## SPIRITUAL FOREST OF PHUTAI PEOPLE: THE BIODIVERSITY OF SACRED PLANT AND ECOLOGICAL-CULTURAL VALUES IN SAKHON NAKHON BASIN, THAILAND

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## Abstract

Phutai People are an indigenous tribe in the Lower Mekhong Basin and their history and culture are in terms of biological resource conservation. This research aims to study their ecological knowledge and formation of Spiritual Forest; and to study plants' community characteristics, diversity and biological values in their society. This research integrates forest ecology with indigenous ecology, surveying social characteristics and biodiversity, which is then applied to qualitative research procedure through observation and in-depth interview of key informants to analyse ecological knowledge and plants' values during field study at a Phutai village in Sakhon Nakhon province, Thailand from June 2011 to June 2012. The findings: Phutai people like living on the plains near mountains using simple production method, depending on nature with the growing of rice as their main occupation. They have traditional knowledge, important to spiritual dimensions: man, spirit and nature which are all interrelated and inseparable. When settling down, they also choose a nearby forest for village ghost (spirit) or god (Deva)' s living place to oversee and protect the village. The forest is well taken care of and becomes a Spiritual Forest to conserve biological resources and native plant diversity. There are 95 Spiritual Forest in Phutai communities. These forests once serves as: an important source of biodiversity and native plants in Sakhon Nakhon Basin, a source of food and herb to support the Phutai people's economy and ecology, a spiritual centre, and a foundation to create strength to maintain their idealism and traditional ecological heritage in the region. Keywords: Spiritual forest, ecological potential, phutai people, indigenous people

## **1. Introduction**

The modern world after the industrial revolution is the results of The modern world after the industrial revolution is the results of advancement in science and technology which is based on the philosophy of science and Newtonian Mechanism (Capra, 1997). Although, humanity can develop technology to get to planet Mars and also built modern equipment to meet their needs, thus the impact of materialism causes environmental crisis to the earth in many ways such as destruction of natural resources, pollution, global climate change and the loss of several native plant species (FAO,2011). These problems create awareness, bringing about the review and proposal of new development to remedy and protect world ecology which results to Deep Ecology concept and sustainable development (Preecha Piampongsan, 1998; Phra Thammapidok, 1996) with the attempt to rehabilitate indigenous people's civilization in various regions as a means to protect ecology and culture (Groenfeldt, 2003).The Lower Mekhong Basin, part of Tropical Biome, is the area with the most biodiversity in the world as well as the area people settles since the Ancient Times (Gray, 1999). These people do not have much differences in cultural background compared to those in other parts of the world as they are humble and have respect for nature. They believe trees and soil have Deva or ghost to take care of as an Asian way of life (Rush, 1991). Many communities in this area, especially Phutai people have conserved land or forest, perhaps arising from knowledge-based or primitive civilization such as Spiritual Forest for performing rites. However, there were no study or clarity of ecological knowledge of these people concerning the origin and how the sacred or Spiritual Forest is been taken care of, especially in the study of biodiversity, values and the benefits of forest plants. Therefore, this research integrates forest ecology with plant species to study and clarify knowledge and origin of Spiritual Forest, social plants' characteristics, values and biodiversity in this forest. advancement in science and technology which is based on the philosophy of this forest.

## 2. Research Objectives

1) To study the way of ecological knowledge and the origin of Phutai people's Spiritual Forest

2) To study the characteristic of plant ecology and plant diversity in Spiritual Forest.

3) To study the benefits and values of Phutai people's Spiritual Forest

## 3. Scope of the study

The scope of this study is divided into three (3) parts:

- 1) To study the development, origin and maintenance of Spiritual Forest through the analysis of the relationship between culture and related basic knowledge.
- and related basic knowledge.
  To study plants' biodiversity in Spiritual Forest, particularly in sampling plots; hence, biodiversity here means trees, climbers with DBH more than 4.5 cm
- 3) To study the benefits and values of plants and Spiritual Forest towards Phutai people and their society.

