of identifying and removing poisonous compounds from plants such as the fruit *Pangium edule* and the yam *Dioscorea hispida* by 20,000 BP (Barker 2005; Barton 2005). This accords with the evidence for long-term manipulation in South American forests; but while this goes back perhaps 15,000 years, in Southeast Asia it may go back 50,000 years. The possibility of manipulating the environment for human gain was not invented with the arrival of Austronesian speakers in the region from about 4,000 BP, as the "Express Train" model suggests (Bellwood 2005; Diamond 1988).

This dynamic relationship points to the importance of understanding human relationships with the landscape and the environment in the region in a subtle, nuanced way. In this context, the use of the term "agriculture" in scholarship has arguably been unhelpful because it implies both radical breaks and unilinear trajectories. Both in the past and in the present, any sharp distinction between agricultural and nonagricultural peoples in Southeast Asia is arguably an artifact of human perception. The term agriculture implies a "eureka" moment when humans discovered that they could make things grow, but such a moment probably never happened. Rather, it seems likely that humans have always realized that it is possible to manipulate the natural world.

In this context, we should expect to find complex and multidirectional trajectories of change, rather than linear or evolutionary trajectories moving from a hunting and gathering way of life to an agricultural way of life. Such trajectories are likely to involve reliance at any one time on many different sources of livelihood and to be characterized by a combination of resilience and flexibility. This is indeed what we find in the Kelabit Highlands, where both Kelabit and Penan show a clear realization of the possibilities of manipulating both plants and animals.

Trajectories of change, and choices, are informed not only by physical restrictions placed by the environment. There are also cultural and cosmological reasons for choosing different portfolios of relationships with the environment. These reasons still remain to be fully elucidated, but we have some strong indications of what they may be, and that rice has played a major role.

Rice and Forest: An Imagined Divide

Despite the actual entanglement of rice and the forest, in the minds of Kelabit and Penan, there appears to be a clear divide between two broad ways of life:

one perceived as dependent on rice and one dependent on the forest. In the forest in and around the Kelabit highlands, humans are not at present, and probably were not in the past, under "food stress"; there is an abundance of food and of choice of livelihood. Hunger means not having access to the "right" food; it does not mean actually being without any food, and starvation is almost inconceivable. In this context, choices of livelihood are likely to be affected by preferences that develop for certain modes of interaction with the environment, and by the potential for "saying" certain things—socially, culturally, and cosmologically—through choice of livelihood and food. This may lead to an emphasis on certain activities and a deemphasis on others, which may not always be grounded in economic necessity or even convenience.

The growing of rice exemplifies this well. Rice in Borneo is sacred, its growing is highly ritualized, and growing it and eating it are associated with status and prestige. It appears to be associated with stratification among Borneo tribal peoples, as Sellato (1994, 212) has pointed out. This may also have been the case in the past and may explain the adoption of rice growing in the first place (Hayden 2003).

For the Kelabit, the distinction between a rice-growing way of life and a way of life that does not involve rice growing is very meaningful. Rice growing in the tropical forest is not easy, and they are quite clear about this; indeed, it is the point. If they only wanted to survive, the Kelabit are clear that they could make sago or grow root crops. Although this may not reflect reality, they believe that they and their ancestors have never relied on any starch other than rice at meals, although they grow taro, cassava, sweet potatoes, maize, Job's tears, sorghum, and millet for snack foods and, in the past, for making beer. For the Kelabit, to grow rice and to feed rice to others is equivalent to being a person of standing and status; I have suggested elsewhere that rice-growing in this context provides the basis for both kinship and hierarchy (Janowski 2007). Rice is seen as different from all other plants: while other plants grow on their own, *mulun sebulang*, rice can only grow if humans care for it. They see the cultivation of rice as initiating a particular way of living in the landscape and in the cosmos.

The Eastern Penan have been reluctant to take on rice growing and the way of "living in the landscape" that goes with it. The cultivation of rice generates a different relationship with the natural world. For the Kelabit, their relationship with plants that *mulun sebulang* is one dimension of their relationship with the natural world; it is complementary to—and arguably in tension with—rice agriculture. The cultivation of rice dominates and shapes the rhythm of Kelabit lives, and hunting and gathering are fitted into spaces left once the demands of rice are met. A rice field is carved out

of the natural vegetation and represents a statement about separation from the forest. This is particularly true with the making of a wet field, since a wet field contains nothing but rice. For the Penan, until recently, it is rather their relationship with plants and animals of the forest that dominate and shape the rhythm of life, and rice cultivation is fitted into spaces that remain. For Penan, it is only the small circle around the cooking fire itself that separates them from the forest.

The special position of rice is expressed in attitudes toward rice-growing activities themselves. Not only among Penan, but also among Kelabit, rice growing is seen as a burden—as generating a kind of "world of work." Kelabit describe it as *lema'ud*, a term that has the same connotations as the Malay word *kerja*. These two words have a broadly similar meaning to the English word "work" and connote something that is opposed to pleasure or fun. Engaging in *lema'ud* is the source of status among Kelabit, simply in itself and because it makes possible rice harvests that are the foundation of *irau* feasts of merit, the "marking" of the landscape (see later) and the accumulation of heirlooms. It means being dependant on someone else for rice, which is equivalent to being a child (Janowski 1996). It is not physical necessity but cultural necessity that has driven the development of rice growing (Janowski 1988, 2004).

