Royal Forest Department

International Tropical Timber Organization

Management of the Emerald Triangle Protected Forests Complex to Promote Cooperation for Trans-boundary Biodiversity Conservation between Thailand, Cambodia and Laos (Phase II)

Project PD 289/04 Rev.1 (F)

Botanical Consultant Technical Report

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May 2010

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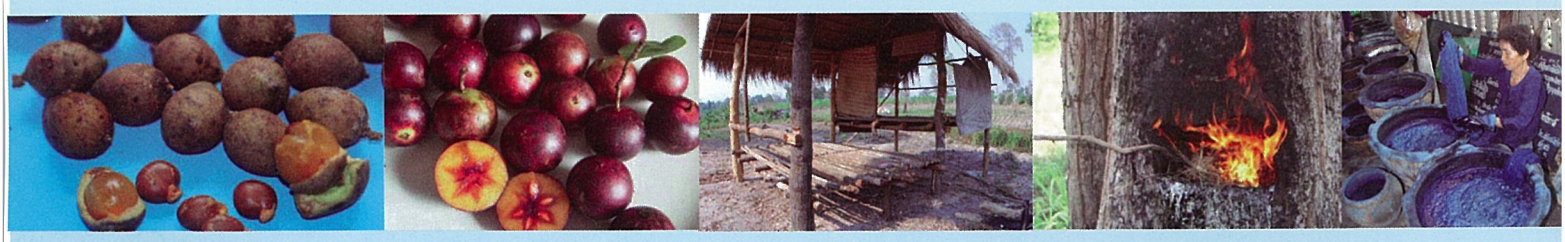

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"Management of the Emerald Triangle Protected Forest Complex to Promote Cooperation for Transboundary Biodiversity Conservation between Thailand, Cambodia and Laos (Phase II)"

PROJECT: PD 289/04 Rev. 1 (F)

Host Government:	**Thailand**
Executing Agency:	**Royal Forest Department**
Project Coordinator:	**Mr. Sunan Arunnopparat**
Starting Date:	**1 March 2008**
Project Duration:	**18 Months**

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(ITTO Project PD 289/04 Rev.1(F)

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Miss Authong Sangnet	Project Secretary

Abbreviations

DDF	:	Dry Deciduous Dipterocarp Forest
DEF	:	Dry Evergreen Forest
DNP	:	National Park, Wildlife and Plant Conservation Department
ITTO	:	International Tropical Timber Organization
IUCN	:	The World Conservation Union
MDF	:	Mixed Deciduous Forest
NBCA	:	National Biodiversity Conservation Area
NP	:	National Park
PM	:	Project Manager
PRA	:	Participatory Rual Appraisal
PSE	:	Philosophy of Sufficiency Economy
PTPFC	:	Management of the Pha Taem Protected Forest Complex to Promote Cooperation for Transboundary Biodiversity Conservation between Thailand, Cambodia and Laos
RFD	:	Royal Forest Department
TA	:	Technical Advisor
TBCA	:	Transboundary Conservation Area
TOR	:	Terms of Reference
UNESCO	:	The United Nations Educational, Scientific and Cultural Organization
WS	:	Wildlife Sanctuary

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Acknowledgements

The Botanical consultant is grateful to the ITTO for funding the Emerald Triangle Protected Forests Complex Project (PD 289/04 Rev.1 (F)) and to the Royal Forest Department for allowing the Faculty of Forestry, Kasetsart University to join the challenge in initiating transboundary biodiversity conservation in this region.

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EXECUTIVE SUMMARY

This report investigated on ethnobotanical study in PTPFC, Thailand. A total of 81 edible plant species, 46 medicinal plant species, 190 tree species to use wood for construction, 20 dye plants and 25 plant species to use as materials for handicrafts, wrapping, grass broom making are found by local people. All plant species are collected from the wild as well as species grown in home gardens. Mostly edible plants are used leaves consumption as fresh vegetables. The top 5 species of economic potential of edible plants are found in PTPFC namely Khonkhaen (*Dracaena angustifolia*), Ma mao luang (*Antidesma puncticulatum*), bamboos (*Bambusa* spp., *Gigantochloa* spp., *Thyrsostachys siamensis*), Waikhom (*Calamus viminalis*), Pak waan (*Melientha suavis*). The top 5 species of economic potential of medicinal plants are found in PTPFC namely Samor thai (*Terminalia chebula*), Ma kham pom (*Phyllanthus emblica*), Tao ya naang (*Tiliacora triandra*), Haem (*Coscinium fenestratus*), Buabok (*Centella asiatica*). The indigenous knowledge of traditional medicinal plants uses may be rapidly lost. Because of the young generation did not interest to learn about medicinal plants, and the remainder knows little about them. Moreover, nowadays local people tend to use western medicine to increase more and more. Eighteen tree species have shown good wood quality such as *Afzelia xylocarpa, Xylia xylocarpa* var.*kerrii, Pterocarpus macrocarpus, Dalbergia cochinchinensis, D. oliveri,* etc. Wild indigo sources are extracted from *Indigofera* spp. still using for cotton dye. The conservation, sustainable use and economic potential of edible plants, medicinal plants, wood for construction and dye plants are discussed.

สรุปสำหรับผู้บริหาร

รายงานฉบับนี้เป็นผลของการศึกษาพฤกษศาสตร์พื้นบ้านในพื้นที่กลุ่มผืนป่าอนุรักษ์ผาแต้มของไทย ซึ่งผลการศึกษาพบว่าชุมชนรอบพื้นที่ป่าได้ใช้ประโยชน์เป็นพืชอาหารทั้งหมด 81 ชนิด พืชสมุนไพร 46 ชนิด ไม้ต้นเพื่อการใช้เนื้อไม้เพื่อการก่อสร้าง 190 ชนิด พืชที่ให้สีย้อม 20 ชนิด และพืชที่ใช้เป็นวัสดุในการจักสาน หัตถกรรม ใช้เป็นวัสดุห่อสิ่งของ และทำไม้กวาดดอกหญ้าพบ 25 ชนิด ชนิดพืชทั้งหมดได้เก็บหามาจากพื้นที่ป่า หรือบางชนิดถูกนำมาปลูกในสวนบ้าน พืชที่บริโภคเป็นอาหารส่วนใหญ่ใช้ใบเป็นหลัก ในแง่ของผักป่าประเภทรับประทานสด ชนิดพืชในลำดับ 5 ชนิดแรกของพืชอาหารและมีศักยภาพที่จะนำไปพัฒนาปลูกเป็นพืชเศรษฐกิจที่พบในพื้นที่ศึกษา ได้แก่ คอนแคน (*Dracaena augustifolia*) มะเม่าหลวง (*Antidesma puncticulatum*) หน่อไม้ (*Bambusa* spp., *Gigantochloa* spp., *Thysostachys siamensis*) หวายขม (*Calamus viminalis*) และผักหวาน (*Melientha suavis*) 5 ชนิดของพืชสมุนไพรที่มีศักยภาพที่จะนำไปพัฒนาปลูกเป็นพืชเศรษฐกิจที่พบในพื้นที่ศึกษา ได้แก่ สมอไทย (*Terminalia chebula*) มะขามป้อม (*Phyllanthus emblica*) เถาย่านาง (*Tiliacora triandra*) แฮ้ม (*Coscinium fenestratus*) และบัวบก (*Centella asiatica*) ความรู้พื้นบ้านต่อการใช้ประโยชน์ของพืชสมุนไพรปัจจุบันกำลังเกิดการสูญหายไปอย่างรวดเร็ว ทั้งนี้เพราะว่าเยาวชนรุ่นใหม่ขาดความสนใจต่อการเรียนรู้ต่อการใช้ประโยชน์สมุนไพร อีกทั้งภูมิปัญญาพื้นบ้านที่คงเหลืออยู่ขาดการสืบทอดโดยชนรุ่นหลัง จนทำให้ภูมิปัญญาดังกล่าวคงอยู่ในสภาพริบหรี่เข้าไปทุกขณะ ทั้งนี้ก็เพราะว่าผู้คนหันเข้ามารับการบริการต่อการแพทย์สมัยใหม่มากขึ้นละเลยรักษาด้วยยาสมุนไพร และพบว่ามีไม้ต้น18 ชนิดพบว่ามีเนื้อไม้ที่มีคุณภาพดีเหมาะแก่การนำไปใช้ประโยชน์ต่อการก่อสร้าง ตัวอย่างเช่น มะค่าโมง แดง ประดู่ป่า พะยูง ชิงชัน เป็นต้น สำหรับการใช้ครามธรรมชาติเพื่อเป็นสีย้อม

ผ้าที่ได้จากการหมักของต้นคราม (*Indigofera* spp.) ยังพอพบเห็นอยู่บ้างในพื้นที่แต่มีการใช้ที่มีอยู่ค่อนข้างน้อย ทั้งพืชอาหาร พืชสมุนไพร ไม้ต้นเพื่อการก่อสร้าง และพืชที่ให้สีย้อมควรอย่างยิ่งที่จะได้รับการพิจารณาดำเนินงานอนุรักษ์ให้ควบคู่กับการใช้ประโยชน์ไปด้วยทั้งนี้เพื่อการอนุรักษ์ควบคู่กับการใช้ประโยชน์ทรัพยากรพืชอย่างยั่งยืนของพื้นที่

1. INTRODUCTION

Ethnobotany is a specialized branch of plant science that aims to understand the complex relationships between human beings and plant life. Different human cultures of the past and the present have discovered a variety of uses for their indigenous plants. People use plants for food, medicine, shelter, clothing, cosmetics, and religious rituals, among many other uses. Public interest in ethnobotany is on the rise due to conservation concerns and increasing appeal in the potential benefits of natural foods and medicines. (Jeffress, 2009)

Harshberger (1896) defined '**ethnobotany**' the use of plants by aboriginal people'. This field of study analyzes the results of indigenous manipulations of plant material together with the cultural context in which plants are used. It includes collaboration with disciplines such as ecology, chemistry, anthropology, economics, and linguistics. Human were largely a predator of the fauna and a gatherer of the surrounding flora: grains, tubers, fruits and leaves for food, bark for clothing and fiber, and probably herbs for medicine. The first deliberate planting of seeds was probably the people who gathered grains probably spilled some of them accidentally near their campsites or may be planted them deliberately and created a more dependable source of food. Domestication, selection of parent material, and irrigation played a major role in the development of agriculture which in any form implies favoring useful plants over non-useful within a particular culture. From the time he first conceived agriculture, human began important changes in his relationship with plants and engaged in ethnobotany.

Ethnobotanical surveys within local communities have revealed a tremendous utilitarian and economic potential of the native plant species (Toledo *et al.*, 1995). Important quantitative studies have already been undertaken, covering a wide range of investigations. As such, the present work sought to contribute to the ethnobotanical studies undertaken within the Pha Taem Protected Forest Complex (PTPFC) by conducting an inventory of the useful native plants in PTPFC fragment within the Thailand kingdom. This analysis had concentrated on local plant uses and the numbers of species citations. Additionally, the result had determined if there were differences

between wood and non-wood species, and to establish if certain categories of use are potentially more important in detriment to others.

Apart from very preliminary species surveys (RFD & ITTO, 2004), very little is known of either the plant biodiversity or the ethnobotany of PTPFC. The current study of native and cultivated plant uses in the PTPFC apart of a larger investigation including traditional medicinal plants (Booncharat, 2004 in Pha Team national park) and detailed botanical plot studies analyzing the effect of selective harvesting of NTFP and of illegal logging on the plant species diversity within the protected areas .This knowledge is crucial for the development of a sound management policy that is aimed both at nature conservation and at improving the livelihood of the local communities within the protected areas.

The commercial extraction of useful plants as a conservation strategy is based on the argument that forest conservation must be able to offer economic incentives to local rural people in order to counter the threat of destructive land uses such as logging, shifting cultivation, and cattle ranching (Amacher, 2002; Nepstad and Schwartzman, 1992; Panayotou and Ashton, 1992). However, the growing commercial trade of natural products, in particular medicinal plants and woodcrafts, has resulted increasing exploitation of wild plant populations (Lange, 1998), and this has generated concern about threats for local extinction (Clay, 1997; Cunningham, 2001; Tiwari, 2000).

Specific research questions of the present study are these: 1) Which plant species are used for which purpose? 2) Which species are commercialized? 3) What is their relative importance for the local communities based on a use index and on monetary revenues from commercialized species? 4) What is the impact of local people on these useful plants in the wild? 5) How do factors such as ethnicity, size of each household, and species density in the PTPFC affect plant use?. It is hoped that the answers to these questions can serve to model management strategies in the PTPFC in Thailand and elsewhere and contribute to the conservation of both cultural and plant diversity.

2. APPLIED METHODOLOGY

2.1 Study areas location

The Pha Taem Protected Forest Complex is located between latitudes 14°12.5′-15°13.9′N and longitudes 104°58.5′-105°8.5′E in northeast Thailand. This protected area complex comprises of the Pha Taem national park, Kaeng Tana national park, Phu Jong-Na Yoi national park and Yot Dom wildlife sanctuary as well as Bun Thrik-Yot Mon, a newly proposed wildlife sanctuary. Pha Taem is in the north and followed southwards by Kaeng Tana, Bun Thrik-Yot Mon, Phu Jong - Na Yoi and Yot Dom respectively. Phu Jong-Na Yoi is the largest wildness area while the sizes of Pha Taem and the Bun Thrik-Yot Mon proposed wildlife sanctuary are relatively equivalent. All together this complex constitutes 1,741 km^2 and its total perimeter is 730 km. Approximately 317 km or 43% of the total border length adjoins Laos (298 km or 40.96%) and Cambodia (18 km or 2.5%) (RFD & ITTO, 2004; Figure 1).

Landuse in many areas are being planted with cassava, corn and sugar crane in other areas reforestation is taking place with commercial tree such like; *Eucalyptus camaldulensis*, (Myrtaceae), *Hevea brasiliensis* (Euphorbiaceae), and fruit trees such as mango, banana.

2.2 Rainfall

The average annual rainfall of the Khong Chiam station, which is close to the PTPFC, is 1,845 mm. Besides, the maximum monthly rainfall often occurs in August and the average number of rainy days per year is 121(RFD & ITTO, 2004).

2.3 Temperature

The mean monthly maximum temperature at Ubon Ratchathani station ranged from 30.1 °C during winter (December) to 36.1 °C in the month of April. The mean monthly minimum temperature was in the range of 17.2 °C in January to about 24.6 °C in May. The lowest temperature was 7.6 °C in January, while the highest temperature was recorded in April (42.0 °C).The mean monthly temperature was observed to be in the range of 23.6 to 29.9 °C (RFD & ITTO, 2004).

2.4 Humidity

The relative humidity is high during the southwest monsoon or wet season (May–October) varying between 74 and 82%. On the other hand, the mean monthly relative humidity during the dry season (November–April) varies between 61 and 72 % (RFD & ITTO, 2004).

2.5 Vegetation types

The PTPFC area is covered with Dry evergreen forest (DEF), Mixed deciduous forest (MDF), Dry deciduous dipterocarp forest (DDF), tree plantations (para -rubber, eucalyptus, etc.) and secondary forests. All vegetation types variation in structure and floristic composition. They occupy flat to moderate elevations with the maximum of 741 m above mean sea-level at the Yot Dom wildlife sanctuary and are classified into phytogeographic features. The climate is affected by monsoon, which is the cause of depression occurring from May to October. Species diversity of trees of over 4.5 cm dbh is very abundant. The forest comprises 45 families, 130 genera and 207 identified tree species (RFD & ITTO, 2004)while the rest of the species of shrubs, herbs and grasses are from 29 families, 42 genera and 50 species (RFD & ITTO, 2004). However, some illegal logging and slash & burn farming still found in the PTPFC might be decrease in the species diversity.

