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Authors: Delang, Claudio O., and Wong, Theresa

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Claudio O. Delang and Theresa Wong

The Livelihood-based Forest Classification System of the Pwo Karen in Western Thailand

The present article details a system of forest cover classification used by the Pwo Karen, an ethnic minority group living in Thung Yai Naresuan Wildlife Sanctuary in western Thailand. It considers the ways in which local communities sort forest cover types into classes that are meaningful to their livelihood practices, but are at the same time embedded in conservation priorities. Rather than constituting a threat to maintaining the park's integrity, the Karen's forest classification suggests priorities that are aligned with conservation goals. It is hoped that this account will stimulate further investigations into particular, localized land cover classification systems that offer an alternative lens through which forests and their conservation and livelihood meanings can be viewed.

Keywords: *Karen; ethnic minorities; forest classification; local knowledge; conservation; Thung Yai; Thailand.*

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Introduction

As development workers and academics grapple with new conditions in which conservation imperatives encounter local people and their subsistence needs, and as forests become recognized as dwelling spaces rather than a part of 'nature' devoid of humans, new ways of characterizing land cover are needed that acknowledge the multiplicity of stakeholders and goals. Generalized systems of forest classification, originating in assumptions taken from a particular context of commercial forestry and scientific naming, fail to take into account other meanings and uses of forestland. As a consequence, conventional representations of forestland based on these systems are unproductive in resolving friction between the goals of conservationists and indigenous communities seeking to retain rights to land and resources.

Recognition of indigenous voices has come in the form of incorporating local knowledge in development planning. Local knowledge has been defined as "the unique, local knowledge existing within and developed around specific conditions of women and men indigenous to a particular area" (Grenier 1998). Largely synonymous with indigenous knowledge, 'local knowledge' has enjoyed a surge in popularity in development studies in the past decade. Once thought of as an 'unscientific' obstacle to rationally planned development, local knowledge has become the key 'resource' for participatory projects aiming to empower the traditional 'subjects' of development—local and indigenous people—as well as an alternative to processes of top-down development. On the other hand, incorporating indigenous knowledge in development planning over contested spaces and issues has not been without its challenges. Sletto (2005), for example, argues that in many cases 'participation' remains a lip service to local communities.

Alternative taxonomies offer a way of linking local knowledge and environmental information to the sociocultural context of the environmental issue at hand. Studies such as that by Braun (2002) have sought to dispel the myth of a pristine nature, linking the belief in people-free forests to Western romantic ideals and postcolonial practices. Indeed, it is thought that the move to include local perspectives in management strategies is part of this broader trend in environmental circles of moving away from the 'pristine nature' myth (Kaschula et al 2005) to alternative ideas about forests, grasslands, and swamp, and the uses of these land cover types. Robbins (2001, 2003) documents the ambivalence over the categories of 'natural' versus 'non-natural' land cover and shows that their categorizations are contingent on specific planning histories and processes, as well as their cultural-context roles in resource politics. Dove (2004) shows how the non-importance of grasslands in Western cosmology led to these important livelihood environments being dismissed by various institutions in favor of forest cover. Such discursive shifts augment the primary motivation of taking local knowledge into account: to benefit local people in development, and to "produce a locally-informed development agenda and solutions of relevance to local people" (Payton et al 2003, p 356; see also Sillitoe 1998).

The present article attempts to detail one example in which a system of forest classification as articulated by one group—the Pwo Karen living in the mountainous border regions of western Thailand—helps imbue conventional understanding of forests with a deeper sense of their utility and importance to livelihoods. The Karen are the largest of Thailand's ethnic minority groups, and live predominantly in village clusters in the northern and western hilly regions, between 300 and 700 m asl. The Karen are divided into 2 main subgroups primarily on account of linguistic differences—the Pwo and the Sgaw—the Sgaw Karen population being the larger of the 2. Approximately 3500 Pwo Karen live in Thung Yai Naresuan Wildlife Sanctuary, where our study site was located. In 1974, Thung Yai Naresuan was declared a wildlife sanctuary by the Thai

