

## Factors Contributing to the Forest Conservation in the Spiritual Forests of the Bru Communities in Northeastern, Thailand

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**Abstract:** The spiritual forests of the Bru ethnic group are significant natural spaces in Northeastern Thailand because of their ecosystem diversity and biodiversity in native plant species. This research aims to study factors influencing the conservation ecosystems in the spiritual forests of an indigenous people who call themselves “Bru” in Sakon Nakhon Province in the Northeast of Thailand. Using an integrated methodology in anthropology and forest ecology, it found that the spiritual forests of the Bru were founded on the ecological knowledge and worldview that the spiritual world and the material are inseparable. According to the Bru traditional belief, the natural environment has spiritual meaning. The Bru regard spirits or gods residing in nature as guardians of their community and spaces. The respect and gratitude they show for the deities dwelling in the so-called sacred forested spaces is a factor that not only prevents the degradation of ecosystems but also enhances their conservation. Furthermore, the fact that the Bru have an unrestricted right to preserve their culture and transmit their knowledge is a crucial factor that promotes the sustainable management of biological resources. Such management benefits the Bru in return. It is the recognition of the benefits and the significance of the spiritual forests that motivates the Bru to conserve the forest ecosystems.

**Key words:** Spiritual forest, Bru people, biological conservation, conservation factors, spaces

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### INTRODUCTION

Founded on the philosophy of scientific empiricism and Newtonian Mechanism, technological and scientific developments have tremendously benefited mankind. However, they have also caused ecological and environmental instability. Since, the industrial revolution, natural resources in both industrial countries and formerly colonized ones have been continuously destroyed and decreased. In the latter case, natural degradation was brought about by colonial mechanisms by which natural resources of indigenous peoples were exploited by colonizers (McGregor, 2011). Mainstream development is not concerned as it should be with environmental and ecological impacts it can potentially create. In the modern era, men consider themselves as the center of development, exploiting natural resources to satisfy their own pleasures and hence exacerbating environmental problems (Payutto, 1996; McGregor, 2011). The upper Northeast of Thailand or the lower Mekong region which is part of the world’s tropical rainforests is a settlement of diverse ethnic groups such as Phu Tai, Nyaw, Kalueng, Lao, So and Bru. The Bru still maintain their traditional or Asian way of life (Chaitieng, 2011). In “The Last Tree,” Rush (1991) states that native Asians respect and worship

nature which they believe hold special power over their lives. They believe that spirits live in forests, rivers and rice. In conducting a preliminary research and ecological study of the settlement of the Bru in Thailand, researcher found that the spiritual forests in which the Bru conduct sacred rituals are diverse in ecosystems and plant species. The existence of the spiritual forests is a reflection of a concrete way of life or knowledge of indigenous peoples in the lower Mekong region. It demonstrates that native populations are vital to the sustainable management of biological resources. To date, there has no in-depth field-based study that examines the factors leading to the establishment of the spiritual forests and the ecosystem conservation of the Bru of the lower Mekong region. This research aims to discover a new way of applying or integrating biological resource management with indigenous knowledge.

**Research objectives:** To study factors contributing to the ecosystem and biodiversity conservation in the spiritual forests of the Bru.

**Research sites:** Bru villages in Sakon Nakhon Province in the upper Northeast of Thailand are located in the lowland areas between the North of the Phu Phan Range

and the Mekong River. Three Bru villages were selected as case studies: each of these villages has a largest spiritual forest in each of the following forest types: dry dipterocarp forests, mixed deciduous forests and dry evergreen forests. The case studies are Ban Na Phiang Mai, Na Phiang Sub-District, Kusuman District (dry dipterocarp forest); Ban Hin Tak, Rai Sub-District, Phanna Nikhom District (mixed deciduous forest) and Ban Na Lao, Na Nai Sub-District, Phanna Nikhom District (dry evergreen forest). The field research was conducted between June of 2011 and May of 2012. Scope (The study is divided into 2 parts):

- A study of factors leading to the establishment and conservation of the spiritual forests with an emphasis on an analysis of the relationship between cultural views/ecological knowledge of the Bru and the origins and conservation of their spiritual forests
- A study of the size and location of the spiritual forests as well as plant diversity and plant community types in them. Regarding plant diversity, the study concerns with the diversity of trees and climbers which have a Diameter at Breast Height (DBH) >4.5 cm. This is to underline the Bru's potential in preserving the forests

## MATERIALS AND METHODS

**A study and survey of indigenous peoples and spiritual forests:** The research surveyed the settlement and distribution of Bru communities and the location, size and distribution of their spiritual forests. It collected primary data from relevant documents about the history of Isan/Sakon Nakhon and ethnic groups in the Sakon Nakhon Basin. The field study was conducted through an ethnological survey including interviews with the leaders and sages of the communities and non-participatory observation on the physiology and language of the Bru in order to analyze the linguistic features and historical backgrounds of the ethnic group (Chantavanich, 2003).