## 4. Research Methodology

The study is divided into four (4) main parts:

- Study and Survey of Indigenous People the survey of location, the spread of Phutai people and size of Spiritual Forest through primary data: their settlement in Sakhon Nakhon basin through field study for ethnology survey by interviewing community leaders, and through non-participation observations.
   Survey of Primary Biology-this studies and survey the ecological conditions and plants in Phutai area as well as the social plants'
- 2) Survey of Primary Biology-this studies and survey the ecological conditions and plants in Phutai area as well as the social plants' characteristics, numbers, kinds and size of Spiritual Forest, location, species, check of ecological history with community leaders to analyse social plants' characteristics and ecological changes.
- 3) Survey of Plants' Biodiversity in Sample Plots: the design of various kinds of sample plots to study the characteristic of plants' community with a rectangular plot 10 x 10 m : numbers of plots accounts for 10 % of forest area, a big tree with circumference 1.30 m from ground level, and DBH more than 4.5 cm (Ousting, 1958; Sura Pattanakiat,2006)

Diversity analysis of plants and species and account of species names, consideration of species for classification, giving native and science name comparing with the manual of Plant classification (Tem Smitinan, 2004)

4) Study of the relationship between Indigenous People and Spiritual Forest-through document reviews an in-depth interview with key informants (Chattip Nasupa, 1997), focus group and nonparticipation observation (Supang Chantawanich, 2003) to analyse ecological knowledge and origin of spiritual Forest, benefits and values of plants, both material and cultural (Kanowski and Williams, 2009)

## 5. Study Area

Phutai communities, Sakhon Nakhon Province, Northeast Thailand, with latitude 16 d45 '- 18 d15 ' North and longitude 103 d15 ' - 104 d30 ' East, is a part of Sakhon Nakhon Basin, to the north of Phuphan Range and on Lower Mekhong Basin plains.

Selected representatives of the biggest area of spiritual forest are at Ban Don kloy Village (deciduous dipterocarp forest) in Pannanikom District, Ban Parai Village (mixed deciduous forest) in Kogsiisuphan District and Ban Ponnakai Village (dry evergreen forest) in Muang District. Also, Sakhon Nakhon Province shows a survey of Plants' Biodiversity and study of the relationship between Indigenous People and Spiritual Forest.

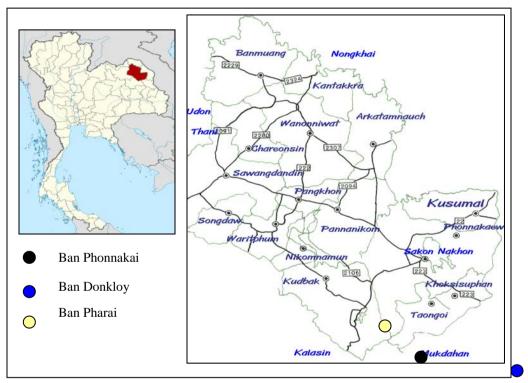


Fig 1: Area Study: Sakhon Nakhon Province, Thailand

## 6. Results

## 6.1 Origin and Features of Tai and Phutai People

Over 3000 years ago, Tai people, a tribe speaking Tai-Kradai language group settled down in Central Yangze – Kiang, which is now Sechuan and Si-Kiang counties in China, before Tai-Kadai separated and developed into Kamsui and Tai. The people are divided into three (3) groups over 2,500 years ago namely: Central, North and Southeast which scatters between China and Vietnam (Sumit Pitipat and Smerchai Poolsuwan, 2000). The archaeological document confirming the origin of Tai culture is at Sangsingtui Archaeological site, Kwanghun, Sechuan County which is about 5,000 to 6,000 years old were ploughed; chinaware and high – elevated houses were found to be heritage from Tai culture called "Hermootoo" which is also known as rice culture in Jerjiang County (Orathai Poldee, 1999)