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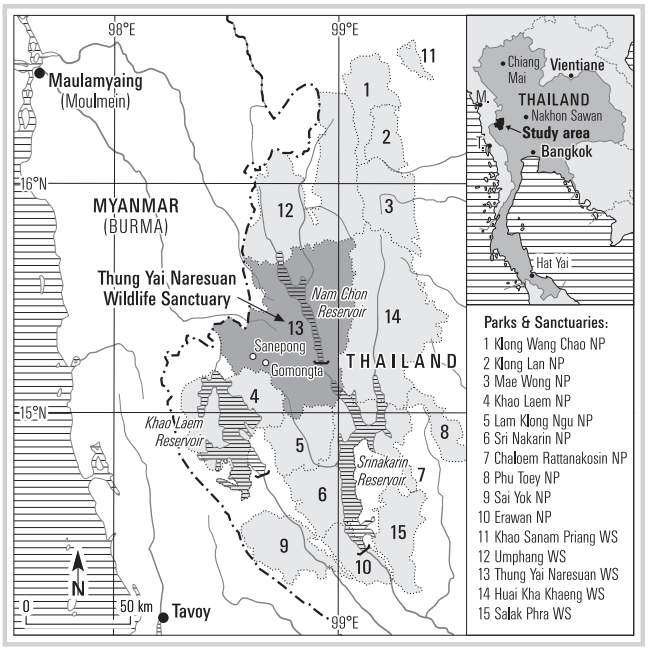


FIGURE 1 Thung Yai Naresuan Wildlife Sanctuary and the Western Forest Complex; NP = National Park; WS = Wildlife Sanctuary. (Map by Andreas Brodbeck, based on Delang 2006a)

government, and in 1991 UNESCO declared it a World Heritage Site (Buergin 2002). Situated in the west of Thailand, along the border with Burma, it is one of several national parks that together form the core of the 'Western Forest Complex'—Thailand's largest forest area at 18,700 km^2 (Figure 1). The Pwo Karen communities living in Thung Yai Naresuan predate establishment of the park, and are said to have been living there for at least 200 years (Buergin 2003).

The continued presence of Karen villages in the wildlife sanctuary has been threatened since this new status was bestowed on the area in 1974. When the forced removal of Karen villages by the Thai government failed due to the efforts of local, national, and international campaigners, the Royal Forestry Department (RFD)—the national authority in charge of forest resources—attempted to set limits on the swiddening practices of the Karen. One of these stipulations was a decrease in the number of years a field could be left fallow, from 15 to 5, with threat of arrest for non-compliance. Due in part to the emphasis on preserving endangered animal species, hunting was also outlawed, as were the removal and sale of both timber and non-timber forest products gathered from the forest.

Species- versus livelihood-based forest classification system

Fieldwork was conducted by the authors and 2 research assistants in 2 villages situated within the wildlife sanctuary—Sanepong (population: 840) and Gomongta (population: 440)—in December 2004. It involved in-depth interviews and participant observation with key informants as well as 35 Pwo Karen households living in these villages.

According to the Western-based classification of forest types, forest cover in the area surrounding the 3 Pwo Karen villages under study is composed of a "mosaic" of dry evergreen and mixed deciduous species (Boonpinon 1997, p 102). Dry evergreen species are found at higher altitudes, while mixed deciduous species are found at lower altitudes, near the villages and the agricultural areas. The mixed deciduous forest found in the area is usually mixed with bamboo, including *Bambusa tulda*, *Gigantochloa nigrociliata*, and *Cephalostachyum pergracile*. These bamboo species are also present in steep valleys, in areas adjacent to streams, and on fallowed fields (Boonpinon 1997, p 102). The official classification system used by foresters for Thung Yai is largely based on physiognomic characteristics of tree species and climatic influences on forests.

In contrast to international forest classification conventions, the Pwo Karen system of classification is closely related to their swidden farming practices, providing evidence of the importance of such farming methods to Karen livelihoods. To remain a sustainable form of subsistence agriculture and at the same time undemanding of excessive labor, the secondary forest swiddening system undertaken by the Karen requires a forest of a suitable age and with sufficient biomass. If the trees are too small because the fallow period has not been long enough, biomass will be insufficient and, when it is burned, fail to fertilize the soil adequately, which will lead to a small harvest. If the trees are allowed to grow too tall, it becomes extremely time-consuming to cut and burn them. Also, forest maturity leads to a thicker mat of organic material, which also takes more time to burn off, giving lower yields (Mertz 2002, p 153). Thus, forestland designated for farming and swiddening has to be managed carefully, with just the right length of fallow period in order to reach a balance of energy inputs and outputs.