**A survey of plant community types and biodiversity:** The research studied and surveyed ecological features and biodiversity of the spiritual forests of the Bru. Regarding biodiversity, the research focuses on the diversity of trees and climbers with a >4.5 cm DBH. These trees and climbers are of value because of their volume and function as biomass storage (Viriyabuncha, 2013).

**A study of factors influencing the ecosystem conversation of the spiritual forests of the Bru:** The research collected data using a qualitative anthropological research methodology including document reviews, in-depth interviews with key informants (Natsupa, 1997) and focus groups with relevant key informants and participatory observation method (Chantavanich, 2003). The latter method was conducted to analyze the history, worldview, way of life and ecological knowledge of the Bru, their activities related to the establishment, maintenance and ecosystem preservation of the spiritual forests and plant biodiversity in the forests (Trosper, 2007; Parrotta and Agnoletti, 2007).

## RESULTS AND DISCUSSION

**The settlement and ecological features of the Bru in the upper Northeast:** The Bru are one of the indigenous peoples of the lower Mekong region who settled in the upper Northeast or Isan before the foundation of the Thai nation-state (Chaitieng, 2011). The Bru have their own language to communicate in their family and community. It is in the Katuic subdivision of the Eastern Mon-Khmer branch of the Austro-Asiatic or Mon-Khmer language family.

The settlement of the Bru in the Sakon Nakhon Basin or Northeastern Thailand scatters throughout many provinces such as Sakon Nakhon, Mukdahan, Nong Khai and Nakhon Phanom. The settlement of the Bru can be found mainly at the foot of the hills or on the Phu Phan Range because their traditional means of production which is simple is dependent on natural resources. The scale of their production is small: they still do traditional rice farming called slash and burn agriculture or shifting cultivation. In Sakon Nakhon Province, the major settlement of the Bru is found on small flat areas on the Phu Phan Mountain Range. This geographical location characterizes the ecological basis of the Bru people, hence their name 'Bru' which literally means "mountain people." The main source of the livelihoods of the Bru is agriculture: rice cultivation and farming. They rely on the natural resources of the Phu Phan Range.

**Basic ecocultural worldview of the Bru and the origins of the spiritual forests:** Like other indigenous peoples in the Sakon Nakhon Basin, the Bru are and have been animists. In their traditional beliefs, gods who reside in mountains, forests and rivers are guardians of such areas. The belief in the inseparable connection between the material world and the spiritual is also common among the Bru of Laos and Vietnam (Mole, 1968).

Table 1: Number, size and community types of the spiritual forests of the Bru in Sakon Nakohn Province, Thailand

Locations	Community types	Size (raisi)
Ban Nong Hai Noi, Phang Khon District	Dry evergreen	5
Ban Nong Hai Yaii, Phang Khon District	Dry evergreen	17
Ban Khok Sa-Ard, Phang Khon District	Dry evergreen	2
Ban Hin Tak, Phanna Nikhom District	Dry evergreen	17
Ban Na Lao, Phanna Nikhom District	Mixed deciduous	70
Ban Huay Boon, Phanna Nikhom District	Dry evergreen	40
Ban Lao, Mueang Sakon Nakhon	Dry evergreen	8
Ban Kham Haew, Phanna Nikhom District	Dry evergreen	5
Ban Na Phiang Mai, Kusuman District	Deciduous dipterocarp	80
Ban Na Phiang Kao, Kusuman District	Mixed deciduous	15
Ban Song Tao, Kusuman District	Dry evergreen	1

Regarding their traditional ecological knowledge when the Bru founded their village, they chose a forest area with big trees, believing that it was a dwelling place of divinities. They made a decision by casting lots in a traditional ritual. The gods were then invited to serve as the gods of the community. They were called by different names depending on regions: some were called Phi Ao, Phi Mahesak or Phi Pu Ta. A small house was built for the supreme god to reside in. The purpose of this was to ask the god to protect the offspring of the community, bring peace to the community and ensure agricultural productivity. This sacred space which the founders of the Bru village allocated as the dwelling place of the deities has become a spiritual forest which is commonly found in several Bru communities and other Austro-Asiatic groups.