The effects of changes to landscape or vegetation, ranging from the large-scale changes involved in making a dry or wet rice field to the management of wild resources, are seen as creating the rights to the benefits of those effects among both Penan and Kelabit. However, where these relate to the use of resources other than rice—including planted resources—such rights are lightly enforced. Among both groups others are allowed to use a wild resource that has been marked or "assisted" by someone else, and among the Kelabit planted resources other than rice are freely shared with others (Janowski 1995). Where a rice field is made, however, rights are created that are more definite, more strictly enforced, and longer lasting.

A distinction then needs to be made between the actual physical effects that humans have on the environment and the way in which they categorize and value these effects. The effective entanglement of rice-growing and the forest discussed earlier is not recognized by the people of Pa' Dalih in attitudes to plants or animals; even though many plants are assisted, managed, or actually planted, only rice is marked as special. This is expressed in the sharing of foods: while most plants, even cultivated ones, are freely shared with others without the creation of a debt, the sharing of rice creates indebtedness and a deep sense of shame, leading eventually to dependence and ultimately enslavement.

12.4. The stone etuu near the village of Pa' Mada said to be the culture hero Tukad Rini's sharpening stone. Source: Photo, Monica Janowski.

The success associated with rice growing is commemorated on the landscape through the placing of *etuu*, or marks (figure 12.4). These include megaliths as part of cemeteries (*menatoh*) or placed to commemorate important individuals: upright stones (*batuh senupid*), carved stones (*batuh narit*), stone burial jars (*longon batuh*), stone tables (*batuh nangan*), ditches (*nabang* and *abang*), and mounds of stones (*perupun*), as well as wet rice fields themselves. The erection of some of these types of *etuu* continued until the 1950s, and took place at great feasts of merit called *irau*, involving huge expenditure of rice. The Kelabit and other Apad Uat peoples say that these *etuu* were all made by themselves, their direct ancestors or culture heroes said to be their ancestors. *Etuu* are seen as evidence of their rights over the land (Janowski and Langub, forthcoming).

For the Kelabit, rice growing places humans on one side of a kind of imaginary Great Divide, on the other side of which is the rest of nature—the forest, the mountains, all that lives "on its own." Until they adopt rice growing, the Penan are on the other side of the Great Divide (Janowski 1996). They are living in and of the forest and have made no clear and explicit division between the forest and themselves. Sago processing does not separate the Penan from the forest; it is done in the forest, and it is of the forest. There is

no creation of a separate, humanized space through the harvesting of sago as there is with the growing and processing of rice.

The way in which the Penan view the Kelabit perception of a Great Divide remains to be fully investigated. They do appear to see themselves as living in a different relationship with the forest than the Kelabit, and nomadic Penan emphasize their attachment to the forest *as it is*, and do not appear to wish to alter the environment as do the Kelabit (Janowski and Langub, 2011). It may not be going too far to say that they have made a conscious choice to live on the other side of a divide they conceive of in a similar way to the Kelabit, and which they show reluctance to cross (Langub 1993).

Conclusion

We argue here that both Kelabit agriculturalists and Penan hunter-gatherers interact with the environment in a way that is manipulative, altering and managing the natural vegetation to different degrees, while also relying on purely wild resources. There is a continuum of ways in which this occurs, and use of wild resources is intertwined and entangled with the management and manipulation of other resources. However, despite this continuum, a sharp divide is imagined between rice cultivation on the one hand and all other forms of interaction with the natural environment on the other. For both the Kelabit and the Penan, rice growing is emblematic of a transition to a different way of living in the landscape. We have described these two ways of life, which coexist in close contact with each other in the area in and around the Kelabit Highlands, as separated by a conceptual Great Divide.

We postulate that the Great Divide exists more in the mind than in reality, as Kelabit, like Penan, rely on the forest for much of their subsistence. Despite this, the two groups appear to conceive of themselves as living in very different cosmological spaces, although within the same or adjacent physical space. The different choices of relationship with the natural world made by Kelabit and Penan imply different social structures and different statements about the ways in which they, as humans, choose to embed themselves in the cosmos (Janowski 2007; Janowski and Langub, 2011).

The complexity of use of the landscape in the Kelabit Highlands, the extent of reliance on wild resources, and the anthropogenic nature of the landscape have been little recognized in intellectual or public discourse. The government of Sarawak, which, like the Brooke rajas up to World War II and the colonial government until 1963, appears to share the rice orientation of its citizens, and does not legally recognize uses of the land apart from actual cultivation of rice in the establishment of Native Customary Rights. Although the Kelabit mourn, in the context of logging, for the loss

of forest, this does not destroy the center of their lives: rice growing. The still-nomadic Penan, in contrast, lose their entire way of life with the loss of the forests, and have been active in mounting blockades and protests. They are gradually, however, being forced by circumstances across the Great Divide, and are settling and taking up rice cultivation. This is not historically a one-way street; there is evidence that many groups have crossed back and forth into and out of the rice-growing way of life all over Borneo (Sellato 1994). However, it is now a street up which it is hard to reverse.