Consideration of the balance between organic matter amounts and tree growth, varying with the growth condition of the forest, is reflected in the Pwo Karen characterization of forested areas that are deemed suitable for farming. On the other hand, for land that cannot be farmed, the characteristics of soil property or slope take precedence over stage of forest growth. It should be emphasized that this division of the different forest types into 2 sub-systems is the interpretation of the authors, and not explicitly made by the Pwo Karen interviewees themselves.

Pwo Karen forest cover classification system

Farmable land

The Pwo Karen system of forest classification pertaining to all forestland that can potentially be farmed privileges the condition and stage of vegetation growth on

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FIGURE 2 Three different forest types on a *kon lo* (mountain): *mae la deung peuh*, *mae la sa peuh*, and *hui peuh*. (Photo by Claudio O. Delang)



the forested tract since it was last cut and burned for cultivation. Terms are given to patches of forest primarily according to their stage of vegetation growth. The terms are related to the length of time a patch of forest has been left fallow, and whether it is ready to be cut and burned again for farming, or whether it is too old to be cleared and farmed.

Hrao peuh

This system begins with the identification of the land under cultivation. Such land is termed *hrao peuh* in Pwo Karen, *hrao* meaning 'cultivated' and *peuh* referring to the area or tract of land. A distinction is then made according to the number of years during which fields have been left fallow. Thus, *mae la le nei* is used for fields in their first year of fallow since their last cultivation (*le* means 'one,' *nei* means 'year'), *mae la ni nei* for 2 years of fallow (*ni* means 'two'), *mae la theh nei* for 3 years of fallow (*theh* means 'three'), and so on until 15 years of fallow (*mae la le chi yeh nei*) (*le chi yeh* means '15'). The fact that the Karen recognize up to 15 years of fallow is an indication that under normal circumstances (lack of population pressures or exogenous changes) swiddens are no longer created if the forest has been left fallow for 15 years or longer.

Hui peuh

This Pwo Karen classification system extends beyond recently cultivated land to include a larger range of forest types of various ages. Swidden fields under fallow are known as *hui peuh*, typically characterized by a vegetation composed of bamboo and trees (Figure 2). The maximum number of years a field can be left fallow to be considered *hui peuh* varies from less than 10 to up to 50, depending on the people interviewed. The category *hui peuh* contains sub-groups, according to the number of years a field has been left fallow. An area left fallow for less than 5 years is called *mae la hui bon*, while an area left fallow for less than 15 years is called *mae la lom bohn*. A fallowed area that can be cut and farmed is

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FIGURE 3 An example of the *mae la thei kla* forest type in the Pwo Karen classification system. (Photo by Claudio O. Delang)



called *mae la bon peuh* (or *mae la bon lo*, or also *mae la bon*). However, there were some disagreements over the number of years a forest has to be left fallow to be called *hui peuh*, *mae la hui bon*, *mae la bon peuh*, or *mae la lom bohn*.

It is quite likely that this lack of agreement stems from restrictions imposed on national park residents by the RFD. For example, *mae la bon peuh* usually refers to a field that has been left fallow for a 'sufficiently long' period to regain its fertility, and which can be cut and farmed again. The number of years that satisfy the requirement of a 'sufficiently long' fallow period might be changing owing to these RFD restrictions. According to some, *mae la bon peuh* refers to land that has been left fallow for 15 years, while for others it indicates a patch of forest that has been left fallow for 5 years. It is possible that community elders, having operated with longer fallow periods, tend to use 15 years as the benchmark, while younger people tend to use the 5-year limit because they have not experienced the longer fallow periods that their parents and grandparents used before the arrival of the RFD. While insufficient information is available to corroborate this generational difference, it is a sign that Karen forest classification categories have an element of flexibility, probably related to changing restrictions on their livelihood strategies.

Mae la sa peuh

Categories of land no longer considered to be undergoing fallow also change with the growth conditions of the vegetation. When *hui peuh* becomes older, it is called *mae la sa peuh*—an area of forest that has undergone more than 50 years of fallow, with a vegetation that is largely composed of bamboo clumps, including very tall, big groups of bamboo, as well as many trees and vines (see Figure 2).