**The spiritual forests of the Bru community of Sakon Nakhon Province:** In conducting an ethnoecological survey of the forest community types of the spiritual forests in Sakon Nakhon, researcher found that there are 13 Bru villages located in 5 sub-districts of the following 4 districts: Phang Khon, Kusuman, Phanna Nikhom and Mueang Sakon Nakhon. In these 13 villages, there were 11 spiritual forests: 2 of the villages did not have their own spiritual forest but share one with others. The spiritual forests can be divided into 3 types according to the classification of plant communities in Thailand (Kudthain, 1999). The average size of the spiritual forests in the Bru villages is 23.90 rais. The largest forest is the dry dipterocarp forest in Ban Na Phiang Mai, Na Phiang Sub-District, Kusuman District with the total size of 80 rais. The largest mixed deciduous forest is the spiritual forest of Ban Hin Tak, Rai Sub-District, Phanna Nikhom District with the total size of 17 rais. The largest and most abundant dry evergreen forest is in Ban Na Lao, Na Nai Sub-District, Phanna Nikhom District with the total size of 70 rais (Table 1). The plant communities that grow and spread throughout the spiritual forests of the Bru villages are of local and natural plants.

**Plant biodiversity and tree volume of the spiritual forests:** The results of the biodiversity of trees and climbers in the 3 spiritual forests: the dry evergreen forest of Ban Na

Table 2: Plant biodiversity in the spiritual forests of the Bru

Locations	Community types	Number of species
Ban Na Phiang Mai	Deciduous dipterocarp	78
Ban Hin Tak	Mixed deciduous	55
Ban Na Lao	Dry evergreen	155
Total number of plant species in the 3 locations		214

Table 3: Wood volume in the spiritual forests of the Bru

Locations	Volume (m <sup>3</sup> )	Volume per household (m <sup>3</sup> )
Ban Na Phiang Mai	7,816.00	54.65
Ban Hin Tak	9,504.36	58.66
Ban Na Lao	33,656.00	1,450.67

Lao, the mixed deciduous forest of Ban Hin Tak and the deciduous dipterocarp forest of Ban Na Phiang Mai are as follows. In the spiritual forest of Ban Na Lao, 155 plant species were found. The most commonly found trees were Yang Na (*Dipterocarpus alatus* Roxb.), Koi (*Streblus taxoides* Kurz), Ta Beak Yai (*Lagerstroemia calyculata* Kurz) and Krue Sa Ba (*Entada pursaetha* DC). In the spiritual forest of Ban Hin Tak, 55 plant species were found. The most common were Dang (*Xylia xylocarpa* Taub.var. kerri), Pra Du (*Pterocarpus macrocarpus* Kurz), and Pai Rai (*Gigantochloa albociliata* Monro). In the spiritual forest of Ban Na Phiang Mai, 78 plants species were found. The most common were Ma Teng (*Shorea obtusa* Wall) and Rang (*Shorea siamensis* Miq.) Overall, 214 plant species were found in the spiritual forests of the 3 Bru communities (Table 2). Most of them are native plants which cannot be found in other regions of the world and can be found only in the ecological zone of the Phu Phan Range. Some species are rare and cannot be found in other areas. Among them is Krue Yang Nong (*Strophanthus scandenus* Roem and Schut) which was used by the ancient Bru as poison in warfare. The spiritual forests of the Bru are not only a collective space of biodiversity but also a source of wood production and wood volume for utilization. Based on the wood volume estimation criteria by the FAO in 2013 using equation  $V = B$  (tree basal area at breast height) × H (tree merchantable height) × 0.42, researcher found that the wood volume per household of the Bru was high (Table 3).

**Factors contributing to the conservation of the spiritual forests of the Bru people:** From the field study in-depth interviews, group interviews and observation conducted in the 3 Bru villages of Thailand, found 5 factors that contribute to the ecosystem conservation in the spiritual forests of the Bru.