Phutai is a small tribe of Tai people as there are many tribes of them in Asia which includes Taidam, Taidang, Taikhao, Tailao, Taipuan, Taiyai, Tainung, and Taimoei. Most people belonging to this tribes lives in Thailand, Laos, North Vietnam, South Yunnan County, North Burma and Assam State in India (Sumit Pitipat, 2001). In ecological settlement, the Southwest group along the rivers in Central-South Asia from the Red River to the west covers five (5) major rivers flowing past Yunnan Country in Upper Southeast Asia and Assam State. Thus, the five major rivers are: Mekhong, Red, Salawin, Irawadee and Prommabutr (Smerchai Poolsuwan, 2006)

## 6.2 Phutai People in Thai-Lao Mekhong Basin and Sakhon Nakhon

Those who lived in Sakhon Nakhon Basin and Suwannakhet in Laos were once in Sibsongjuthai Lands, which is now Northwest Vietnam with Thang (Than) towns as the centre (Tawil Kesornraj, 1969) before moving to Lower Thai-Lao Mekhong Basin. Patthiya Yimrewat (2001) stated that there are two (2) Tai groups which are: Phutaikhao (White Phutai) and Phutaidam (Black Phutai). Therefore, those who lived in Sakhon Nakhon province are usually close to Phutaidam (Tawil Kesornraj, 1969).

Sakhon Nakhon Basin was the area of ancient civilization in Mekhong Basin, and the dwelling place of prehistory people as seen in Ban Chiang civilization. These people were scattered in Upper Northeast, and could not be identified as a group, but the tribe with historical evidence and which was inherited from indigenous group up to the present was logical at the end of the 23<sup>rd</sup> Buddhist Century of the immigration of Thai-Lao people. Thus, the group of Prarajakhru Ponsamek or Yakukihom accepted the people from the left of the Mekhong basin to renovate Phathat Phanom and set up community close to them. Importantly, Sakhon Nakhon Basin settlement started after the war between Siam and Lanchang Kingdom during B.E. 2369 with tribes' movement from Laos' East Mekhong to the west joined with earlier settlers. In the major event, Phutai people settled down in Sakhon Nakhon Basin; they emigrated from Suwanakhet and settled down in Mukdahan, Kalasin, Nakhon Phanon, Sakhon Nakhon, Amnaj Charoen, Yasothon, Udon Thani, Nong Khai and Roi Et, but the highest numbers of settlers was found in Sakhon Nakhon (Suwit Thirasaswat and Narong Upan, 1996)

**6.3 Spiritual Forest and Cultural Ecology of Phutai People 6.3.1 Basis of Global Perspectives in Cultural Ecology** Phutai society is a permanent settlement in which the people have knowledge of rice production and development of water management as a result of the Sibsongjuthai Lands. Before their state settlement, people in Tai group (Phutaidam-khao) was fully involved in growing rice, and built spillways to irrigate the rice fields called "Muang Fai Lairin" before moving to Lower Mekhong Basin (Pattiya Yimrewat,2001). In cultural ecology, Chitr Pumisak (1997) said that the development way free from shifting production in the forest to settle down on low plains free from growing farm rice by shifting cultivation method to rice growing using fertilizers from water currents thus avoiding movement elsewhere. Therefore, this has resulted to their love for lands such as: Mae Thoranee (Mother Earth), and Mae Phosop (Mother Rice); thus, they always give gratitude to the land. The Mae Phosop (Mother Rice); thus, they always give gratitude to the land. The researcher finds this as an important evidence of ecological knowledge with respect to humility, respect for nature and its conservation based on global perspectives in cultural ecology of these people believing that nature, man, and spirit are closely related.

and spirit are closely related. With traditional knowledge through learning over 1,000 years, Phutai people respect and believe in spiritual dimensions (Chitr Pumisak,1997) that after death, grand parents' spirits still exist close to them and protect them, thus they build a small house or shelf to pay respect to those departed souls ( Chamlong Takam, Interview 2010). Under the Phutai's cultural worldview, the belief is that the materialistic world is inseparable from the spiritual world. Sacred beings Than(Deva) such as ghost which exist in lands, forests, and water, are the most important in Tai-Phutai's tradition (Patthiya Yimrewat,2001; Pichet Saipun and Narupun Duangwiset,2002) as their concept similar to other Asian tribes' tradition (Rush, 1991; Capra, 1997) .Therefore, this system or basis, brought about the Spiritual Forest, which is regarded differently in each country or region where Phutai people live as "Dongsua", "Don Ho", "Don Poota" and "Dongsua Ban".