Mae la thei kla

When *mae la sa peuh* gets older, it becomes *mae la thei kla* (Figure 3). Under normal circumstances, the Karen do

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FIGURE 4 An example of the *mae la wa kla* forest type in the Pwo Karen classification system. (Photo by Claudio O. Delang)



not fell the trees in *mae la thei kla* for farming purposes. This forest type is older than *sa peuh*, but younger than the oldest-growth forest in the classification: *deung peuh*.

Mae la deung peuh

Mae la deung peuh (Figure 2) is the oldest forest type in the Pwo Karen system of classification, a 'wet' and 'cold' forest that is too dense and thick to walk through. It is too old to be cleared for farming, and is used as a reserve area for non-timber forest products (NTFPs), especially in summer, when the Pwo Karen have difficulty finding wild food plants in other forest types (Delang 2006a).

Mae la wa kla

Bamboo forests—*mae la wa kla* (Figure 4)—are the only forest type to be named after the species of vegetation, either because these forests are the only ones in which a single identifiable plant type dominates, or because of the importance of bamboo to Karen livelihoods. Found in abundance in the area, bamboo provides material for constructing houses and fences, building river rafts, and making implements and tools such as buffalo bells and kitchen utensils, while bamboo shoots form a significant part of the diet of the Pwo Karen living in Thung Yai. Harvesting and sale of wild bamboo shoots is also an important component of the Pwo Karen rainy-season economy. *Mae la wa kla* is also used to designate an area within *sa peuh* in which bamboo clearly predominates over trees. Areas containing bamboo forests can usually be farmed.

Non-farmable land

The Pwo Karen forest classification system also includes a group of categories applying to land that cannot be farmed, for one or more of the following reasons: insufficient soil fertility, excessively rocky terrain, local conditions being too dry or too humid, or excessively steep slopes. Since the land cannot be farmed, vegetation growth conditions are irrelevant. Hence, forest types are classified according to the limiting factors that prevent them from being farmed, ie, soil composition or

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FIGURE 5 An example of the *lai kla* forest type in the Pwo Karen classification system. (Photo by Claudio O. Delang)



slope. The forest categories here are more akin to the ecological zones or habitats found in international conventions, with some variations.

Mae la via peuh
Mae la via peuh, literally meaning 'grassland forest,' can be roughly translated as 'savannah forest' (Steinmetz 1996). Soil fertility is rather low here compared to neighboring forests, and for this reason the land is not farmed.

Peu rao peuh
Peu rao peuh has a similar vegetation to that commonly found in *deung peuh*, namely large trees and a dense canopy, but the soil is muddy, comparable to that of swamp or marshland.

Mae la kon lo
Vegetation on mountain slopes is called *mae la kon lo*. *Mae la kon lo* is not a vegetation type; rather, all forest growth (eg *thei kla*, *sa peuh*, *deung peuh*) on a mountain is lumped together and classified as *mae la kon lo* (see Figure 2), *kon lo* meaning 'mountain.'

Lai kla
Lai kla environments (Figure 5) are characterized by rocky terrain on mountainsides or hill slopes, with sparse clumps of trees and bamboo.

Gei peuh
Gei peuh refers to vegetation consisting of sparse clumps of trees and bamboo similar to that found on *lai kla*, but in flatter valley areas. This forest type was not found in the study area, but in another part of Thung Yai Naresuan Wildlife Sanctuary.

Local knowledge and flexibility of classification system

The Karen classification system also posits an alternative understanding of the mobility of categories and the

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forest covers they characterize. In their schema for all land potentially suitable for farming, the Karen consider the stage of vegetation growth, with forests moving from one category to the other as they age. For example, *hui peuh* will become *sa peuh* after approximately 50 years of fallow—contingent on soil quality, amounts of precipitation, and sunlight. A forest situated in favorable biotic and abiotic conditions would move from one category to another more quickly than one in which unfavorable biotic and abiotic conditions have hampered tree growth. If the area is not cleared, it will become *thei kla* after another 25 years or so, and after a further 25 years it will become *deung peuh*, a 'primary forest' that has never—at least in living memory—been farmed. *Deung peuh* will not be cleared and farmed, but conserved for its role in keeping the area 'cool,' as well as for harvesting non-timber forest products (NTFPs) and sometimes timber products, including wood for house construction.