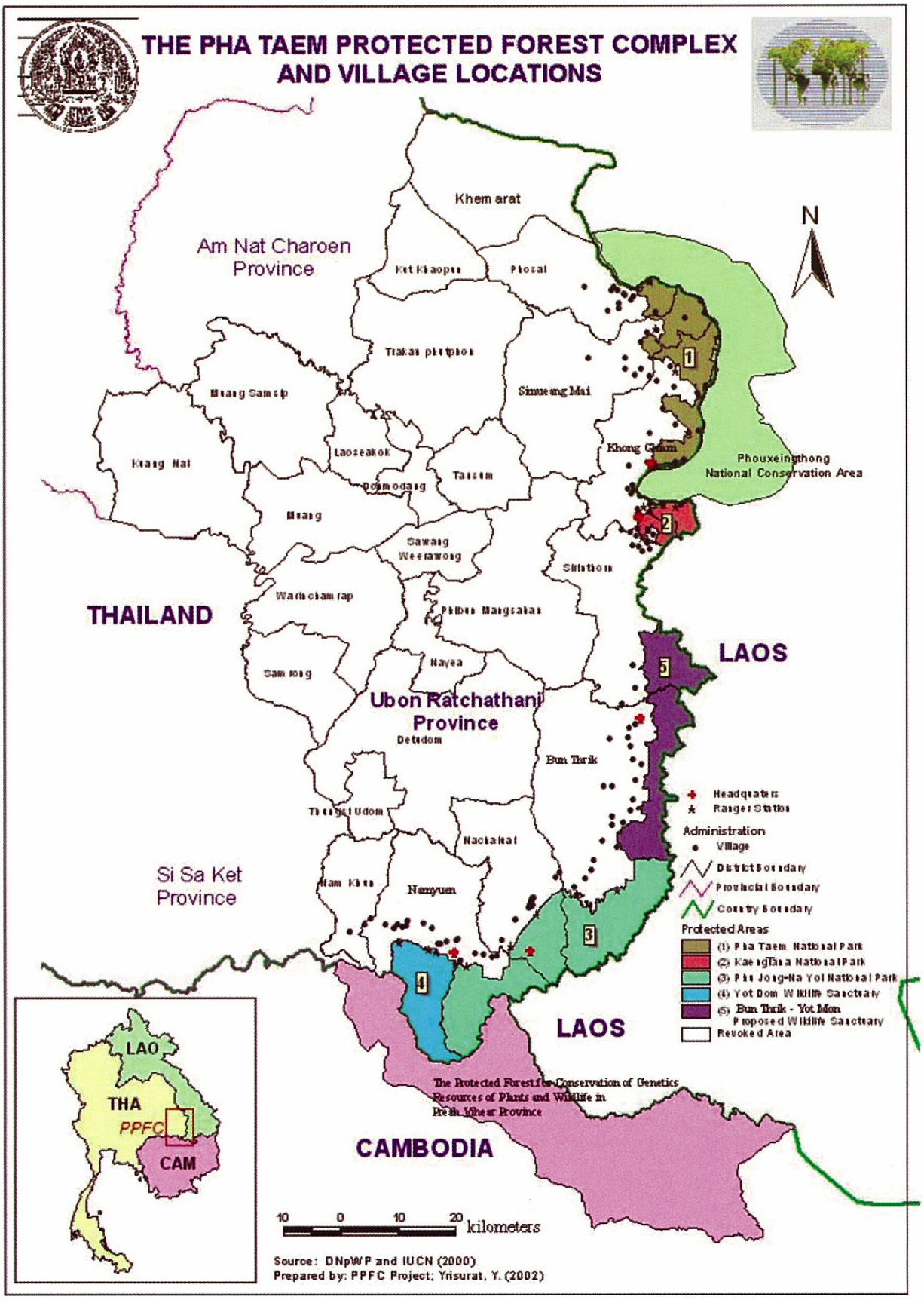

Figure 1 Location of the Pha Taem Protected Forest Complex and nearby conservation areas (RFD & ITTO, 2004).

2.6 Ethnobotanical inventory

Household surveys and interviews were carried out field survey held during February - May 2009 following by the term of references of the contract the project PD 289/04 Rev.1 (F). Ethnobotanical data were recorded from specific questions to the gatherers, dealer, sell products and users of plant products. Additionally, we used the "walk-in-the-wood" method (Prance *et al.*, 1987) to determine and identify which products are harvested (and for what purpose) in the forests surrounding the villages. These trips were also used to collect voucher specimens for reliable identification of the collecting plants. Special collecting trips were organized with local experts, for instance, people usually collecting useful plants, or locals with a detailed knowledge of plants. Furthermore, several companies making furniture in (and around) the research area were investigated to determine which timber species were used and from which sources they came. Vernacular names were recorded during these surveys as recommended by Martin (2004).

Most information was double-checked with different informants and with manuals such as the Flora of Thailand (Smitinand, Santisuk and Larsen, 1970-2008), and the PROSEA handbooks (1989–2003). Market inventories were used to determine the price of the forest products. These served as an independent way to determine harvested products from the surrounding forest and assessed local uses of these forest products. All plants that were considered by local people to have useful properties were collected and identified. These plants included not only wild species but also cultivated plants and wild plants that had been taken from the forest and planted in gardens or agricultural fields. One herbarium voucher of each specimen was deposited in the herbarium of the Faculty of Forestry, Kasetsart University; additional vouchers were sent to the BKF herbarium and specialists elsewhere for identification

The importance of useful plant species was identified using standard Participatory Rural Appraisal (PRA) techniques (Martin, 2004) whereby local people were asked to rank a list of regularly-used plants. The relative importance of timber species was assessed using three criteria: /(1) ranking of species from a given list by forest rangers of the protected areas, who were asked how often certain illegally-harvested species were confiscated from local people both inside and outside the protected areas;

(2) proportion of listed species harvested by local people;

(3) frequency of tree timber found during the field inventory by illegal logging. Tree timber were identified by wood, leaves and fruits or flowers left in the forest when the timber trees had been fallen very recently, or from stolen timber united areas when forest rangers had been taken from illegal logging.

The market demand, intensity of collection and abundance in the wild were classified as low, medium or high (based on the interviews with local people and by using PRA techniques). Plants were divided into seven end-use categories, largely modified form Prance *et al.* (1987):

a. **Food:** Any plant or plant parts (fruits, seeds, leaves, bark, flowers, or latex) used for human consumption as starch, fruit, vegetable, tea, spice, and oil.

b. **Medicinal plants:** are used both in human and cattle.

c. **Dye**: All plants are used for cloth and netted dyeing.

d. **Construction**: All poles and sawn boards used for house frames, furniture, canoes, and bridges.

c. **Household tools and related products**: All plants or plant parts used for house equipment, handicrafts, tools, wrapping material.

e. **Firewood:** All plants are used for firewood, including charcoal, oleoresin.

f. **Others**: Plants used as ornamentals and offering to god. Plants with multiple uses fall into more than one category.

2.7 Floristic inventory

For a detailed analysis of plant biodiversity patterns in PTPFC and to study the impact of local people on collecting useful plants in the wild (this study), we re-checked 1 ha for each forest type that had established during the Project: PD15/00 Rev.2 (F) phase 1 running. One hectare plot was divided into 100 plots for10×10 m sized plot for all trees with a dbh ≥ 5 cm were identified included orchids, 100 plots for 4×4 m sized plot for woody plant with a dbh ≤5 cm and stem height ≤ 5 m were identified included palms and Pandanaceae and 100 plots for 1×1 m sized plot for all herb & terrestrial fern species were identified. In each 1 ha sized plot of each forest type, all plant species and collected specimens were recorded and identified. Furthermore, we also collected many plants

outside the plots along walking trails in protected areas to make sure that in this inventory was selected as representative as possible of the entire species richness of the local flora.

3. ANALYSIS AND INTERPRETATION OF THE DATA AND RESULTS

3.1 Species diversity of plant resources

A total of native plant species in PTPFC were found 192 tree species (Annex 1), 75 shrub species (Annex 2), 50 herb species (Annex. 3), 5 palm species, 3 Pandanaceae species, 5 bamboo species and 109 orchid species (Annex 4). Native tree species have distributed into 146 species in Dry evergreen forest, 92 species in Mixed deciduous forest and 70 species in Dry deciduous dipterocarp forest. Native shrub species have distributed 53 species in Dry evergreen forest, 27 species in Mixed deciduous forest and 34 species in Dry deciduous dipterocarp forest. The herb and fern species have distributed 12 species in the Dry evergreen forest, 21 species in Mixed deciduous forest and 39 species in Dry deciduous dipterocarp forest. The family of tree species has highest of species number which is Fabaceae (Leguminosae) with 21 species following Dipterocarpaceae with 15 species and the third is Anacardiaceae with 11 species, respectively. The family of shrub species has highest of species number which is Fabaceae with 9 species following Rubiaceae with 6 species and the third is Annonaceae, Apocynaceae and Phyllanthaceae in each family with 5 species, respectively. The family of herb and fern species excluded orchids has highest of species number which is Fabaceae with 7 species following Zingiberaceae with 5 species and the third is Acanthaceae, Asteraceae and Lentibulariaceae in each family with 3 species, respectively.

3.2 Diversity of commodity groups

The useful plants were classified in 7 end -use categories. The different commodity groups are discussed.

3.2.1 Edible plants

Food is the most important end-use category. This group is divided into 6 subgroups such as wild vegetable, fruit & nut, spicy & food condiment, starch and food color. Ninety-two wild vegetable species were found in natural forest of PTPFC. Seventy-five species used for edible young leaf and leaf, e.g., *Acacia concina* (Fabaceae), *Adenia viridiflora* (Passifloraceae), *Aganonerion polymorphum* (Apocynaceae), *Aganosma marginata* (Apocynaceae), *Albizia lebbeck* (Fabaceae), *Ancistrocladus*

tectorius (Ancistrocladaceae), *Bauhinia malabarica* (Fabaceae)., shoot of *Calamus viminalis* (Arecaceae), *Alpinia galanga, A. mutica, A. oxymitra, Amomum uliginosum* (Zingiberaceae), *Caryota mitis* (Arecaceae), *Costus speciosus* (Costaceae), etc. Sixteen wild fruit species were found in PTPFC, e.g., *Baccaurea ramiflora, Antidesma ghaesembilla, Phyllanthus emblica* (Phyllanthaceae), *Dialium cochinchinensis* (Fabaceae), *Flacourtia indica* (Flacourtiaceae), *Lepisanthes rubiginosum, Schleichera oleosa, Nephelium hypoleucum* (Sapindaceae), *Syzygium cumini* (Myrtaceae), *Terminalia chebula* (Combretaceae), *Ziziphus oenoplia* (Rhamnaceae), *Mangifera caloneura* (Anacardiaceae), *Passiflora foetida* (Passifloraceae) and *Canarium subulatum* (Burseraceae). Only one wild nut species is found, *Irvingia malayana* (Irvingiaceae). Eight wild spicy and food condiment are found likely, *Alpinia galanga, Amomum uliginosum, Boesenbergia rotunda, Kaempferia galanga,* (Zingiberaceae), *Zanthoxylum limonella* (Rutaceae), *Spondias pinnata* (Anacardiaceae), *Terminalia chebula* (Combretaceae) and *Limnophila geoffrayi* (Linderiaceae). Two wild plant species were used as starch plants such as *Dioscorea hispida* and *D. myriantha* (Dioscoreaceae). As for the wild plant is used as food color that is *Momordica cochinchinensis* using from ripening fruit to mix for rice cooking (Annex. 5).

The different plant parts are used for edible, in this research recorded 45 species from leaf, 37 species from fruit and seed, 20 species from shoot, stem and bud, 9 species from flower and inflorescence and 6 species from rhizome, tuber and storage root. Some wild vegetable species can be found in local market such as *Calamus viminalis, Meliantha suavis* (Opiliaceae), *Alpinia galanga, Aganosma marginata, Acacia concina, Adenia viridiflora, Aganonerion polymorphum, Dracaena angustifolia* and *Cratoxylum formosum* subsp. *formosum*.

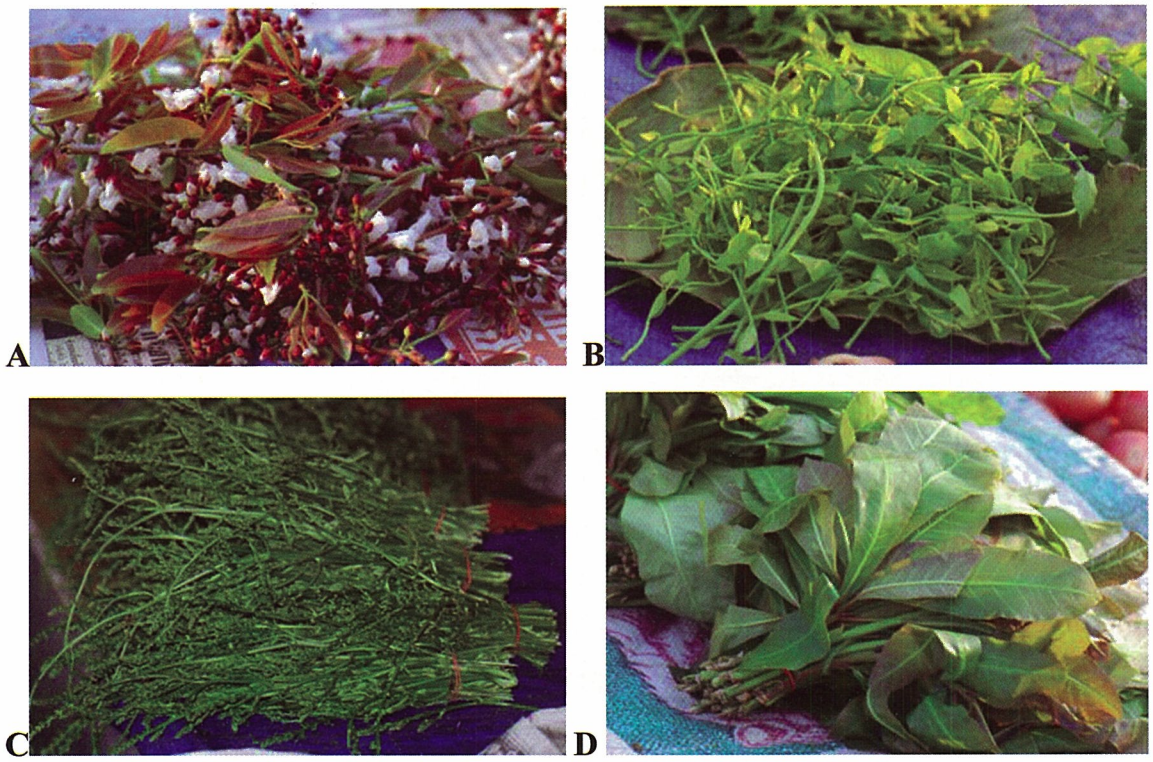

Figure 2 Some wild vegetable species were sole in local market near PTPEC. A) *Cratoxylum formosum* subsp. *formosum* (Hypericaceae), B) *Meliantha suavis* (Opiliaceae), C) *Dracaena angustifolia* (Ruscaceae) and D) *Barringtonia acutangula* (Lecythidaceae).