# **6.3.2 Dong Sua : Basis of Spiritual Forest and Plant Species Conservation of Phutai People**

Conservation of Phutal People Phutai/Phutaidam, an ancient tribe lived in Sibsongjutai in Northwest Vietnam. In their belief in religious morale, ghost, Than (Deva) and supernatural things, Sumitr Pitipat (2003) concluded that it was to a very large extent found in Primitive Societies. It represented the ancient religious system of various Tai groups (including Phutai: researcher). Taidam people have town ghost and house ghost that assist them to build houses and towns. Town ghost or Sua Muang is the former town chief's ghost which brings peace and fertility, thus, they are found in the hills or big trees with a

boundary stone to be used specifically in Sen Muang Ceremony or treat town ghost; while house ghost refers to village chief ghost who built the village. A house was built for this ghost, with big trees around the ghost house called "Dong Sua" (Sua Forest). Therefore, the house ghost must be celebrated yearly so that people will enjoy protection. A branch of Tai group called Tai Ahom has a respect system of Sua Muang- they believe Sua as Deva who protects community. In town, there may be many Sua, but only one Sua Muang Yai protects the town. This town ghost deals with the community and its activities only by not bringing Sua which protects nature such as Sua Nam Sua Din for Sua Muang, People believe Sua muang lives in trees called Ton Sua, especially big trees "roong rai kham" or King Trees (Ton Sai/ Banyan Trees) respected as Ton Sua Muang which is situated at the north of the town. This direction is believed sacred by Tai Ahom as that of ruling unit's location or Khum Chao Muang, while the South or town's end is occupied by low-class people and slaves (Ranee Lertluamsai, 2001) (Ranee Lertluamsai, 2001)

(Ranee Lertluamsai, 2001) Tainoong people in Gwangnan, Hewinsan province, who are used to settle down independently from China, believe in morale, life after death and respect for ancestors. Thus, in and outside their community exist big trees "Dong Sua/Dong Chua" which is often regarded as place of Deva or house ghost. There is also a Deva house called "Theang Sua" for community which was once the ruling centre. Dong Chua is centre for sacrificial rituals. Though, Sua is very important to Tai people, the Chinese do not have this (Sumitr Pitipat and Smerchai Poolsuwan, 2000) . Hence, Sua system may be classified as a sacred place owner or as the "Lord of the Land" or "Protection Ghost" because it protects people in several levels: House Ghost (Spirit) protects houses, while Village Guardian spirit protects a village or community (Siriporn na Thalang, 2012) The conservation of Tai people's Dong Sua leads basically to that of nature plants, and perhaps these people's cultural and ecologic knowledge exists before the State establishment in present age and becomes a heritage in that man and nature are inseparable. Therefore, the relationship between materialism and spiritualism are still related as joint-culture of Tai different group including Phutai in Sakhon Nakhon Basin.

group including Phutai in Sakhon Nakhon Basin.

**6.3.3 From Don Sua to Don Poota of Phutai People** In their society, House Ghost is regarded essentiality as Guardian. Although they now turn to Buddhist belief, thus almost all houses have Spirit House because Spirit house, Sua House, Don Ho, Hothala or Poota House are important to them. They build Spirit House or Poota House to treat and respect these things for a peaceful life. Besides, Lao people from Ban Nayom, wiraburi in Suwannakhet province have migrated and settled down

in Sakhon Nakhon Basin, but they also built Spirit House or Don Ho for

in Sakhon Nakhon Basin, but they also built Spirit House or Don Ho for spiritual attachment (Gompawiang Inpaengtawong, Interview 2011). From field survey of Sakhon Nakhon Province (B.E.2012), 217 villages were found with the biggest Phutai population in 53 sub-districts, 15 districts (18 districts in Sakhon Nakhon province). They have knowledge and traditional way of life in nature respect especially Spiritualism with Buddhist belief -- in every village exists Spirit House, their ancestors' souls close to them, and is used for farming ritual in asking for abundant rice and food (fish) and also well-being (Prasit Uthaiwat and Preeda Uthaiwat, Interview 2555); but also, small community separated from the big one still joins in House spirit treating ritual. Almost all villages in Sakhon Nakhon possibly regards Dong Sua or Guardian Spirit as "Don Poota" or "Don Ho", in their joint cultures and languages. joint cultures and languages.