**Strong cultural beliefs and local ecological knowledge:** The Bru believe that the material domains including the forest and the household are intertwined with the spiritual and the supernatural beings are their guardian and helper. When they founded their village, the leader and the senior of the group summoned a meeting to seek for a sacred entity to protect the village and its members. They sought a forest area with big trees near their village. They believed that spirits or deities had resided in the area long before their arrival. They then invited the deities to guard their community, establishing them as Phu Ta (Ao) or the spirit-god of the community. The purpose of the establishment of the god as the guardian of this small ethnic community is to protect the villagers. The tree which the villagers consider as sacred and as a residing place of the spirits varies from one village to another. For example, the sacred tree in Ban Hin Tak is Yang Na (*Dipterocarpus alatus* Roxb.ex G.Don). Annually before the farming season and after the harvest, villagers conduct a ritual in which they cast lots to ask for good weather and protection for agricultural activities, peace and a spiritual shelter for the villagers, families and community. The sacred space that the pioneers of the village used as a space to conduct spiritual rituals for the community has become a forest area the younger generation is afraid to violate. It has become the “sacred forest” that the villagers not only fear but help to protect. Therefore, the knowledge and culture of the Bru is the most important factor that contributes to the conservation or maintenance of ecosystems in the spiritual forests.

The Bru family and community ties are still strong under the seniority system which grants importance to the elder or the ancestor who are regarded as the benevolent of the community. The Bru respect and listen to their seniors. More importantly, the Bru possess and maintain a high level of gratitude. Even though their ancestors have passed away, they believe that the ancestor spirits still remain with the living. On significant days, the villagers give flower offerings to their ancestors as a way to commemorate and show respect to them. Therefore, the cultural knowledge of and respect for the sacred established by the founders of the village has not been violated but passed on from one generation to another. In addition, gratitude which is a fundamental value of the Bru culture is what drives the Bru to continue to preserve

the spiritual forests of their community. They give alms to the ancestor spirits to thank them for protecting them in one year’s time. Every family takes part in this alms-giving ritual. The culture of showing respect and gratitude to the spirits of the community and not violating the spiritual forests is handed down to the younger generation.

**Community rights over natural resources:** In the spiritual forests, the Bru have the rights over the maintenance of their local natural resources. They also have a right to transmit and utilize their knowledge to the fullest extent whereas in many spheres outside their community their cultural right is restricted by the language, procedures, knowledge of the Thai bureaucratic system. They founded the forests using their knowledge without any external support from other people, government agencies or public sectors. They preserve the forests through their own cultural ways. It is found that the maintenance of the spiritual forests of some ethnic groups in the Sakon Nakhon Basin such as Phu Tai was intervened by the government and developed under the guide of modern academic knowledge. This intervention excluded community members from forest management and forced them to cut down big trees. The government sanction brought about the disappearance of big trees and the degradation of ecosystems. Since, the spiritual forests of the Bru are located in a remote area, there is no intervention from government agencies. Therefore, the Bru have the rights to use their knowledge in conserving the forests. They also establish their own ground rules for forest management.

**Global environmental issues:** The world is faced with climate change and decline in natural resources, especially with rapid decreases in forests and biodiversity. Government agencies at the regional, national and international levels encourage the conservation of natural resources which are diminishing as a result of overdeveloped and unbalanced industrial activities. The current environmental issues are a factor that motivates the Bru to take pride in their cultural knowledge and spiritual forests. While state-led or industrial capitalist development destroys nature, the Bru play a vital role in conserving biodiversity, protecting green areas that aid in carbon sequestration and producing clean air and atmosphere. They thus become confident of their traditional way of life which will in turn motivate them to protect the sacred forests and preserve their knowledge. Global trends in solving the worlds’ environmental problems and global warming go along well with the Bru traditional way of life.

**Benefits of the spiritual forests for the community:** Apart from the preservation of their culture and ethnic identity, the Bru benefit from the spiritual forests as the source of their foods and herbs. Each spiritual forest produces biological masses and a lot of wood volume for the family and the community. This creates among the Bru a sense of pride in their culture and wisdom. They also realize that the forests not only allow them to conduct rituals for the community but also yield products which stabilize their economic base and sustain the livelihoods of the community. These benefits strengthen the determination of the Bru to continue to conserve the forests.

### CONCLUSION

The Bru are an indigenous people in the lower Mekong River and the Sakon Nakhon Basin. They have their own language and culture. The traditional knowledge and practices of the Bru are related to the ecology in both material and spiritual ways. They lay the foundation for the Bru's respect for nature that significantly leads to the establishment of the so-called spiritual forests, a space which supports the conservation of native plant species. In addition, the respect and gratitude the Bru show for the sacred and the senior of their community causes a feeling of shame in the villagers if they cut down trees and destroy the natural diversity in the sacred spaces which are used for communal rituals. The Bru's recognition of the spiritual forests as a space of biodiversity conservation and a source of their foods, herbs, wood volume and clean air is a factor that leads to the conservation of forest ecosystems. Another indispensable factor is that the Bru ethnic group has unrestricted rights to the maintenance of their forests and other resources and the use and expression of their cultural knowledge.

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