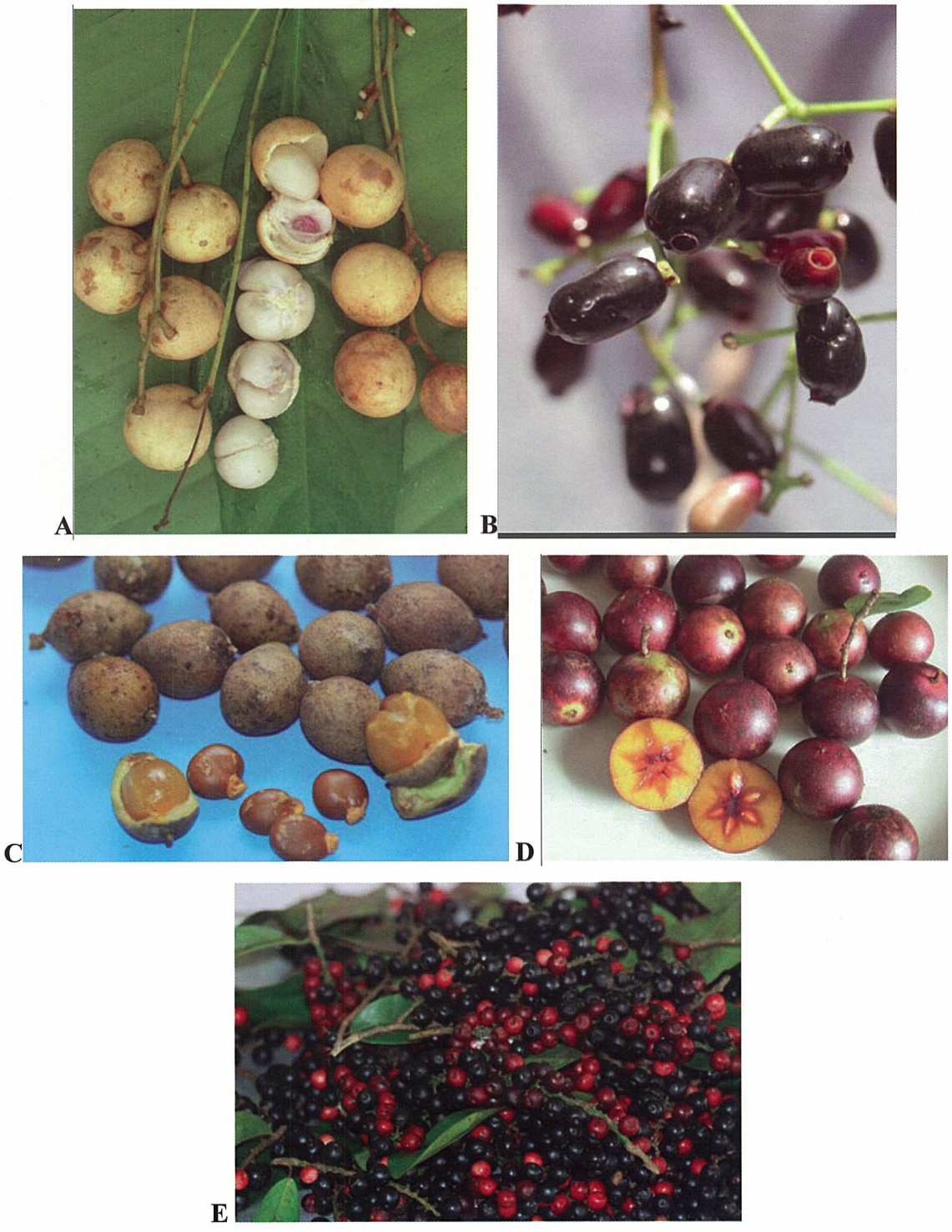

Figure 3 Some wild fruit species found in natural forest of PTPEC. A) *Baccaurea ramiflora* (Phyllanthaceae); B) *Syzygium cumini* (Myrtaceae); C) *Schleichera oleosa* (Sapindaceae); D) *Flacourtia indica* (Flacourtiaceae)and E) *Antidesma puncticulatum* (Phyllanthaceae).

3.2.2 Medicinal plants

Forty-six plant species were recorded to use as medicinal plants mostly taken orally after decoction (Annex 6.& Figure 4); e.g., the bulb of *Dischidia nummularis*, stem and leaves of *Hoya pachyclada*, *H. parasitica* (Apocynaceae) and stem of *Salacia chinensis, S. verrucosa* (Celastraceae) for hepatomegaly (Prasitpuriprecha, *et a*l., 2005), stem of *Capparis micracantha* (Caparacaceae) and rhizome of *Ampelocissus martinii* (Vitidaceae) for breast cancer (Prasitpuriprecha, *et a*l., 2005) see in Annex 6.

A. B C

Figure 4 Some medicinal plants found in natural forest of PTPEC. A) Root of *Imperata cylindrica* for urinary excreted; B) stem of *Coscinium fenestratus* for fever & antidiabetic; C) stem of *Neuropeltis racemosus* for tonic and aphrodisiac.

3.2.3 Dye plants

Twenty-one plant species were recorded to use as a natural dye plants for cotton cloth or/ and silk cloth. Very interesting for the plant belonging to the genus *Indigofera* (Fabaceae) such as *I. tinctoria, I. suffructicosa* which are used as a sources of indigo colour for Pha Kraam dye (Figure 5). As for plant parts were used for dye from many parts such as wood and heartwood that found in 4 tree species, stem bark found in 2 tree species, flower found in 2 tree species and fruit found in 2 tree species, etc. (Annex 8).

Figure 5 Natural indigo dye fermented from *Indigofera* spp.

3.2.4 Wood for Construction

Although PTPFC is established as a protected areas (including national park, wildlife sanctuary), illegal logging by people inside or outside PTPEC is still taking place. A total of 190 tree species are recorded to use by local people for construction and furniture (Figure 6). Nineteen tree species which have good wood quality, 107 species which have medium wood quality, and sixty-two which have fair wood quality for construction in PTPEC. The tree species which have the best wood quality for furniture factories in PTPEC is *Dalbergia cochinchinensis* Pierre. So, illegal logging of *Dalbergia cochinchinensis* in these protected areas still has done as Figure 7 and 8

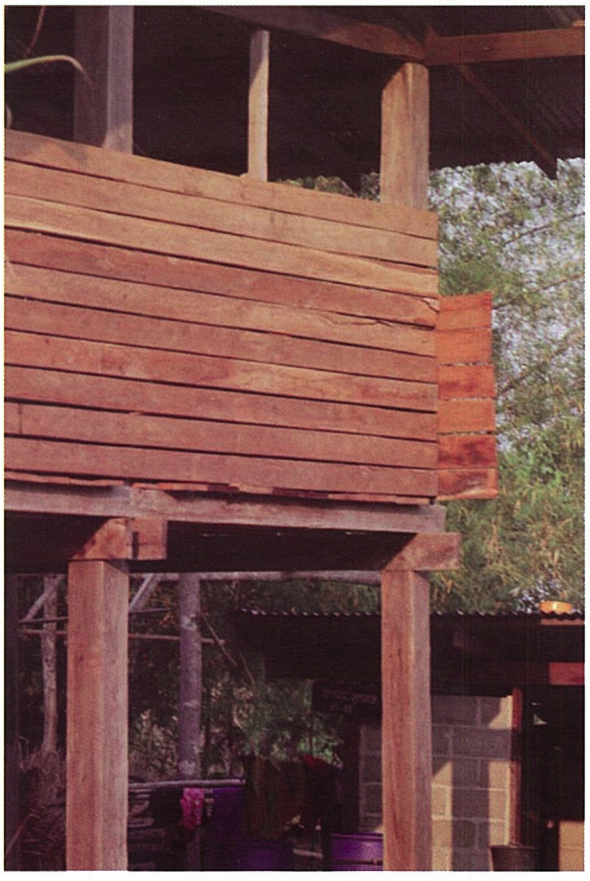

Figure 6 House was constructed from the lumber of *Garuga pinnata* (Burseraceae).

Figure 7 The cottage was constructed by local people in buffer zone of Phu Jong Nayoi national park to make from many species (*Aporosa octandra*, *Vatica odorata*, *Syzygium* sp., *Diospyros* spp.) of small tree and roofing from *Imperata cylindrica* grass.

Figure 8 The material object in dispute from illegal logging of Thai rosewood (*Dalbergia cochinchinensis*) and praduak (*Pterocarpus macrocarpus*) at Phu Jong Nayoi nation park.

3.2.5 Household tools and related products

Twenty-five plant species are used for household tools and related products, e.g., the clums of *Dendrocalamus bambos*, *Bambusa longispatha*, and *Schizostachyum blumei* (Poaceae) to make baskets; *Calamus palustris*, and *Calamus tenuis* (Arecaceae) for handicrafts, e.g., cane chairs and tables including roping to make grass broom; and *Nayraudia reynaudiana, Thysanolaena maxima* for making grass brooms; the bark of *Sterculia* spp., *Tiliacora triandra*, making rope (Annex 9)

Figure 9 The grass broom made from inflorescences of *Thysanolaena maxima* and its holder making from bamboo clum.

3.2.6 Firewood

All households in the research area still depend on firewood for their cooking, heating, and other energy sources. All tree species were recorded for firewood to use most of them are collected from the forest, particularly forest land that belongs to the individual families. Small trees or branches are used that can easily be chopped into small pieces and quickly lit, from species such as *Xylopia pierrei* (Annonaceae), *Cratoxylum formosum* (Clusiaceae), *Melastoma normale* (Melastomataceae). Some cultivated tree species are also used, such as mango tree, *Acacia mangium* (Fabaceae), *Eucalyptus camaldulensis* (Myrtaceae), etc. Local people also make charcoal by burning the stumps and branches of *Irvingia malayana*, *Mangifera calonura* that have already been cut for their timber.

3.2.7 Others

Some plants had used for ritual materials such as banana leaf to making "Bai Sri" for ritual ceremony, a bunch of leaf of *Imperata cylindrica* to use for Buddha water pouring. The oleoresin of the membership of the genus *Dipterocarpus* was extracted by fire stimulation to use for fuel (Figure 10), boat caulking or basket caulking.

Figure 10 Oleoresin tapping of *Dipterocarpus intricatus*

CONCLUSIONS

This paper investigated on ethnobotanical study in PTPFC, Thailand by field work inventory in local markets, villages, and the wild. A total of 81 edible plant species, 46 medicinal plant species, 190 tree species to use wood for construction, 20 dye plants and 25 plant species to use as materials for handicrafts, wrapping, grass broom making are used by local people. These include species that are collected in the wild as well as species grown in home gardens. Mostly edible plants are used leaves consumption as fresh vegetables. The economic potential of plants in PTPFC had shown in Annex 10. The top 5 species of economic potential of edible plants are found in PTPFC namely; Khonkhaen (*Dracaena angustifolia*), Ma mao luang (*Antidesma puncticulatum*), bamboos (*Bambusa* spp., *Gigantochloa* spp., *Thyrsostachys siamensis*), Waikhom (*Calamus viminalis*), Pak waan (*Melientha suavis*). The top 5 species of economic potential of medicinal plants are found in PTPFC namely; Samor thai (*Terminalia chebula*), Ma kham pom (*Phyllanthus emblica*), Tao ya naang (*Tiliacora triandra*), Haem (*Coscinium fenestratus*), Buabok (*Centella asiatica*). The indigenous knowledge of traditional medicinal plants uses may be rapidly lost because of the young generation do not know or do not want to learn about medicinal plants, and the remainder knows little about them. Moreover, nowadays local people tend to use western medicine. Eighteen tree species have shown good wood quality such as *Afzelia xylocarpa, Xylia xylocarpa* var. *kerrii, Pterocarpus macrocarpus, Dalbergia cochinchinensis, D. oliveri,* etc. Natural indigo sources are extracted from *Indigofera* spp. still using for cotton dye. The traditional knowledge of Thai people also have been very keen for weaving, handicraft and others, they have used many kinds of native plant materials to produce a good quality

products in daily life indicating them to understand the value of plant resources increase. The conservation, sustainable use and economic potential of edible plants, medicinal plants, wood for construction and dye plants are discussed.

RECOMMENDATIONS

1. This paper investigated on ethnobotanical study in PTPFC running under condition of the contract the project PD 289/04 Rev.1 (F), having the project's time running during September 15, 2008- June 14, 2009 and having field work inventory during February 2009- May 2009. Many forest minor products have strong seasonally harvesting. So, many plants are found following this condition in this study. The results could not study and collect cover all seasons. Some data will be imperfectly to demonstrate and presentation.
2. Promote and conduct research to develop information, traditional knowledge and the Philosophy of Sufficiency Economy (PSE) to relate natural resources management. In sum, Sufficiency Economy is a holistic concept of moderation and contentment. It sets out to shield the people and the country from adverse shocks, and acknowledges interdependency among people at all levels as an approach, against the backdrop of interdependence and globalization. It emphasizes the use of knowledge wisely with due consideration. Its values include integrity, diligence, harmlessness and sharing. Finally, it seeks to achieve balance and sustainability (Krongkaew, 2010). This philosophy can be applied to develop natural resources management for achievement in the future.
3. Improve attitudes and behavior and enhance common understanding among officials and the general public to know their rights and duties regarding natural resources conservation and environmental quality protection. This would help reduce conflicts and enhance cooperation at all levels.
4. Promote research on plant resources and development that support policy development, plan formulation and implementation at all levels.
5. Encourage the retention of local knowledge by preserving local cultures and traditions that support natural resources conservation and environmental protection such as in case of ethnobotany, ethnomedicine, etc.
6. Promote the establishment of market mechanisms to facilitate demand and supply in managing natural resources and the environment. In this case, to solve price of agricultural crops or a potential wild plant species selection to develop a new crop.

ANNEXES

Annex 1 Tree species diversity in PTPFC*. (*Field work inventory had done only in dry season 2009).

No.	Thai name	Botanical name	Family	Forest types[1]		
				DEF	DDF	MDF
1	Mamuang hua maeng wan	*Buchanania latifolia* Roxb.	Anacardiaceae	-[2]	+[2]	-
	Oi chaang	*Lannea coromandelica* Merr.	Anacardiaceae	-	+	+
	Makok paa	*Spondias pinnata* Kurz	Anacardiaceae	+	+	+
	Rak khaao	*Semecarpus cochinchinensis* Engl.	Anacardiaceae	+	-	-
5	Kaen mor	*Rhus succedanea* L.	Anacardiaceae	+	-	-
	Ma muang kalon paa	*Mangifera caloneura* Kurz	Anacardiaceae	-	+	+
	Ma muang khai laen	*Mangifera cochinchinensis* Engl.	Anacardiaceae	+	-	-
	Rak khee mu	*Holigarna helferi* Hook. f.	Anacardiaceae	+	-	+
	Rak yai	*Gluta usitata* (Wall.) Ding Hou	Anacardiaceae	-	+	-
10	Rak noi	*Gluta obovata* Craib	Anacardiaceae	+	-	-
	Phrachao haapra ong	*Dracontomelon dao* (Blume) Merr. & Rolfe	Anacardiaceae	+	-	-
	Sakhae saeng	*Cananga latifolia* Finet & Gagnep.	Annonaceae	-	-	+
	Lamduan	*Melodorum fruticosum* Lour.	Annonaceae	+	-	-
	Mapuan	*Mitrephora vandaeflora* Kurz	Annonaceae	+	-	-
15	Ka chian	*Polyalthia cerasoides* (Roxb.) Benth. ex Bedd.	Annonaceae	+	-	+
	Sa thaang	*Xylopia vielana* Pierre	Annonaceae	+	+	+
	Po khee haed	*Miliusa horsfieldii* (Benn.) Pierre	Annonaceae	+	-	-
	Sattaban	*Alstonia scholaris* R. Br.	Apocynaceae	+	-	+
	Mok luang	*Holarrhena pubescens* Wall.ex G. Don	Apocynaceae	-	+	+
20	Mok man	*Wrightia arborea* (Dennst.) Mabb.	Apocynaceae	-	+	+
	Khae haang khaang	*Fernandoa adenophylla* Steenis	Bignoniaceae	+	-	+
	Khae hua muu	*Markhamia stipulata* Seem. var. *stipulata*	Bignoniaceae	+	-	+
	Khae saai	*Stereospermum neuranthum* Kurz	Bignoniaceae	-	+	+
	Peeb	*Millingtonia hortensis* L. f.	Bignoniaceae	+	-	-
25	Khae phoi	*Stereospermum cylindricum* Pierre ex P.Dop.	Bignoniaceae	+	-	-
	Makok kluean	*Canarium subulatum* Guill.	Buseraceae	-	+	+
	Ma faen	*Protium serratum* Engler	Buseraceae	+	+	+
	Pha uung	*Calophyllum calaba* L.	Calophyllaceae	+	+	-
	Ma dunk	*Siphonodon celastrineus* Griff.	Celastraceae	+	+	+
30	Song salueng	*Lophopetalum duperreanum* Pierre	Celastraceae	-	+	-
	Ma phok	*Parinari anamensis* Hance	Chrysobalanaceae	+	+	+