Fig 2: The Spiritual House (Community Ghost) in Ban Ponnakai 's Spiritual Forest

## 6.3.4 The Characteristic of Plant Community and Biodiversity in **Phutai's Spiritual Forest**

From the survey of species ecology and Spiritual Forest, all 217 Phutai communities used Don Poota sacred forest together, thus no Spiritual Forest areas were equal to the number of communities. In the survey, primitive plants with more than a half rai (2 ngan) were found in 95 areas. The plant community in Phutai's Spiritual Forest are classified into four (4) according to Thai social plant characteristics (Uthit Gud-in, 1999) namely: Dry evergreen forest, mixed deciduous dipterocarp forest, deciduous dipterocarp forest and wetlands. Their biggest Spiritual Forest is at Ban Ponnakai, Nonhom sub-district; Muang district has the number of 110 rai as dry evergreen forest, while the biggest mixed deciduous forest is at Ban Parai, Madnathom sub-district, Khoksisupan district 50 rai and deciduous dipterocarp forest at Ban Donkloy, Sawang sub-district, Phannanikom district 20 rai with ratios: 31 dry evergreen forest at 38.75 %, 21.25 % and 10 wetlands at 12.5 % of all Spiritual Forests. The rest are some plant species; hence, the biggest area found is between 1-9 rai. The biggest ratio is 41.1% (39 areas); 10-49 rai at 21.1 % (20 areas); less than one rai at 18.9 % (18 areas); 50-100 rai at 3.2% (3 area) and more than 100 rai at 1.1% (one area) and the rest were some plant species.

## 6.4 Biodiversity and Spiritual Forest's Sacred Plants

The sampling of three (3) social groups in Spiritual Forest by choosing representatives of each group with the biggest area in dry evergreen forest was achieved at Ban Phonnakai; mixed deciduous forest at Ban Parai; and deciduous dipterocarp forest at Ban Donkloy. Biodiversity in big trees in all 178 species was found to be: 156 in dry evergreen forest at Ban Phonnakai; 55 in mixed deciduous forest at Ban Parai; and 55 in deciduous dipterocarp forest at Ban Donkloy.

All 178 species of plant in Phutai's spiritual forest found in Sakhon Nakhon province have socio-economic value; many species were rare and exist nowhere. Also, many species were threatened and destroyed by mono cropping system and the demand of construction industry on these high valued herbs such as Payoong (*Dipterocarpus grandiflorus* Blanco), Yangna (*Dipterocarpus alatus* Roxb. ex G.Don), Takean Thong (*Hopea odorata* Roxb) Jamphadong (*Michelia champaca* Linn.) Khohin (*Castanopsis piriformis Hickel&* A.Camus) including Khaminton (*Metadenia trichotoma* Bakh.f.) and Kamlangkraitoo (*Dracaena conferta* Ridl.).



(A) (B) Fig 3: (A) Plan's community in Ban Parai 's Spiritual Forest (B) Plan's community in Ban Donkloy 's Spiritual Forest

In Spiritual Forest are found sacred plants in which community believes that Chao Poo-Poota (Guardian ghost) lives apart from the house or shrine. At Ban Phonnakai was found Maisomhongpha (*Garcinai speciosa* Wall.) 4.20 m DBh, 25 m high; and at Ban Khoksomboon, Nonbuw sub-district,Nikhom Nam-oon district were found Yangna (*Dipterocarpus alatus* Roxb. ex G.Don) 4.50 m DBH, 25 m high. All plants in Spiritual Forest are regarded as Poota or Deva which protects people. Plants cannot be used personally except for public activities; the request ceremony must be done (Prasit Uthaiwat, Interview,2012) especially Sacred plants where Deva or community spirit lives, and they are known as the heart and core of the Spiritual Forest. People believe that house ghost or house guardian live and protect them and their traditional way of respect is to keep up Spiritual Forest; meanwhile, in violating this traditional way of respect, people are contemted by community and get sick, which is believed that it was caused by Deva or ghost (Bung Sensit, Interview 2012).