On the other hand, certain forest types, especially non-farmable land, do not move from one category to another. An area of forest that is very humid and muddy will not be farmed and will likely remain *peu rao peuh*, a marshland. A rocky mountain slope with little vegetation will always be and remain *lai kla*, while a rocky environment in a flatter area with similarly sparse vegetation will always remain *gei peuh*. *Wa kla* might or might not become *deung peuh* in the future, depending on climate and soil composition. According to the Pwo Karen, *wa kla* near a wet place will become *sa peuh* after more than 50 years of fallow. However, *wa kla* near rocks, in a dry, hot area, will remain *wa kla*.

Discussion and conclusions

How can an articulation of indigenous/local classification systems contribute to more productive interactions between local knowledge and conservation planning? The Pwo Karen classification system reveals a number of conservation objectives embedded in governance practices attached to the different classes of forest. Old-growth forests (*deung peuh*) are protected and never cut. Other forest types within the swidden cycle are constantly farmed and left fallow, at least prior to the new regulations introduced since the park's establishment. This results in the existence at any one point in time of a wide range of habitats with varying growth conditions, depending on their age of fallow—from 1 to 15 years or more. Maintaining a wide variety of growth conditions gives rise to the large number of foraging habitats for wildlife populations for which Thung Yai has become renowned. Some animals forage in young-growth forests, others in swiddens—a rich source of young herbs/bushes—or in dense *deung peuh*, humid environments that also offer shelter from predators (Steinmetz 1996). Utilizing the Karen classification system and its emphasis on age is therefore an alternative basis for mapping and monitoring wildlife populations, with their variable foraging preferences.

The increasing recognition that forests are often dynamic, lived-in spaces, as opposed to pristine, people-free environments (Braun 2002; Adams et al 2004) has the potential to be further worked into conservation practice. In positing growth stage or forest age as a basis for classification, the Pwo Karen system offers a way of framing these two ideals by avoiding the dualism of conservation versus dwelling space. This should be further explored as an alternative to Western science-based classification, which privileges physiognomic characteristics of forests. In this case, framing forest land cover in terms of age advances conservation goals. At the same time, this system acknowledges the co-dependence of the Karen and the forest. For example, forest stand age is also used as a basis to decide whether to swidden or to limit the use of the forest to NTFP extraction for subsistence. Delang (2006a, 2006b) has shown that the Pwo Karen harvest NTFPs from a variety of categories of forest, including *hui peuh*, *wa kla*, and *deung peuh*, the latter being an especially rich source of subsistence foods during the dry summers, when the wild food plants are not available in other habitats.

Recognition of Karen stewardship of the forest would help realize broader goals. Karen farming practices should no longer be considered a threat to biodiversity, and the Karen should not be threatened with removal or resettlement from lands that have sheltered their families for generations. Karen cultural identity is also intimately tied to their livelihood practices and their dependence on the forest (Laungaramsri 2002). Just as the Pwo Karen do not object to conservation of lands vital to their survival, forests as dwelling spaces need not be diametrically opposed to conservation goals. Local participation must go beyond participatory mapping, documentation, and lip service, to positioning local communities such as the Karen as stakeholders in the conservation process. Seen and trusted as stewards of the forest with an unmatched understanding of forest growth dynamics, the Karen could be powerful partners in the conservation of Thung Yai Naresuan Wildlife Sanctuary, rather than simply development objects or obstructions in the processes of conservation planning.

Bridging this divide, and welcoming local people more actively into the process, however, could be subject to a willingness on the part of conservation practitioners to admit to the 'pristine forest' myth. This may constitute a shift of paradigms for many but it is one that is beginning to make sense in the face of growing frictions the world over, threatening the survival of both conservation and local subsistence needs.

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AUTHORS

Claudio O. Delang
Center for Southeast Asian Studies (CSEAS), Kyoto University, 46 Shimoadachi-cho, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan.
delang@cseas.kyoto-u.ac.jp

Theresa Wong
Department of Geography, The Ohio State University, 1169 Derby Hall, 154 N Oval Mall, Columbus, OH 43210, USA.
theresa.wong@gmail.com

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