Annex 1 (Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
	Sakunee	*Terminalia calamansanai* Rolfe	Combretaceae	+	+	+
	Sarapee dokyai	*Mammea harmandii* Kosterm.	Clusiaceae	+	-	-
	Cha muang	*Garcinia cowa* Roxb.	Clusiaceae	+	+	+
35	Takhian nuu	*Anogeissus acuminata* Wall. var. *lanceolata* Clarke	Combretaceae	-	-	+
	Taback lueat	*Terminalia corticosa* Pierre ex Laness.	Combretaceae	-	-	+
	Taback kraai	*Terminalia pierrei* Gagnep.	Combretaceae	-	+	+
	Khee aai	*Terminalia triptera* Stapf.	Combretaceae	+	+	+
	Kham rok	*Ellipanthus tomentosus* Kurz var. *tomentosus*	Connaraceae	-	+	+
40	Saan yai	*Dillenia obovata* (Bl.) Hoogl.	Dilleniaceae	+	+	+
	Saan bai lek	*Dillenia ovata* Wall. ex Hook. f. & Th.	Dilleniaceae	+	-	+
	Ma tad	*Dillenia indica* L.	Dilleniaceae	+	-	-
	Kra baak	*Anisoptera costata* Korth.	Dipterocarpaceae	+	-	-
	Yaang naa	*Dipterocarpus alatus* Roxb. ex G.Don	Dipterocarpaceae	+	-	-
45	Yaang paai	*Dipterocarpus costatus* Gaertn.f.	Dipterocarpaceae	+	-	-
	Kraat	*Dipterocarpus intricatus* Dyer	Dipterocarpaceae	-	+	+
	Hiang	*Dipterocarpus obtusifolius* Teijsm. ex Miq.	Dipterocarpaceae	-	+	+
	Pluang	*Dipterocarpus tuberculatus* Roxb.	Dipterocarpaceae	-	+	-
	Takhian hin	*Hopea ferrea* Pierre	Dipterocarpaceae	+	-	-
50	Khiam khanong	*Shorea henryana* Pierre	Dipterocarpaceae	+	-	-
	Teng	*Shorea obtusa* Wall.	Dipterocarpaceae	-	+	-
	Payom	*Shorea roxburghii* G. Don	Dipterocarpaceae	+	+	+
	Rang	*Shorea siamensis* Miq.	Dipterocarpaceae	-	+	-
	Takhian teng	*Shorea thorelii* Pierre ex Laness.	Dipterocarpaceae	+	-	+
55	Pan jam	*Vatica odorata* (Griff.) Symington	Dipterocarpaceae	+	-	-
	Sadao pak	*Vatica harmandii* Pierre	Dipterocarpaceae	+	-	+
	(No thai name)	*Vatica mangachapoi* Blanco subsp. *obtusifolia* (Elmer) P.S. Ashton	Dipterocarpaceae	+	-	-
	Ka ling	*Diospyros pilosanthera* Blanco	Ebenaceae	+	+	+
	Tako phanon	*Diospyros castanea* Fletch.	Ebenaceae	+	-	+
60	Chan dong	*Diospyros dasyphylla* Kurz	Ebenaceae	+	-	-
	Taptao ton	*Diospyros ehretioides* Wall.	Ebenaceae	-	+	+
	Lambit	*Diospyros ferrea* Bakh.	Ebenaceae	+	-	-

Annex 1 (Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
	Tako suan	*Diospyros malabarica* Kostel.	Ebenaceae	+	-	-
	Thaanfai phee	*Diospyos montana* Roxb.	Ebenaceae	+	+	+
65	Phayaa raak dum	*Diospyros variegata* Kurz	Ebenaceae	+	-	-
	Ma klue	*Diospyros mollis* Griff.	Ebenaceae	+	-	+
	Phee pai	*Elaeocarpus lanceaefolius* Roxb.	Elaeocarpaceae	+	-	+
	Sathon rok	*Elaeocarpus robustus* Roxb.	Elaeocarpaceae	+	-	-
	Krai yoi	*Elaeocarpus grandiflorus* Sm.	Elaeocarpaceae	+	-	-
70	Plao yai	*Croton roxburghii* N.P. Balakr.	Euphorbiaceae	-	-	+
	Kham saed	*Mallotus philippensis* Muell. Arg.	Euphorbiaceae	+	-	-
	Ta tum bok	*Sapium insigne* Benth.	Euphorbiaceae	+	-	-
	Khan thong phayaabaat	*Suregada multiflora* Baill.	Euphorbiaceae	+	-	+
	Ma khaa mong	*Afzelia xylocarpa* Craib	Fabaceae	+	-	+
75	Khleng	*Dialium cochinchinense* Pierre	Fabaceae	+	-	+
	Saat	*Erythrophleum succirubrum* Gagnep.	Fabaceae	-	+	+
	Araang	*Peltophorum dasyrrhachis* Kurz	Fabaceae	+	+	+
	Ma khaa tae	*Sindora siamensis* Teijsm. ex Miq	Fabaceae	-	+	+
	Ma klam taa kai	*Adenanthera pavonina* L.	Fabaceae	+	-	+
80	Kaang kheemot	*Albizia odoratissima* Benth.	Fabaceae	-	+	+
	Luk ding	*Parkia sumatrana* Miq.	Fabaceae	+	-	-
	Daeng	*Xylia xylocarpa* Taub. var. *kerrii* (Craib) I.C.Nielsen	Fabaceae	-	+	+
	Phayuung	*Dalbergia cochinchinensis* Pierre	Fabaceae	+	-	+
	Ketdam	*Dalbergia cultrata* Grah. ex Benth.	Fabaceae	-	+	+
85	Ket daeng	*Dalbergia dongnaiensis* Pierre	Fabaceae	-	+	-
	Chanuan	*Dalbergia nigrescens* Kurz	Fabaceae	+	+	+
	Chingchan	*Dalbergia oliveri* Gamble	Fabaceae	+	+	+
	Thong laang paa	*Erythrina subumbrans* Merr.	Fabaceae	+	-	+
	Khachoh	*Millettia leucantha* Kurz var. *leucantha*	Fabaceae	+	-	-
90	Praduu paa	*Pterocarpus macrocarpus* Kurz	Fabaceae	+	+	+
	Ma ko	*Lithocarpus ceriferus* A. Camus	Fagaceae	-	+	-
	Ko nam	*Lithocarpus thomsonii* (Miq.) Rehder	Fagaceae	+	-	-
	Ko phuang	*Lithocarpus fenestratus* Rehd.	Fagaceae	-	+	+
	Ko nok	*Lithocarpus polystachyus* Rehd.	Fagaceae	-	+	-

Annex 1(Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
95	Ko yum	*Castanopsis argyrophylla* King ex Hook.f.	Fagaceae	-	+	-
	Ko khee muu	*Lithocarpus harmandii* (Hickel & A.Camus) A.Camus	Fagaceae	+	+	+
	Tiu kliang	*Cratoxylum cochinchinense* Bl.	Hypericaeae	+	-	+
	Tiu khon	*Cratoxylum formosum* (Jack) Dyer subsp. *pruniflorum* (Kurz) Gogel.	Hypericaeae	+	+	+
100	Putu doovae	*Gonocaryum lobbianum* Kurz	Icacinaceae	+	-	-
	Kra bok	*Irvingia malayana* Oliv. ex A. Benn	Irvingiaceae	+	+	+
	Kaa saam peek	*Vitex peduncularis* Wall. ex Schauer	Lamiaceae	-	+	+
	Teen nok	*Vitex pinnata* L.	Lamiaceae	+	+	+
	Ee pae	*Vitex quinata* Williams	Lamiaceae	+	-	-
105	Phawaa	*Garcinia speciosa* Wall.	Lauraceae	+	-	-
	Sa thip	*Phoebe paniculata* Nees	Lauraceae	+	-	+
	Chiat	*Cinnamomum iners* Bl.	Lauraceae	+	-	-
	Nuai nok ngum	*Beilschmiedia grammieana* King ex Hook. f.	Lauraceae	+	-	-
	Hmee men	*Litsea glutinosa* C.B. Robinson	Lauraceae	+	+	+
110	Ka thang	*Litsea monopetala* Pers.	Lauraceae	+	-	+
	Yaang bong	*Persea kurzii* Kosterm.	Lauraceae	+	-	-
	Hian	*Persea membranacea* Kosterm	Lauraceae	+	-	-
	Kradon	*Careya sphaerica* Roxb.	Lecythidaceae	+	+	+
	Tabaek daeng	*Lagerstroemia calyculata* Kurz	Lythraceae	+	-	+
115	Tabaek plueak baang	*Lagerstroemia duperreana* Pierre	Lythraceae	+	-	+
	Taback naa	*Lagerstroemia floribunda* Jack	Lythraceae	+	-	+
	Intorachit	*Lagerstroemia loudonii* Teijsm. & Binn.	Lythraceae	+	-	+
	Inthanin bok	*Lagerstroemia macrocarpa* Wall.	Lythraceae	-	-	+
	Jumpee	*Magnolia baillonii* Pierre	Magnoliaceae	+	-	-
120	Ngiu paa	*Bombax anceps* Pierre	Malvaceae	+	+	+
	Ngiu baan	*Bombax ceiba* L.	Malvaceae	-	-	+
	Po liang faai	*Kydia calycina* Roxb.	Malvaceae	-	+	-
	Chum phraek	*Heritiera javanica* Kosterm.	Malvaceae	+	-	-
	Kanaan pling	*Pterospermum acerifolium* Willd.	Malvaceae	+	-	-
125	Mak jong	*Scaphium affine* (Mast.) Pierre	Malvaceae	+	-	-
	Po daeng	*Sterculia guttata* Roxb.	Malvaceae	-	-	+

Annex 1(Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
	Phlab pla	*Microcos tomentosa* Sm.	Malvaceae	+	-	+
	Por e-keng	*Pterocymbium tinctorium* (Blanco) Merr.	Malvaceae	+	-	-
	Khang khao	*Aglaia edulis* (Roxb.) Wall.	Meliaceae	+	-	-
130	Taa suea	*Aphanamixis polystachya* Parker	Meliaceae	+	-	-
	Yom hin	*Chukrasia tabularis* A.Juss.	Meliaceae	+	-	-
	Ta sue lueng	*Dysoxylum cyrtobotryum* Miq.	Meliaceae	+	-	-
	Yom hom	*Toona ciliata* M. Roem	Meliaceae	+	-	-
	Khee ai dong	*Walsura robusta* Roxb.	Meliaceae	+	-	-
135	Kut lin	*Walsura trichostemon* Miq.	Meliaceae	+	-	-
	Chan chamot	*Aglaia silvestris* (M. Roemer) Merr.	Meliaceae	+	-	-
	Maduea plong	*Ficus hispida* L.	Moraceae	+	-	+
	Ma haat	*Artocarpus lakucha* Roxb.	Moraceae	+	-	+
	Khoi	*Streblus asper* Lour.	Moraceae	+	-	+
140	Kraang	*Ficus altissima* Blume	Moraceae	+	-	+
	Lueat raet	*Knema globularia* Warb.	Myristicaceae	+	-	-
	Waa naa	*Syzygium cinereum* (Kurz) P. Chantaranothai & J. Parn.	Myrtaceae	+	-	-
	Waa khee phae	*Syzygium cumini* Druce	Myrtaceae	+	-	+
	Waa khao	*Cleistocalyx nervosum* (DC.) Kosterm. var. *paniala* (Roxb.) Chantr. & J. Parn.	Myrtaceae	+	-	-
145	Chom phuu nam	*Syzygium siamense* Craib	Myrtaceae	+	-	-
	Kaao	*Tristaniopsis burmanica* (Griff.) Peter G.Wilson & J.T. Waterh. var. *rufescens* (Hance) J.Parn. & Nic Lughadha	Myrtaceae	+	+	-
	Pak mek	*Syzygium gratum* (Wight) S.N. Mitra var. *gratum*	Myrtaceae	+	-	-
	Waa khee nok	*Syzygium ripicola* (Craib) Merr. & L.M. Perry	Myrtaceae	+	-	-
	Kra dong daeng	*Chionanthus microstigma* Gagnep.	Oleaceae	+	-	-
150	Nuen sian	*Aporusa octandra* (Buch.-Ham. ex D.Don)Vickery var. *octandra*	Phyllanthaceae	+	-	-
	Mueat lot	*Aporusa villosa* Baill.	Phyllanthaceae	+	+	+
	Mafai	*Baccaurea ramiflora* Lour.	Phyllanthaceae	+	-	-
	Ma khaam pom	*Phyllanthus emblica* L.	Phyllanthaceae	+	+	+
	Khee mot	*Glochidion assamicum* Hook. f.	Phyllanthaceae	+	-	-
155	Son sam bai	*Pinus kesiya* Royle ex Gordon	Pinaceae	-	+	-
	Mak phuc	*Drypetes harmandii* Pierre ex Gagnep.	Putranjivaceae	+	-	-

Annex 1 (Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
	Song kradong hin	*Drypetes hainanensis* Merr.	Putranjivaceae	+	-	-
	Mak khmer	*Drypetes cambodica* Gagnep.	Putranjivaceae	+	-	-
	Chiang praa nang air	*Carallia brachiata* (Lour.) Merr.	Rhizophoraceae	+	-	+
160	Nuut ton	*Prunus grisea* Kalkm. var. *tomentosa* Kalkm	Rosaceae	+	-	-
	Kham mok luang	*Gardenia sootepensis* Hutch.	Rubiaceae	-	+	+
	Yo tuen	*Morinda elliptica* Ridl.	Rubiaceae	+	+	+
	Khwaao	*Haldina cordifolia* Ridsd.	Rubiaceae	+	-	+
	Som kop	*Hymenodictyon orixense* (Roxb.) Mabb.	Rubiaceae	+	-	+
165	Krathom muu	*Mitragyna rotundifolia* (Roxb.) Kuntze	Rubiaceae	+	+	+
	Yo paa	*Morinda coreia* Ham.	Rubiaceae	-	+	-
	Mak hmo	*Rothmannia witii* (Craib) Bremek.	Rubiaceae	+	+	+
	Hnam thaeng	*Catunaregam tomentosa* (Blume.ex DC.) Tirveng.	Rubiaceae	+	+	+
	Lek kee	*Tarennoidea wallichii* (Hook.f.) Tirveng.& Sastre	Rubiaceae	+	-	-
170	Kamchatton	*Zanthoxylum limonella* Alston	Rutaceae	+	-	-
	Ka uam	*Acronychia pedunculata* Miq.	Rutaceae	+	-	-
	Tha lo	*Schima wallichii* Korth.	Rutaceae	+	-	-
	Kruay Paa	*Casearia grewiifolia* Vent. var. *grewiifolia*	Salicaceae	-	+	+
	Krabao klak	*Hydnocarpus ilicifolia* King	Salicaceae	+	-	-
175	Pa baang	*Mischocarpus pentapetalus* Radlk.	Sapindaceae	+	-	-
	Kho laen	*Nephelium hypoleucum* Kurz	Sapindaceae	+	-	-
	Kho hia	*Xerospermum laevigatum* Radlk. var.*laevigatum*	Sapindaceae	+	-	-
	Ma huat	*Lepisanthes rubiginosa* Leenh.	Sapindaceae	+	-	+
180	Ma xang	*Madhuca dongnaiensis* (Pierre) Baehni	Sapotaceae	+	+	-
	Ma xang	*Madhuca pierrei* (William) H.J.Lam	Sapotaceae	+	-	-
	Doey kai	*Madhuca thorelii* (Dubard) H.J. Lam.	Sapotaceae	-	+	+
	Khanoon Nok	*Palaquium obovatum* (Griff.) Engl.	Sapotaceae	+	-	-
	Pikoon tuen	*Payena lucida* (G.Don) DC.	Sapotaceae	+	-	-
185	Tan noom	*Xantolis cambodiana* (Pierre ex Dubard) P.Royen	Sapotaceae	-	+	-
	Plaa lai phueak	*Eurycoma longifolia* Jack	Simaroubaceae	+	-	-
	Kom khom	*Picrasma javanica* Bl.	Simaroubaceae	+	-	-
	Kam yaan	*Styrax benzoin* Dryander	Styracaceae	+	-	-
	Mueat hom	*Symplocos racemosa* Roxb.	Symplocaceae	+	+	-

Annex 1(Cont'd)

No.	Thai name	Botanical name	Family	Forest types		
				DEF	DDF	MDF
190	Muet dong	*Symplocos cochinchinensis* (Lour.) S.Moore subsp. *cochinchinensis*	Symplocaceae	-	+	+
	Kankrao	*Fagraea fragrans* Roxb.	Theaceae	+	-	-
	Saraphee paa	*Anneslea fragrans* Wall.	Theaceae	-	+	-

Remarks: 1) Forest types: DEF = Dry Evergreen Forest, DDF = Dry Deciduous Dipterocarp Forest, MDF = Mixed Deciduous Forest
2) Plant occurred: + = present - = absent in the forest

Annex 2 Shrub & woody climber species diversity in PTPFC* (*Field work inventory had done only in dry season 2009).