## 6.5 Value and Importance of Forest and Plant Species in Spiritual Forest

Phutai people's Spiritual Forest is the area for joint-activities in treating Poota or Spirit House to express gratitude toward all care for living and farming as seen in the treatment of Poota before and after the rice growing season (Jamlong Thakham and Yai Wonghongsa, Interview 2012). In that ritual, people attend it to cause strength in community (Prasit Uthaiwat, Interview 2012) as heritage and upkeep of identity and tribe-hood because the dialect will be used for each treatment. The forest's value

because the dialect will be used for each treatment. The forest's value therefore, becomes heritage and spiritual strength of community with their traditional and primitive knowledge. In each area, apart from man and nature, are host or spirit who gets involved with people. The product from this leads to natural forest. From the survey of 95 forests in Sakhon Nakhon province, native plant conservation is found in each of the forest, and some species disappear, and some are rare. 178 species in Spiritual Forest reflect the secret forest as a source of biodiversity, historical comparison of genetic health in the transport (FAO) biomass, carbon sequestration and genetic bank in the tropic forest (FAO, 2010).

Furthermore, external plants begin to disappear because of mono crop farming and the government's open-forest policy. This makes the sacred forest remain as an important source for farmers' livelihood with no costs, only asking for ChaoPoo or community's Deva (Noon Sensit, Interview 2012)

Spiritual Forest is regarded as source of self-sufficiency economy especially to the poor – Food Bank of grassroots people. From the field survey, forest products are deemed important to every Phutai village as a

source of food: bamboo shoots, mushrooms and Pakwan (local vegetable) and, importantly, several species are herbs which people bring to use as medicine; that is, modern medicine cannot cure sickness and are too expensive for poor farmer.

Moreover, as a place of Phutai ritual performance, the researcher concludes that it generates unity and becomes a heritage of identity of this tribe, so that its identity will not be destroyed but will maintain its ancestors' prestige.

### 7. Conclusion

Spiritual Forest is deemed as a concrete product of Asia's indigenous people concerning traditional ecological knowledge with long history at least before the establishment of state or the West's colonialism which express the relationship between people and nature (forests and mountains). These forests were believed to have spirit and soul, and also to be living place for ghost/Deva. People humbly respect these sacred things, reflecting the related Eastern traditional knowledge based on a wholesome respect generally found compatible with the studies of other ethnological groups. Thus, these studies might be the works of Kanowski and Williams (2009) or Groenfeldt (2003), who studied Ancient Indians' traditional knowledge, and can also include the conclusions of other indigenous people in the world by Capra (1994) to respect nature. Phutai people believe in guardian Spirit/house Spirit to protect all that lives in the community which leads to the formation of Don Ho or Dong Sua as sacred forest. Spiritual Forest of Phutai people are sources of plant biodiversity with ecological value about native plant sources of plant biodiversity with ecological value about native plant conservation, biomass and community support, and also serves as a centre of spiritual comfort for all people. Although the story of Poota-House Spirit cannot be touched because of spiritual dimension, people's imagination and local knowledge between man, nature and spirit inseparably. Hence, spiritual dimension still exists in the material world. These things are the foundation of ecological knowledge in bringing about the formation and maintenance of plant biodiversity and ancient forest as source of native plants, and also, Spiritual Forest is valuable as heritage of cultural and ecological of the region. In the restoration and conservation of biodiversity besides giving a role to the locality in its participation, the importance or right of knowledge such as primitive knowledge or ecological science must be given to these indigenous people so that they will perform their role in solving ecological problems, both at practice level and policy level.

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