No.	Thai name	Botanical name	Family	Habit[3)]	Forest type[1)]		
					DEF	DDF	MDF
1	Rong maai	*Pseuderantherum graciliflorum* (Nees) Ridl.	Acanthaceae	S	+[2)]	-	-
	Saai yut	*Desmos chinensis* Lour.	Annonaceae	WC	+	-	-
	Kluai tao	*Polyalthia debilis* Finet & Gagnep.	Annonaceae	S	+	-	+
	Nom noi	*Polyalthia evecta* Finet & Gagnep	Annonaceae	S	+	-	-
5	Nom ngua	*Artabotrys harmandii* Finet & Gagnep.	Annonaceae	WC	+	-	-
	Nom meow paa	*Uvaria rufa* Blume	Annonaceae	WC	+	-	+
	Saitan	*Aganosma marginata* G. Don	Apocynaceae	WC	+	+	+
	Som lom	*Aganonerion polymorphum* Pierre ex Spire	Apocynaceae	WC	+	+	+
	Tang toon	*Alyxia reinwardtii* Blume	Apocynaceae	WC	+	+	+-
10	Put Thung	*Holarrhena curtisii* King & Gamble	Apocynaceae	S	-	+	+
	Hyang samutr	*Amalocalyx microlobus* Pierre ex Spire	Apocynaceae	WC	-	+	+
	Chingchee	*Capparis micracantha* DC.	Capparaceae	S	+	-	-
	Kamphaeng chetchan	*Salacia chinensis* L.	Celastraceae	WC	+	-	+
	Ta kwang	*Salacia verrucosa* Wight	Celastraceae	WC	+	-	-
15	Ngorn kai	*Cnestis palala* (Lour.) Merr. subsp. *palala*	Cornaceae	WC	+	-	-
	San tao	*Dillenia hookeri* Pierre	Dilleniaceae	S	-	+	-
	Phak rod	*Erythropalum scandens* Blume	Erythropalaceae	WC	+	-	-
	Taan krob	*Erythroxylum cambodianum* Pierre	Erythroxylaceae	S	-	+	-
	Plao nam ngoen	*Croton cascarilloides* Raeusch.	Euphorbiaceae	S	+	-	-
20	Kam lang krabue	*Excoecaria cochinchinensis* Lour. var.*cochinchinensis*	Euphorbiaceae	S	+	-	-
	Ma kai krue	*Mallotus repandus* Műll. Arg.	Euphorbiaceae	WC	+	-	-
	Lod Tanoong	*Trigonostemon reidioides* (Kurz) Craib	Euphorbiaceae	S	-	+	-
	Krue khao nang	*Bauhinia bassacensis* Pierre ex Gagnep.	Fabaceae	WC	+	+	-
	Siew daeng	*Bauhinia penicilliloba* Pierre ex Gagnep.	Fabaceae	WC	+	+	-
25	Tong hmong	*Droogmansia godefroyana* (Kuntze) Schindl.	Fabaceae	S	-	+	-
	Baa bon	*Entada reticulata* Gagnep.	Fabaceae	WC	+	-	-
	Tua saampeek	*Flemingia macrophylla* (Willd.) Prain	Fabaceae	S	-	+	-
	Kra duk ung	*Dendrolobium triangulare* (Retz.) Schindl. subsp.*triangulare*	Fabaceae	S	-	+	-
	Salaeng pan	*Bauhinia pulla* Craib	Fabaceae	WC	+	-	-
30	An jan paa	*Clitoria macrophylla* Wall.	Fabaceae	S	-	+	+

Annex 2 (Cont'd)

No.	Thai name	Botanical name	Family	Habit	Forest type		
					DEF	DDF	MDF
	Sabaa ling	*Entada glandulosa* Pierre ex Gagnep.	Fabaceae	WC	+	-	-
	Muey	*Gnetum montanum* Markgr.	Gnetaceae	WC	+	-	-
	Nom sawan	*Clerodendrum paniculatum* L. var.*paniculatum*	Lamiaceae	S	+	-	-
	Kang maeo	*Gmelina asiatica* L.	Lamiaceae	S	-	+	+
35	Kraduk kob	*Hymenopyramis brachiata* Wall. ex Schauner	Lamiaceae	WC	+	-	+
	Krue on	*Congea tomentosa* Roxb.	Lamiaceae	WC	+	-	+
	Kongkang khao	*Fagraea ceilanica* Thunb.	Loganiaceae	E-ST	+	-	-
	Po tom	*Hibiscus glanduliferus* Craib	Malvaceae	S	-	+	+
	Khee toon	*Helicteres hirtusa* Lour.	Malvaceae	S	+	+	-
40	Khee on	*Helicteres lanata* (Teijsm. ex Binn.) Kurz	Malvaceae	S	-	+	+
	Klongkheng phol haeng	*Melastoma pellegrinianum* (H. Boissieu) F.K. Meyer	Melastomaceae	S	-	+	-
	Phlong kaem on	*Memecylon myrsinoides* Bl.	Memecylaceae	S-ST	+	-	-
	Phlong khee khwaai	*Memecylon caeruleum* Jack	Memecylaceae	S-ST	+	-	-
	Khoi nam	*Streblus ilicifolius* Corner	Moraceae	ST	+	-	-
45	Due hom	*Ficus hirta* Vahl	Moraceae	S	+	-	+
	Ta kai baikwang	*Ardisia crenata* Sims var. *crenata*	Myrsinaceae	S	+	+	+
	Kon thuai	*Rhodamnia dumetorum* Merr. & Perry	Myrtaceae	S	+	-	+
	Son saai	*Baeckea fructescens* L.	Myrtaceae	S	-	+	-
	Chaang naao	*Ochna integerrima* Merr.	Ochnaceae	ST	+	+	+
50	Phak waan mao	*Urobotrya siamensis* Hiepko	Opiliaceae	S	+	-	-
	Mao khai plaa	*Antidesma ghaesembilla* Gaerth.	Phyllanthaceae	S-ST	+	+	+
	Mao soi	*Antidesma acidum* Retz.	Phyllanthaceae	S	+	+	-
	Ma kaa	*Bridelia ovata* Decne	Phyllanthaceae	ST	+	-	+
	Mamao dong	*Antidesma bunius* Spreng.	Phyllanthaceae	S	+	+	-
55	Khang umpai	*Phyllanthus virgatus* G.Forst.	Phyllanthaceae	S	-	+	+
	Ta khrong	*Ziziphus cambodiana* Pierre	Rhamnaceae	WC	-	-	+
	Kra mob	*Gardenia obtusifolia* Roxb.	Rubiaceae	S-ST	-	+	-
	Son kra	*Prismatomeris tetrandra* (Roxb.) K.Schum. subsp. *malayana* (Ridl.) Johans.	Rubiaceae	S	+	-	-
	Khao san paa	*Pavetta tomentosa* Roxb. ex Sm. var.*tomentosa*	Rubiaceae	S	-	+	-
60	Pad hin	*Gardenia saxatilis* Geddes	Rubiaceae	S	-	+	-
	Bai tang dok	*Mussaenda glabra* Vahl	Rubiaceae	S	+	-	-

Annex 2 (Cont'd)

No.	Thai name	Botanical name	Family	Habit	Forest type		
					DEF	DDF	MDF
	Phraya tao sahew	*Oxyceros bispinosus* (Griff.) Tirveg.	Rubiaceae	WC	+	-	-
	Khon maa khaao	*Dracaena angustifolia* Roxb.	Ruscaceae	S	+	-	-
	Kaeo	*Murraya paniculata* Jack	Rutaceae	S-ST	+	-	-
65	Samui hom	*Clausena cambodiana* Guill.	Rutaceae	S	+	-	-
	Pia krathing	*Euodia lepta* Merr.	Rutaceae	S	+	-	+
	Hadsakoon	*Micromelum minutum* (Forst.f.) Wight et Arn.	Rutaceae	S-ST	+	-	-
	Ratchadat	*Brucea javanica* Merr.	Simaroubaceae	S	+	-	-
	Pla lai phuek lek	*Eurycoma harmandii* Pierre	Simaroubaceae	S	+	+	+
70	Yaan taad	*Smilax luzonensis* C. Presl	Smilacaceae	WC	-	+	+
	Praduu kok	*Enkleia thorelii* (Lecomte) Nervling	Thymelaeaceae	WC	-	+	+
	Maha kaan	*Linostoma decandrum* (Roxb.) Wall. ex Meisn.	Thymelaeaceae	WC	+	-	-
	Taang	*Leea indica* (Burm.f.) Merr.	Vitidaceae	S	+	-	-
	Taang daeng	*Leea rubra* Blume ex Spreng.	Vitidaceae	S	+	+	+
75	Taang daeng	*Leea thorelii* Gagnep.	Vitidaceae	S	-	+	-

Remarks: 1) Forest types: DEF = Dry Evergreen Forest, DDF = Dry Deciduous Dipterocarp Forest, MDF = Mixed Deciduous Forest
2) Plant occurred: + = Present - = Absent in the forest
3) Plant habits: S= Shrub, S-ST = Shrub to Shrubby tree, WC = Woody climber

Annex 3 Herbs, ferns and epiphytic plant diversity species in the PTPFC* (*Field work inventory had done only in dry season 2009).

No.	Thai name	Botanical name	Family	Habit	Forest types [1]		
					DEF	DDF	MDF
1	Wan keeb raed	*Angiopteris evecta* (G. Forst.) Hoffm.	Marattiaceae	F	+[2]	-	-
	Sarat chan	*Burmannia coelestris* D. Don	Burmanniaceae	H	-	+	+
	Samong	*Pyrrosia longifolia* (Burm.f.) Morton	Polypodiaceae	F	+	-	-
	Kratiem chang	*Murdannia spectabilis* (Kurz) Faden	Commelinaceae	H	-	+	+
5	Ueng maai na	*Costus speciosus* (Koen.) Sm.	Costaceae	H	+	-	+
	Kok dok riang	*Fimbristylis disticha* Boeck.	Cyperaceae	H	-	+	-
	Ya dok khaao	*Eriocaulon echimulatum* Mart.	Eriocaulaceae	H	-	+	+
	Kradum dok khaao	*Eriocaulon heterolepis* Steud.	Eriocaulaceae	H	-	+	-
	Ya khon wua	*Eremochloa ciliaris* (L.) Merr.	Poaceae	H	-	+	-
10	Ya hang ma noi	*Setaria pumila* (Poir.) Roem. & Schult.	Poaceae	H	-	+	+
	Ueng dok ma kham	*Dendrobium venustum* Teijsm. ex Binn.	Orchidaceae	O-E	+	-	-
	Ma wing	*Doritis pulcherrima* Lindl.	Orchidaceae	O-T	-	+	-
	Kra jiew muang	*Curcuma gracillima* Gagnep.	Zingiberaceae	H	-	+	-
	Kra jiew daeng	*Curcuma sessilis* Gage	Zingiberaceae	H	-	+	-

Annex 3 (Cont'd)

No.	Thai name	Botanical name	Family	Habit	Forest types [1)]		
					DEF	DDF	MDF
15	Prao bai khao	*Kaempferia filifolia* K. Larsen	Zingiberaceae	H	-	+	-
	Sang korranee	*Barleria strigosa* Willd.	Acanthaceae	H	-	+	+
	Hang kra rok	*Justicia diffusa* T. Anderson	Acanthaceae	H	-	+	-
	Hu pakka	*Thunbergia fragrans* Roxb.	Acanthaceae	H-C	-	+	+
	Tang yai	*Hoya kerrii* Craib	Apocynaceae	H-E	-	+	-
	Ya nok yoong	*Heliotropium strigosum* Willd.	Boraginaceae	H	-	+	+
20	Do mai ru lom	*Elephantopus scaber* L.	Asteraceae	H	-	+	+
	Pkak kad kob	*Gynura pseudochina* (L.) DC.	Asteraceae	H	-	+	-
	Bai tor kaan	*Evovulus alsinoides* (L.) L.	Convolvulaceae	H-C	-	+	-
	Jok bo why	*Drosera bunuannii* Vahl	Droseraceae	H	-	+	+
	Ya nam khang	*Drosera indica* L.	Droseraceae	H	-	+	+
25	Hing hoi	*Crotalaria alata* Buch.-Ham. ex Benth.	Fabaceae	H	-	+	-
	Ma hing	*Crotalaria melanocarpa* Wall. ex Benth.	Fabaceae	H	-	+	-
	Hing hai bai yai	*Crotalaria verrucosa* L.	Fabaceae	H	+	-	+

Annex 3 (Cont'd)

No.	Thai name	Botanical name	Family	Habit	Forest types [1]		
					DEF	DDF	MDF
	Haew praduu	*Eriosema chinense* Vogel	Fabaceae	H	-	+	-
	Hang kra rok	*Uraria crinata* Desv. ex DC.	Fabaceae	H	-	+	+
30	Tua hae phee	*Vigna dalzellina* (Kuntze) Verdc.	Fabaceae	H-C	-	+	-
	Soi suwanna	*Utricularia bifida* L.	Lentibulariaceae	H	-	+	-
	Dusitta	*Utricularia delphinoides* Thorel ex Pellegr.	Lentibulariaceae	H	-	+	-
	Ya phoi	*Utricularia hirta* Klein ex Link	Lentibulariaceae	H	-	+	-
	Khee oon	*Pavonia rigida* (Wall. ex Mast.) Hochr.	Malvaceae	H	+	+	+
35	Khee krok	*Urena labata* L.	Malvaceae	H	+	+	+
	Sao sa nom	*Sonerila erecta* Jack	Melastomaceae	H	+	-	+
	Dok din daeng	*Aeginetia indica* Roxb.	Orohanchaceae	H-P	-	+	+
	Ma kham pom din	*Phyllanthus urinaria* L.	Phyllanthaceae	H	-	+	+
	Khang Umpai	*Phyllanthus virgatus* G. Forst.	Phyllanthaceae	H	-	+	-
40	Ya raak hom	*Salomonia ciliata* (L.) DC.	Polygalaceae	H	-	+	-
	Ya tob taeb	*Hedyotis dichotoma* Koen. ex Roth.	Rubiaceae	H	-	-	-

Annex 3 (Cont'd)

No.	Thai name	Botanical name	Family	Habit	Forest types [1]		
					DEF	DDF	MDF
	Kha khom	*Alpinia zerumbet (Pers.)* Burtt et R.M.Sm.	Zingiberaceae	H	+	-	-
	Kled mangkon	*Dischidia mummularia* R. Br.	Apocynaceae	H-E	+	+	-
	Hang plachon	*Emilia sonchifolia* (L.) DC. ex Wight	Asteraceae	H	+	-	-
45	Ya dok kam	*Hypoxis aurea* Lour.	Hypoxidaceae	H	-	+	+
	Kraam paa	*Indigofera galegoides* DC.	Fabaceae	H	-	-	+
	Praao paa	*Kaempferia marginata* Garey	Zingiberaceae	H	+	-	-
	Phak khayaeng	*Limnophila geoffrayi* Bonati	Linderiaceae	H	-	+	-
50	Buk ruesee	*Tacca leontopetaloides* (L.) Kuntze	Taccaceae	H	-	+	+

Remarks: 1) Forest types: DEF = Dry Evergreen Forest, DDF = Dry Deciduous Dipterocarp Forest, MDF = Mixed Deciduous Forest
2) Plant occurred: + = present - = absent in the forest

Annex 4 Orchid species diversity and their conservation status in PTPFC* (*Field work inventory had done only in dry season 2009).

Botanical name	Thai name	Occurred locality					Conservation status
		PT	KN	PJ	YD	BM	
Acampe ochrecea (Lindl.)Hochr.	Ueang teen jok	√	-	√	√	-	VU
Acriopsis lilifolia (J.Koenig) Ormerod	Ueang nam nuu	√	-	√	√	-	NT
Aerides falcata Lindl.	Kulab krapao perd	√	√	√	√	√	NT
Aerides multiflora Roxb.	Kulab malai daeng	√	-	√	-	-	NT
Anoectochilus lylei Rolfe & Downie	Ueang din paksom	-	-	√	√	-	DD
Anoectochilus roxburghii (Wall.) Lindl.	Waan namthong	√	-	√	-	-	NT
Arundina graminifolia (D.Don) Hochr.	Ya jim fum kwaai	√	√	√	√	√	NT
Ascocantrum curvifolium (Lindl.) Schltr.	Ueang khem daeng	√	-	√	√	√	VU
Brachycorythis houryi (Schltr.) Summerh.	Waan nang bua	√	√	√	√	√	NT
Bulbophyllum affine Lindl.	Singhto ngam	-	-	√	√	-	NT
Bulbophyllum blepharites Rchb.f.	Singhto klok taa	√	√	√	√	√	NT
Bulbophyllum morphologorum F. Kränzl.	Singhto ruang khaao	√	√	√	√	√	NT
Bulbophyllum wallichii Rchb.f.	Singhto bai pai	√	√	√	√	-	NT
Calanthe cardioglossa Schltr.	Ueang nam ton	√	-	√	√	-	VU
Calanthe triplicata (Willemet) Amor	Khao tok ruesee	-	-	√	√	-	VU
Cleisostoma birmanicum (Schltr.) Garay	Ueang pak som	√	-	√	√	-	DD
Coelogyne fimbriata Lindl.	Ueang thien pak phoi	√	√	√	√	-	NT
Coelogyne fuscescens Lindl. var. *brunnea* (Lindl.) Lindl.	Ueang thien see som	-	-	√	√	-	VU
Coelogyne viscosa Rchb.f.	Ueang thien saaw dok	√	√	√	-	-	VU
Crepidium calophyllum (Rchb.f.) Szlach.	Haew mu paa	√	-	√	√	-	DD
Cymbidium aloifolium (L.) Sw.	Ka re ka ron	√	√	√	√	√	LC
Cymbidium finlaysonianum Lindl.	Ka re ka ron pak ped	-	-	√	√	-	LC

Annex 4 (Cont'd)

Botanical name	Thai name	Occurred locality					Conservation status
		PT	KN	PJ	YD	BM	
Cymbidium ersifolium (L.) Sw.	Julan	-	-	√	√	-	VU
Dendrobium aphyllum (Roxb.) C.EC. Fisch	Ueang long laeng	√	√	√	√	-	VU
Dendrobium chrysotoxum Lindl.	Ueang kham	√	√	√	-	-	LC
Dendrobium compactum Rolfe ex Hackett	Ueang khao tok	√	√	√	√	√	LC
Dendrobium crumenatum Sw.	Wai to moi	-	-	√	√	√	LC
Dendrobium draconis Rchb.f.	Ueang ngern	√	√	√	√	√	LC
Dendrobium ellipsophyllum T.Tang & F.T. Wang	Ueang thong	√	√	√	√	√	LC
Dendrobium aercoglossum Rchb.f.	Ueang dok makhue	√	√	√	-	-	NT
Dendrobium heterocarpum Lindl.	Ueang see tan	√	√	√	√	√	LC
Dendrobium infundibulum Lindl.	Ueang taa hern	√	√	√	√	√	NT
Dendrobium lindleyi Steud.	Ueang phueng	√	√	√	√	√	LC
Dendrobium primulinum Lindl.	Ueang saiprasat	√	-	-	√	-	VU
Dendrobium thrysiflorum Rchb.f.	Ueang mon khai	-		√	√	-	VU
Doritis pulcherima Lindl.	Ma wing	√	√	√	√	√	LC
Epigeneium amplum (Lindl.) Summerh.	Ueang see thiaug	√	-	√	√	-	NT
Eria amica Rchb.f.	Ueang nimmannoradee	-	-	√	√	√	LC
Eria discolor Lindl.	Ueang taan hin	√	-	√	-	-	LC
Eria lasiopetala (Willd.) Ormerod	Ueang bai sri	√	√	√	√	√	LC
Eulophia andamamensis Rchb.f.	Muu kling	√	√	√	?	√	LC
Eulophia macrobulbon (C.S.P.Parish & Rchb.f.) Hook.f.	Waan ueng	√	√	-	-	-	DD
Geodorum recurvum (Roxb.) Alston	Waan joong naang	√	√	√	√	-	LC
Habenaria chlorina C.S.P.Parish & Rchb.f.	Ueang see tong	√	√	√	√	√	LC
Habenaria dentata (Sw.) Schltr.	Naang hua noi	√	-	√	√	-	NT

Annex 4. (Cont'd)

Botanical name	Thai name	Occurred locality					Conservation status
		PT	KN	PJ	YD	BM	
Habenaria lindleyana Steud.	Naang taai	√	√	√	√	√	LC
Habenaria rhodocheila Hance	Pat daeng	√	-	√	√	√	NT
Habenaria rostellifera Rchb.f.	Waan kai chon	√	√	√	-	-	LC
Hygrochilus parishii (Veitch & Rchb.f.) Pfitzer	Ueang naang ruung	√	-	√	√	√	NT
Ludisia discolor (Ker Gawl.) A.Rich	Waan nam thong	√	-	√	√	-	LC
Ludisia zollingeri Rchb.f.	Lin dam noi	√	√	√	-	-	LC
Nephelaphyllum tenuiflorum Blume	Zon aaeb phu	-	-	-	√	-	DD
Nervillia aragoana Gaudich.	Paendin yen	√	-	√	√	-	LC
Nervillia calcicola Kerr	Bua lin	√	-	√	√	-	LC
Nervillia plicata (Andrews) Schltr.	Waan phaendin	-	-	√	√	-	DD
Otochilus fuscus Lindl.	Soi rayaa	√	-	√	√	-	DD
Paphiopedilum concolor (Bateman) Pfitzer	Rong tao naree yueng pracheen	-	-	√	√	-	VU
Papilionanthe teres (Roxb.) Schltr.	Ueang mok	-	-	√	√	√	VU
Phaius tankervilleae (Banks ex L.' Hér) Blume	Ueang prao	√	-	√	√	√	VU
Phalaenopsis cornucervi (Breda) Blume ex Rchb.f.	Khao kwang ion	√	√	√	√	√	NT
Pholidota articulata Lindl.	Ueang lum to	√	-	√	√	√	LC
Pholidota imbricata Hook.	Ueang kab dok	√	-	√	√	√	LC
Pholidota recurva Lindl.	Ueang lum to liem	√	√	√	√	√	LC
Pomatocalpa maevata J.J.Sm	Ueang sue phaew	√	√	√	√	√	LC
Pomatocalpa spicata Breda	Chaang dam	-	-	√	√	-	NT
Porpax elwesii (Rchb.f.) Rolfe	Ueang kradum	√	√	√	-	-	DD
Rhynchostylis coelestris Rchb.f.	Ueang khao kaae	√	√	√	√	√	LC
Rhynchostylis gigantea (Lindl.) Ridl.	Chaang kra	√	-	√	√	√	VU

Annex 4 (Cont'd)

Botanical name	Thai name	Occurred locality					Conservation status
		PT	KN	PJ	YD	BM	
Seidenfadenia mitrata (Rchb.f.) Garay	Ueang hnuad bramh	√	√	√	√	√	NT
Spathoglottis affinis de Vriese	Yueang pitsamon	√	√	√	√	-	NT
Staurochilus dawsonianus (Rchb.f.) Schltr.	Sue phaew	√	-	√	√	√	LC
Staurochilus fasciatus (Rchb.f.) Ridl.	Sue krong	√	-	√	√	-	NT
Tainia hookeriana King & Pantl.	Ueang selapak lai	-	-	√	√	-	DD
Trias nasuta (Rchb.f.) Stapf	Ueang nok kra jib	√	√	√	√	?	DD
Trichoglottis cirrhifera Teijsm. & Binn.	Ueang saisukon	-	-	√	√	-	DD
Tropidia curculigoides Lindl.	Khao dong	√	-	√	√	-	DD
Vauda lilacina Teijsm. & Binn.	Khem khao	√	√	√	√	√	LC
Vandopsis lissochiloides (Gaudish.) Pfitzer	Ueang khao phravihear	√	√	√	√	√	EN
Vanilla aphylla Blume	Tao nguu khiew	√	√	√	√	√	LC
Vanilla siamensis Rolfe ex Downie	Plu chaang	-	-	-	√	-	DD
Zeukine nervosa (Wall. ex Lindl.) Benth. ex Clarke	Ueang din noi	-	-	-	√	-	DD
Brachycorythis acuta (Rchb.f.) Summer.	Ueang dok thien	√	√	√	-	-	DD
Appendicula cornuta Blume	Hang mang ngao	-	-	√	√	√	DD
Bulbophyllum orientale Siedenf.	Singh to thong	-	-	√	√	-	DD
Calanthe rosea (Lindl.) Benth.	Ueang chompoo prai	-	-	-	√	-	NT
Cirrhopetalum lepidum (Blume) Schltr.	Singh to patdaeng	-	-	√	√	-	NT
Coelogyne trinervis Lindl.	Ueang maak	√	√	√	√	√	LC
Dendrobium delacourii Guill.	Ueang dok makhaam	√	√	√	√	√	LC
Dendrobium formosum Roxb. ex Lindl.	Ueang ngerm luang	√	-	√	√	-	NT
Dendrobium parishii Rchb.f.	Ueang sainam khung	-	-	√	√	-	VU
Dendrobium puchellum Roxb. ex Lindl.	Ueang chaang nao	√	√	√	√	√	LC

Annex 4 (Cont'd)

Botanical name	Thai name	Occurred locality					Conservation status
		PT	KN	PJ	YD	BM	
Dendrobium secundum (Blume) Lindl.	Ueang praeng see fun	√	-	√	√	-	LC
Dendrobium signatum Rchb.f.	Ueang kham kiew	-	-	√	√	-	VU
Dendrobium terminale Par. & Rchb.f.	Ueang phaeng	√	-	√	√	-	DD
Eria pannea Lindl.	Ueang niew naang	√	√	√	√	√	LC
Liparis caespitosa (Thou.) Lindl.	Ueang khao nok	√	-	√	√	-	LC
Spathoglottis eburnea Gagnep.	Baan duk	√	√	√	-	-	DD
Aerides crassifolia Parish ex Burbidge	Kulabdaeng	√	-	√	√	-	VU
Aerides houlettian Rchb.f.	Kulab yueng korat	√	-	√	√	-	VU
Aerides odorata Lour.	Kulab pluang	√	-	√	√	√	VU
Ascoceutrum miniatum (Lindl.) Schltr.	Ueang khem saed	-	-	√	√	-	VU
Chiloschista parishii Seidenf.	Praya rai bai	-	-	√	√	-	VU
Cleisostoma areitinum (Rchb.f.) Garay	Khao pae	√	-	√	√	-	LC
Cleisostoma siamendii (Gagnep.) Seidenf.	Ueang sroi tabtim	√	-	√	√	√	VU
Geodorum citrinum Jacks.	Waan joong naang	√	√	√	-	-	DD
Grammatophyllum speciosum Blume	Waan phetchahueng	-	-	-	√	-	EN
Grosourdya appendiculata (Blume) Rchb.f.	Ueang laen lom	√	-	√	√	-	DD
Kingidium delliciosum (Rchb.f.) Sweet	Takajor	-	-	-	√	-	VU
Vanda livouvillei Finet.	Saampoi hang pla	-	-	-	√	-	VU

Remark VU= Vulnerable ; NT= Near Threatened ; DD= Data Deficient ; LC= Least Concern ; EN= Endangered

Annex 5. Native edible plants in the PPFC*. (*Field work inventory had done only in dry season 2009)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Acacia concina (Willd.) DC.	Som poi	Fabaceae	Woody climber	Young leaf	Fresh eaten as vegetable
Adenia viridiflora Craib	E -noon	Passifloraceae	Woody climber	Young leaf, young fruit	Boiling eaten as vegetable
Aganonerion polymorphum Pierre ex Spire	Som lom	Apocynaceae	Woody climber	Young leaf	Fresh eaten as vegetable
Aganosma marginata (Roxb.) G.Don	Mok krue	Apocynaceae	Woody climber	Young leaf	Fresh eaten as vegetable
Albizia lebbeck (L.) Benth.	Pruek	Fabaceae	Tree	Young leaf	Boiling eaten as vegetable
Alpinia galanga (L.) Willd.	Kha baan	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Alpinia galanga (L.) Willd.	Kha baan	Zingiberaceae	Herb	Rhizome	Spicy for curry
Alpinia mutica Roxb.	Kha nam	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Alpinia oxymitra K.Schum.	Laao	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Amomum uliginosum K.D. Koenig	Kra wan paa	Zingiberaceae	Herb	Rhizome	Spicy for curry
Amomum uliginosum K.D. Koenig	Kra wan paa	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Amorphophallus koratensis	Buk korat	Araceae	Herb	Young petiole	Cooking for vegetable curry
Ancistrocladus tectorius (Lour.) Merr.	Lin kwaang	Ancistocladaceae	Woody climber	Young leaf	Fresh eaten as vegetable
Antidesma ghaesembilla Gaertn.	Mao khai pla	Phyllanthaceae	Tree	Fruit	Fresh eaten as fruit
Baccaurea ramiflora Lour.	Ma phai	Phyllanthaceae	Tree	Fruit	Fresh eaten as fruit
Barringtonia acutangula (L.) Spreng.	Chik na	Lecythidaceae	Tree	Young leaf	Fresh eaten as vegetable
Bauhinia malabarica Roxb.	Som siew	Fabaceae	Tree	Young leaf	Fresh eaten as vegetable

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Boesenbergia rotunda (L.) Mansf.	Krachaai	Zingiberaceae	Herb	Rhizome	Spicy for curry
Bauhinia malabarica Roxb.	Som siew	Fabaceae	Tree	Young leaf	Fresh eaten as vegetable
Bombax cei ba L.	Ngiew	Malvaceae	Tree	Androecium	Cooking for noodle curry
Broussonetia kurzii (Hook.f.) Corner	Sa lae	Moraceae	Woody climber	Young fruit	Cooking for curry vegetable
Caesalpinia mimosoides Lam.	Cha lued	Fabaceae	Woody climber	Young leaf	Fresh eaten as vegetable
*Calamus viminalis*Willd.	Waan kom dong	Arecaceae	Palm	Shoot	Cooking for vegetable curry
Canarium subulatum Guill.	Makok Kluen	Burseraceae	Tree	Fruit	Prickled fruit
Cansjera rheedii J.F. Gmel.	Nang joom	Opiliaceae	Woody climber	Young leaf	Boiling eaten as vegetable
Careya sphaerica Roxb.	Kra don	Lecythidaceae	Tree	Young leaf	Fresh eaten as vegetable
Caryota mitis Lour.	Tao raang	Arecaceae	Palm	Shoot	Fresh eaten as vegetable or Boiling eaten as vegetable
Celastrus paniculata Willd.	Kratong lai	Celastraceae	Woody climber	Younf leaf	Fresh eaten as vegetable
Centella asiatica (L.) Urb.	Bua bok	Apiaceae	Herb	Younf leaf	Fresh eaten as vegetable
Cissampelos pareira L. var. *hirsuta* (Buch.-Ham. ex DC.) Forman	Krue ma noi	Menispermaceae	Climbing herb	Leaf	Jelly form leaf making spicy salad
Cissus hastata Miq.	Som sandan	Vitidaceae	Climbing herb	leaf	Fresh eaten as vegetable
Colocasia esculenta (L.) Schott	Bon	Araceae	Herb	Young petiole & shoot	Cooking for vegetable curry

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Costus speciosus (Koenig) Sm.	Ngueng maai na	Costaceae	Herb	Shoot	Fresh eaten as vegetable
Crassocephalum crepidioides (Benth.) S.Moore	Phak kaad chang	Asteraceae	Herb	Young leaf	Fresh eaten as vegetable
Crateva magna DC.	Kum nam	Capparidaceae	Tree	Young leaf, young inflorescence	Pickled as vegetable
Cratoxylum formosurm (Jack) Dyer subsp.*pruniflorum* (Kurz) Gogel.	Tiew daeng	Hypericaceae	Tree	Young leaf	Fresh eaten as vegetable
Curcuma sessilis Gage	How daeng	Zingiberaceae	Herb	Young inflorescence	Boiling eaten as vegetable
Cuscuta chinensis Lamk.	Phoi thong	Convolvulaceae	Semi –parasitic herb	Young stem	Fresh eaten as vegetable
Dialium cochinchinensis Pierre	Kheng	Fabaceae	Tree	Ripening fruit	Fresh eaten as fruit
Dialium cochinchinensis Pierre	Kheng	Fabaceae	Tree	Mature fruit	Boiling eaten as fruit
Dillenia indica L.	Ma taad	Dilleniaceae	Tree	Mature fruit	Cooking for curry vegetable
Dioscorea hispida Dennst. var. *hispida*	Kloi	Dioscoreaceae	Climbing herb	Tuber	Boiling eaten as starch
Dioscorea myriantha Kunth	Man thien	Dioscoreaceae	Climbing herb	Tuber	Boiling eaten as starch
Dracaena angustifolia Roxb.	Khon khaen	Ruscaceae	Shrub	Shoot	Cooking for vegetable curry
Dunbaria bella Prain	Khaang Khang	Fabaceae	Climbing herb	Flower	Boiling eaten as vegetable
Emilia sonchifolia (L.) DC.	Hu pla choon	Asteraceae	Herb	Young leaf	Fresh eaten as vegetable
Erythropalum scandens Blume	Phak haak	Erythropalacaeae	Woody climber	Young leaf	Boiling eaten as vegetable

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Ficus hispida L.	Madue plong	Moraceae	Tree	Young syconium	Fresh eaten as vegetable
Ficus racemosa L.	Ma due utumporn	Moraceae	Tree	Young syconium, young leaf	Fresh eaten as vegetable
Ficus superba(Miq.) Miq.	Lieb	Moraceae	Tree	Young leaf	Fresh eaten as vegetable, Cooking for vegetable curry
Flacourtia indica (Burm.f.) Merr.	Takhob	Salicaceae	Tree	Mature fruit	Fresh eaten as fruit
Garcinia cowa Roxb. ex DC.	Cha muang	Clusiaceae	Tree	Young leaf	Fresh eaten as vegetable or Cooking for vegetable curry
Gigantochloa albociliata (Munro) Munro	Phai rai	Poaceae	Bamboo	Shoot	Cooking for vegetable curry and Boiling eaten as vegetable
Glinus herniarioides (Gagnep.) Tardieu	Phak See Siad	Molluginaceae	Herb	Young stem	Boiling eaten as vegetable
Hymenocardia wallichii Tul.	Phaeb nam	Phyllanthaceae	Tree	Fruit	Cooking for curry vegetable
Irvingia malayana Oliv. ex A.W.Benn.	Krabok	Irvingiaceae	Tree	Seed	Roasted eaten as nut
Kaemferia galanga L.	Prao hom	Zingiberaceae	Herb	Rhizome	Spicy for curry
Kaemferia laotica Gagnep.	Waan La wan	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Lasia spinosa (L.) Thw.	Phak naam	Araceae	Herb	Shoot	Boiling eaten as vegetable
Lepisanthes rubiginosa (Roxb.) Leenh.	Ma huad	Sapindaceae	Tree	Ripening fruit	Fresh eaten as fruit
Limnocharis flava Buch.-Ham.	Kan Jong	Limnocharitaceae	Aquatic herb	Young flower, young petiole	Fresh eaten as vegetable or Boiling eaten as vegetable

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Limnophila geoffrayi Botani	Pak kha yaeng	Plantaginaceae	Aquatic herb	Leaf	Fresh eaten as vegetable or cooking for spicy
Lobelia begonifolia Wall.	Phak luem poor	Campanulaceae	Herb	Young stem	Fresh eaten as vegetable
Mangifera caloneura Kurz	Ma muang paa	Anacardiaceae	Tree	Fruit	Fresh eaten as fruit
Mangifera caloneura Kurz	Ma muang paa	Anacardiaceae	Tree	Yong leaf	Fresh eaten as vegetable
Markhamia stipulata Seem. var. *stipulata*	Khae hua moo	Bignoniaceae	Tree	Flower, young fruit	Boiling eaten as vegetable
Melientha suavis Pierre	Phak waan	Opiliaceae	Tree	Young leaf, young fruit	Cooking for vegetable curry
Momordica charantia L.	Mara khee nok	Cucurbitaceae	Climbing herb	Young leaf, young fruit	Fresh eaten as vegetable or Boiling eaten as vegetable
Momordica cochinchinensis (Lour.) Spreng.	Phak khao	Cucurbitaceae	Climbing herb	Young leaf, young fruit	Fresh eaten as vegetable or Boiling eaten as vegetable
Momordica cochinchinensis (Lour.) Spreng.	Phak khao	Cucurbitaceae	Climbing herb	Ripening fruit	Food color
Momordica subangulata Blume	Phak hai	Cucurbitaceae	Climbing herb	Young leaf, young fruit	Fresh eaten as vegetable or Boiling eaten as vegetable
Monochoria vaginalis (Burm.f.) Presl	Pak kha khied	Pontederiaceae	Aquatic herb	Leaf	Fresh eaten as vegetable or Boiling eaten as vegetable
Musa acuminata Colla	Kluay paa	Musaceae	Herb	Shoot	Cooking for curry vegetable
Musa acuminata Colla	Kluay paa	Musaceae	Herb	Young fruit	Cooking for curry vegetable

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Nephelium hypoleucum Kurz	Ko laen	Sapindaceae	Tree	Ripening fruit	Fresh eaten as fruit
Oenanthe javanica (Blume) DC.	Phak Chee lom	Apiaceae	Herb	Shoot	Fresh eaten as vegetable
Olax psittacorum (Willd.) Vahl	Nam jai krai	Olacaceae	Woody climber	Young leaf	Boiling eaten as vegetable
Oroxylum indicum (L.) Kurz	Peka	Bignoniaceae	Tree	Young leaf, young fruit	Boiling eaten as vegetable
Ottelia alismoides (L.) Pers.	Santawaa	Hydrocharitaceae	Aquatic herb	Leaf	Fresh eaten as vegetable or Boiling eaten as vegetable
Oxystelma esculentum R.Br.	Kiew khai	Apocynaceae	Climbing herb	Leaf	Fresh eaten as vegetable with spicy curry
Passiflora foetida L.	Katok rok	Passifloraceae	Climbing herb	Shoot	Boiling eaten as vegetable
Passiflora foetida L.	Katok rok	Passifloraceae	Climbing herb	Fruit	Fresh eaten as fruit
Phyllanthus emblica L.	Ma kham pom	Phyllanthaceae	Tree	Mature fruit	Fresh eaten as fruit
Pseudodracontium kerrii Gagnep.	E-rok	Araceae	Herb	Leaf	Cooking for vegetable curry
Salacia verrucosa Wight	Ta kwaang	Celastraceae	Woody climber	Ripening fruit	Fresh eaten as fruit
Sarcostemma secamone (L.) Bennet	Chamook pla lod	Apocynaceae	Climbing herb	Young leaf, flower	Fresh eaten as vegetable or Cooking for vegetable curry
Schleichera oleosa (Lour.) Oken	Ta takror	Sapindaceae	Tree	Mature fruit	Fresh eaten as fruit
Scaphium affine (Mast.) Pierre	Mak Jong	Malvaceae	Tree	Mature fruit	Soaking in water and eaten as jelly
Smilax ovalifolia Roxb.	Tao wanyang	Smilacaceae	Climbing herb	Shoot	Fresh eaten as vegetable

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Spondias pinnata (L.f) Kurz	Makok paa	Anacardiaceae	Tree	Young leaf	Fresh eaten as vegetable
Spondias pinnata (L.f) Kurz	Makok paa	Anacardiaceae	Tree	Mature fruit	Put in papaya salad as condiment
Sysygium cumini (L.) Skeel	Waa	Myrtaceae	Tree	Fruit	Fresh eaten as fruit
Sysygium cumini (L.) Skeel	Waa	Myrtaceae	Tree	Young leaf	Fresh eaten as vegetable
Syzygium gratum (Wight) S.N. Mitra var. *gratum*	Phak mek	Myrtaceae	Tree	Young leaf	Fresh eaten as vegetable
Telosma minor Craib	Kha jon	Apocynaceae	Climbing herb	Flower	Fresh eaten as vegetable or Boiling eaten as vegetable
Terminalia chebula Retz. var. *chebula*	Samor thai	Combretaceae	Tree	Mature fruit	Fresh eaten as fruit
Terminalia chebula Retz. var. *chebula*	Samor thai	Combretaceae	Tree	Mature fruit	Put in papaya salad as condiment
Tiliacora triandra (Colebr.) Diels	Tao ya nang	Menispermaceae	Woody climber	Leaf	Fresh sap extracted from leaf put in bamboo curry and Fresh eaten as vegetable
Toddalia asiatica (L.) Lam.	Krue Ngoo hao	Ruatcaceae	Woody climber	Young leaf	Fresh eaten as vegetable
Xanthoxylum lanceatum (Miq.) J.J.Sm.	Saeng kuen	Polygalaceae	Tree	Young leaf	Boiling eaten as vegetable
Zanthoxylum limonella (Dennst.) Alston	Kamjad ton	Ruataceae	Tree	Mature fruit	Spicy for curry
Zingiber montanum (Koenig) Link ex Dietr.	Plai	Zingiberaceae	Herb	Young inflorescence	Boiling eaten as vegetable
Zingiber zerumbet Sm.	Kra tue	Zingiberaceae	Herb	Shoot	Boiling eaten as vegetable
Ziziphus oenoplia (L.) Mill. var. *oenoplia*	Leb yiew	Rhamnaceae	Woody climber	Ripening fruit	Fresh eaten as fruit

Annex 5 (Cont'd)

Botanical name	Vernacular name	Family	Habit	Used parts	Preparation & Processed
Antidesma puncticulatum Miq.	Mao Luang	Phyllanthaceae	Tree	Ripening fruit	Fresh eaten as fruit

Annex 6 Medicinal plants with potential immunomodulating activity in PPFC*. (*Field work inventory had done only in dry season 2009)

Botanical Name	Vernacular name	Parts used	Preparation & Administration	Aliment	References
Apocynaceae					
Alyxia reinwardtii Blume	Tungtoon, Tungtoon-kaw	stem	decoction, taken orally	hepatopathy	Prasitpuriprecha *et al,* 2005
Holarrhena pubescens Wall. ex G. Don	Moke-luang, Moke-yai	bark	decoction, taken orally	wound, abscess	Prasitpuriprecha *et al,* 2005
Dischidia nummularia R.Br.	Pappae, Tingsaeu, Kledmungkorn	bulb	decoction, taken orally	hepatomegaly, cirrhosis	Prasitpuriprecha *et al,* 2005
Gymnema griffithii Craib	Tysong-kaw, Tankpae	root	decoction, taken orally	tonic	Prasitpuriprecha *et al,* 2005
Hoya pachyclada Kerr	Tang-yai, Tang-luang	stem and leaf	decoction, taken orally	hepatomegaly	Prasitpuriprecha *et al,* 2005
Hoya parasitica (Roxb.) Wall. ex Traill	Nompijit	stem and leaf	decoction, taken orally	hepatomegaly	Prasitpuriprecha *et al,* 2005
Aristolochiaceae					
Aristolochi pothieri Pierre ex Lecomte	Krachau-Toongthong	rhizome	decoction, taken orally	anti-aging	Prasitpuriprecha *et al,* 2005
Capparidaceae					
Capparis micracantha DC.	Chingchee, Payajomploak	stem	decoction, taken orally	breast cancer	Prasitpuriprecha *et al,* 2005
Crateva adansonii DC.	Kumbok	bark	decoction, taken orally	cancer, anti-aging	Prasitpuriprecha *et al,* 2005
Celastraceae					
Salacia chinensis L.	Takai	stem	decoction, taken orally	hepatomegaly	Prasitpuriprecha *et al,* 2005
Salacia verrucosa Wight	Takoung, Takwang	stem	decoction, taken orally	hepatomegaly	Prasitpuriprecha *et al,* 2005
Siphonodon celastrineus Griff.	Madook	root, bark	decoction, taken orally	hepatitis, skin rash	Prasitpuriprecha *et al,* 2005
Cyperaceae					
Cyperus rotundus L.	Ya-haewmoo	rhizome	decoction, taken orally	health promoting, hepatotonic	Prasitpuriprecha *et al,* 2005
Euphorbiaceae					
Croton cascarilloides Raeusch.	Plaunam-gnern	root	decoction, taken orally	fever, viral infection	Prasitpuriprecha *et al,* 2005
Suregada multiflorum (A.Juss) Braill.	Kunthongpayabath	stem	decoction, taken orally	cancer	Prasitpuriprecha *et al,* 2005

Annex 6 (Cont'd)

Botanical Name	Vernacular name	Parts used	Preparation & Administration	Aliment	References
Fabaceae					
Bauhinia penicilliloba Pierre ex Gagnep.	Sewdang, Putaulomlook, Sewkrau	root	decoction, taken orally	tonic, appetizer	Prasitpuriprecha *et al,* 2005
Butea superba Roxb.	Jankrau, Thongkrau	stem	decoction and then steeping in honey, taken orally	anti-aging, tonic	Prasitpuriprecha *et al,* 2005
Desmodium styracifolium (Osbeck) Merr.	Koungkouhee, Peesaunam	root, stem	decoction, taken orally	fever, allergic dermatitis	Prasitpuriprecha *et al,* 2005
Desmodium triflorum (L.) DC.	Ya-kledhoi	whole plant	decoction, taken orally	tonic	Prasitpuriprecha *et al,* 2005
Dunbaria bella Prain	Tau-kangkok, Kanglauy, Kangkrung	root	decoction, taken orally	mumps, asthma	Prasitpuriprecha *et al,* 2005
Phyllodium longipes (Craib) Schindl.	Kasampeek, Kledpla	root	decoction, taken orally	hepatopathy	Prasitpuriprecha *et al,* 2005
Sindora siamensis Teijsm. & Miq.	Maka-tae	whole plant	decoction, taken orally	tuberculosis	Prasitpuriprecha *et al,* 2005
Zomia diphylla (L.) Pers.	Kraeu-kiengpeun, Thunyarn	whole plant	decoction, taken orally	tonic	Prasitpuriprecha *et al,* 2005
Gnetaceae					
Gnetum macrostachyum Hook.f.	Muay-dam	stem	alcoholic maceration, taken orally	pain, inflammation	Prasitpuriprecha *et al,* 2005
Gnetum montanum Markgr.	Muay-leung	stem	decoction, taken orally	fever, inflammation	Prasitpuriprecha *et al,* 2005
Poaceae					
Echinochloa crus-galli (L.) Pal	Ya-plongpai, Ya-pai	whole plant	decoction, taken orally	fever, dengue	Prasitpuriprecha *et al,* 2005
Imperata cylindrica (L.) P. Beauv.	Ya ka	rhizome	decoction, taken orally	urinary excreted	
Hypoxidaceae					
Molineria latifolia Herb.ex Kurz	Van-sarklek	rhizome	alcoholic maceration, taken orally	anti-aging, tonic	Prasitpuriprecha *et al,* 2005
Ruscaceae					
Ophiopogon intermedius D.Don	Somphoo, Ya-prakhin	whole plant	decoction, taken orally	tonic	Prasitpuriprecha *et al,* 2005

Annex 6 (Cont'd)

Botanical Name	Vernacular name	Parts used	Preparation & Administration	Aliment	References
Loranthaceae					
Dendrophthoe pentandra (L.) Miq.	Kafak-mamuang	whole plant	decoction, taken orally	vaginal cancer	Prasitpuriprecha *et al,* 2005
Menispermaceae					
Tinospora crispa (L.) Miers ex Hook.f. & Thomson	Boraped	stem	blended ball with honey, taken orally	jaundice, anti-aging	Prasitpuriprecha *et al,* 2005
Coscinium fenestratus (Gaertn.) Colebr.	Haem	stem	decoction, taken orally	fever, antidiabetic	
Tiliacora triandra (Colebr.)Diels	Tao ya naang	leaves	decoction, taken orally	antidiabetic	
Myrsinaceae					
Ardisia helferiana Kurz	Somkungkhon, Mae-hang	bark, leaf	decoction, taken orally	hepatopathy, tonic	Prasitpuriprecha *et al,* 2005
Oleaceae					
Chionanthus ramiflorus Roxb.	Plumalee, Oubdam	stem	decoction, taken orally	cancer	Prasitpuriprecha *et al,* 2005
Myxopyrum smilacifolium Blume	Prakhunchaisri, phonsandha	stem, leaf	decoction, taken orally	liver cancer	Prasitpuriprecha *et al,* 2005
Orchidaceae					
Vanilla aphylla Blume	Thu-gnu-khew, Krau-khaokwang-on, Han-gnu-khew	stem	decoction, taken orally	hepatopathy	Prasitpuriprecha *et al,* 2005
Phyllanthaceae					
Hymenocardia wallichii Tul.	Hu-ling, Hua-ling, Fabnarm	stem	decoction, taken orally	fever, chickenpox	Prasitpuriprecha *et al,* 2005
Polygalaceae					
Polygala chinensis L.	Ma-e-kum	whole plant	decoction, taken orally	aphrodisiac, restorative	Prasitpuriprecha *et al,* 2005
Restionaceae					
Leptocarpus disjunctus Mast	Saemahor	whole plant	decoction, taken orally	aphrodisiac, restorative	Prasitpuriprecha *et al,* 2005

Annex 6 (Cont'd)

Botanical Name	Vernacular name	Parts used	Preparation & Administration	Aliment	References
Rubiaceae					
Canthium berberidifolium Geddes	Gnengdook	root, stem	decoction, taken orally	cirrhosis, hepatopathy	Prasitpuriprecha *et al,* 2005
Prismatomeris tetrandra (Roxb.) K.Schum.	Ta Lai	root	infusion with water, taken orally and crush to apply locally	wound from snake bite	Prasitpuriprecha *et al,* 2005
Vangueria spinosa Roxb.	Raviengnoi, Nam-gnengdook	stem	decoction, taken orally	cirrhosis	Prasitpuriprecha *et al,* 2005
Santalaceae					
Scleropyrum wallichianum (Wight & Arn.)	Nomwau, Meaudkon	stem	decoction, taken orally	tonic	Prasitpuriprecha *et al,* 2005
Taccaceae					
*Tacca leontopetalode*s (L.) Kuntze	Tauyaimom	rhizome	decoction, taken orally	cancer, hepatopathy	Prasitpuriprecha *et al,* 2005
Vitaceae					
Ampelocissus martinii Planch.	Krau-Kouy	rhizome	decoction, taken orally	breast cancer	Prasitpuriprecha *et al,* 2005
Convolvulaceae					
Neuropeltis racemosus Wall.	Makratueb Rong	Stem	Soaking in alcohol	tonic, aphrodisiac	

Annex 7 Wood quality and their distributions in PTPFC*. (*Field work inventory had done only in dry season 2009)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Buchanania latifolia Roxb.	Anacardiaceae		√[1)]		√	√	√		√
Lannea coromandelica Merr.	Anacardiaceae			√	√	√	√	√	√
Spondias pinnata Kurz	Anacardiaceae			√	√	√	√	√	√
Semecarpus cochinchinensis Engl.	Anacardiaceae			√	√	√	√	√	√
Rhus succedanea L.	Anacardiaceae			√			√	√	
Mangifera caloneura Kurz	Anacardiaceae		√		√	√	√		√
Mangifera cochinchinensis Engl.	Anacardiaceae		√				√	√	
Holigarna helferi Hook.f.	Anacardiaceae		√		√		√	√	
Gluta usitata (Wall.) Ding Hou	Anacardiaceae			√	√	√	√		
Gluta obovata Craib	Anacardiaceae			√			√	√	
Dracontomelon dao (Blume) Merr. & Rolfe	Anacardiaceae		√		√	√	√	√	√
Cananga latifolia Finet & Gagnep.	Annonaceae			√	√	√	√	√	√
Melodorum fruticosum Lour.	Annonaceae			√	√	√	√	√	√
Mitrephora vandaeflora Kurz	Annonaceae			√	√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Polyalthia cerasoides (Roxb.) Benth. ex Bedd.	Annonaceae			√	√	√	√	√	√
Xylopia vielana Pierre	Annonaceae			√	√	√	√	√	√
Miliusa horsfieldii (Benn.) Pierre	Annonaceae			√	√	√	√	√	√
Alstonia scholaris R.Br.	Apocynaceae		√		√	√	√	√	√
Holarrhena pubescens Wall. ex G. Don	Apocynaceae		√		√	√	√	√	√
Wrightia arborea (Dennst.) Mabb.	Apocynaceae		√		√	√	√	√	√
Fernandoa adenophylla Steenis	Bignoniaceae			√	√	√	√	√	√
Markhamia stipulata Seem. var. *stipulata*	Bignoniaceae			√	√	√	√	√	√
Stereospermum neuranthum Kurz	Bignoniaceae		√		√	√	√	√	√
Milingtonia hortensis L.f.	Bignoniaceae			√	√	√	√	√	√
Stereospermum cylindricum Pierre ex P.Dop.	Bignoniaceae		√		√	√	√	√	√
Canarium subulatum Guill.	Burseraceae		√		√	√	√	√	√
Protium serratum Engler	Burseraceae		√		√	√	√	√	√
Calophyllum calaba L.	Clusiaceae		√		√	√	√	√	√
Siphonodon celastrineus Griff.	Celastraceae			√	√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Parinari anamensis Hance	Chrysobalanaceae		√		√	√	√	√	√
Terminalia calanamsanai Rolfe	Combretaceae		√		√	√	√	√	√
Mammea harmandii Kosterm.	Clusiaceae		√		√	√	√	√	√
Garcinia cowa Roxb.	Clusiaceae		√		√	√	√	√	√
Anogeissus acuminata Wall. var. *lanceolata* Clarke	Combretaceae		√		√	√	√	√	√
Terminalia corticosa Pierre ex Laness.	Combretaceae		√		√	√	√	√	√
Terminalia Pierrei Gagnep.	Combretaceae		√		√	√	√	√	√
Terminalia triptera Stapf.	Combretaceae		√		√	√	√	√	√
Ellipanthus tomentosus Kurz. var. *tomentosus*	Cornaceae			√	√	√	√	√	√
Dillenia obovata (Bl.) Hoogl.	Dilleniaceae			√	√	√	√	√	√
Dillenia ovata Wall. ex Hook.f. & Th.	Dilleniaceae			√	√	√	√	√	√
Dillenia indica L.	Dilleniaceae			√	√	√	√	√	√
Anisoptera costatus Korth.	Dipterocarpaceae	√			√	√	√	√	√
Dipterocarpus alatus Roxb. ex G.Don	Dipterocarpaceae	√			√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Dipterocarpus costatus Gaertn.f.	Dipterocarpaceae	√			√	√	√	√	√
Dipterocarpus intricatus Dyer	Dipterocarpaceae		√		√	√	√	√	√
Dipterocarpus obtusifolius Teijsm. ex Miq.	Dipterocarpaceae		√		√	√	√	√	√
Dipterocarpus tuberculatus Roxb.	Dipterocarpaceae	√			√	√	√	√	√
Hopea ferrea Pierre	Dipterocarpaceae	√			√		√	√	√
Shorea henryana Pierre	Dipterocarpaceae	√			√		√	√	√
Shorea obtusa Wall.	Dipterocarpaceae	√			√	√	√	√	√
Shorea roxburghii G.Don	Dipterocarpaceae	√			√	√	√	√	√
Shorea siamensis Miq.	Dipterocarpaceae		√		√	√	√	√	√
Shorea thorelii Pierre ex Laness.	Dipterocarpaceae	√			√	√	√	√	√
Vatica odorata (Griff.) Symington	Dipterocarpaceae		√		√	√	√	√	√
Vatica harmandii Pierre	Dipterocarpaceae		√		√	√	√	√	√
Vatica mangachapoi Blanco subsp.*obtusifolia* (Elmer) P.S. Ashton	Dipterocarpaceae		√		√	√	√	√	√
Diospyros pilosanthera Blanco	Ebenaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Diospyros castanea Fletch.	Ebenaceae		√		√	√	√	√	√
Diospyros dasyphylla Kurz	Ebenaceae		√		√	√	√	√	√
Diospyros ehretioides Wall.	Ebenaceae		√		√	√	√	√	√
Diospyros ferrea Bakh.	Ebenaceae		√		√	√	√	√	√
Diospyros malabarica Kostel.	Ebenaceae		√		√	√	√	√	√
Diospyros montana Roxb.	Ebenaceae		√		√	√	√	√	√
Diospyros variegata Kurz	Ebenaceae		√		√	√	√	√	√
Diospyros mollis Griff.	Ebenaceae	√			√	√	√	√	√
Elaeocarpus lanceaefolius Roxb.	Elaeocarpaceae		√		√	√	√	√	√
Elaeocarpus robustus Roxb.	Elaeocarpaceae		√		√	√	√	√	√
Elaeocarpus grandiflorus Sm.	Elaeocarpaceae		√		√	√	√	√	√
Croton roxburghii N.P. Balakr.	Euphorbiaceae			√	√	√	√	√	√
Mallotus philippensis Muell. Arg.	Euphorbiaceae			√	√	√	√	√	√
Sapium insigne Benth.	Euphorbiaceae			√	√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Suregada multiflora Baill.	Euphorbiaceae		√		√	√	√	√	√
Afzelia xylocarpa Craib	Fabaceae	√			√	√	√	√	√
Dialium cochinchinense Pierre	Fabaceae		√		√	√	√	√	√
Erythrophleum succirubrum Gagnep.	Fabaceae		√		√	√	√	√	√
Peltophorum dasyrrhachis Kurz	Fabaceae		√		√	√	√	√	√
Sindora siamensis Teijsm. ex Miq	Fabaceae		√		√	√	√	√	√
Adenanthera pavonina L.	Fabaceae		√		√	√	√	√	√
Albizia odoratissima Benth.	Fabaceae		√		√	√	√	√	√
Parkia sumatrana Miq.	Fabaceae			√			√	√	√
Xylia xylocarpa Taub. var. *kerrii* (Craib) I.C.Nielsen	Fabaceae	√			√	√	√	√	√
Dalbergia cochinchinensis Pierre	Fabaceae	√			√	√	√	√	√
Dalbergia cultrata Grah. ex Benth.	Fabaceae	√			√	√	√	√	√
Dalbergia dongnaiensis Pierre	Fabaceae	√			√	√	√	√	√
Dalbergia nigrescens Kurz	Fabaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Dalbergia oliveri Gamble	Fabaceae	√			√	√	√	√	√
Erythrina subumbrans Merr.	Fabaceae			√			√	√	√
Millettia leucantha Kurz var. *leucantha*	Fabaceae		√		√	√	√	√	√
Pterocarpus macrocarpus Kurz	Fabaceae	√			√	√	√	√	√
Lithocarpus ceriferus A. Camus	Fagaceae		√		√	√	√		
Lithocarpus thomsonii (Miq.) Rehder	Fagaceae		√		√	√	√	√	√
Lithocarpus fenestratus Rehd.	Fagaceae		√		√			√	
Lithocarpus polystachyus Rehd.	Fagaceae		√		√	√	√		
Cantanopsis argyrophylla King ex Hook.f.	Fagaceae		√		√		√	√	√
Lithocarpus harmandii (Hickel & A.Camus) A.Camus	Fagaceae		√		√	√	√	√	
Cratoxylum cochinchinense Bl.	Hypericaceae		√		√	√	√	√	√
Cratoxylum formosum (Jack) Dyer subsp.*pruniflorum* (Kurz) Gogel.	Hypericaceae		√		√	√	√	√	√
Gonocaryum lobbianum Kurz	Icacinaceae			√	√	√	√	√	√
Irvingia malayana Oliv. ex A. Benn	Irvingiaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Vitex peduncularis Wall. ex Schauer	Lamiaceae		√		√	√	√	√	√
Vitex pinnata L.	Lamiaceae		√		√	√	√	√	√
Vitex quinata Williams	Lamiaceae		√		√	√	√	√	√
Garcinia speciosa Wall.	Clusiaceae		√		√		√	√	
Phoebe paniculata Nees	Lauraceae		√		√	√	√	√	√
Cinnamomum iners Bl.	Lauraceae		√		√	√	√	√	√
Beilschmiedia grammieana King ex Hook.f.	Lauraceae		√				√	√	√
Litsea glutinosa C.B. Robinson	Lauraceae			√	√	√	√	√	√
Litsea monopetala Pers.	Lauraceae			√			√	√	√
Persea kurzii Kosterm.	Lauraceae		√				√	√	
Persea membranacea Kosterm	Lauraceae		√		√	√	√	√	
Careya sphaerica Roxb.	Lecythidaceae			√	√	√	√	√	√
Largerstroemia calyculata Kurz	Lythraceae		√		√	√	√	√	√
Lagerstroemia duperreana Pierre	Lythraceae			√	√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Lagerstroemia floribunda Jack	Lythraceae			√	√	√	√		
Largerstroemia loudonii Teijsm. & Binn.	Lythraceae		√		√	√	√	√	√
Largerstroemia macrocarpa Wall.	Lythraceae		√		√	√	√	√	√
Magnolia baillonii Pierre	Magnoliaceae	√			√	√	√	√	√
Bombax anceps Pierre	Malvaceae			√	√	√	√	√	√
Bombax ceiba L.	Malvaceae			√	√		√	√	√
Kydia calycina Roxb.	Malvaceae			√	√	√	√	√	√
Heritiera javanica Kosterm.	Malvaceae		√				√	√	√
Pterospermum acerifolium Willd.	Malvaceae		√		√	√	√	√	√
Scaphium affine (Mast.) Pierre	Malvaceae		√				√	√	√
Sterculia guttata Roxb.	Malvaceae			√	√	√	√	√	√
Microcos tomentosa Sm.	Malvaceae			√	√	√	√	√	√
Pterocymbium tinctorium (Blanco) Merr.	Malvaceae			√	√	√	√	√	√
Aglaia edulis (Roxb.) Wall.	Meliaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Aphanamixis polystachya Parker	Meliaceae		√		√	√	√	√	√
Chukrasia tabularis A. Juss.	Meliaceae		√		√	√	√	√	√
Dysoxylum cyrtobotryum Miq.	Meliaceae		√				√	√	√
Toona ciliata M. Roem	Meliaceae	√			√	√	√	√	√
Walsura robusta Roxb.	Meliaceae		√		√	√	√	√	√
Walsura trichostemon Miq.	Meliaceae		√		√	√	√	√	√
Aglaia silvestris (M. Roemer) Merr.	Meliaceae		√				√	√	√
Ficus hispida L.	Moraceae			√	√	√	√	√	√
Artocarpus lakucha Roxb.	Moraceae		√		√	√	√	√	√
Streblus asper Lour.	Moraceae			√	√	√	√	√	√
Ficus altissima Blume	Moraceae			√	√	√	√	√	√
Knema globularia Warb.	Myristicaceae		√		√	√	√	√	√
Syzygium cinereum (Kurz) P. Chantaranothai & J.Parn.	Myrtaceae		√		√	√	√	√	√
Syzygium cumini Druce	Myrtaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Cleistocalyx nervosum (DC.) Kosterm. var. *paniala* (Roxb.) Chantr. & J.Parn.	Myrtaceae		√				√	√	
Syzygium siamense Craib	Myrtaceae		√		√	√	√	√	√
Tristaniopsis burmanica (Griff.) Peter G. Wilson & J.T. Waterh. var. *rufescens* (Hance) J.Parn. & Nic Lughadha	Myrtaceae		√		√	√	√	√	√
Syzygium gratum (Wight) S.N. Mitra var. *gratum*	Myrtaceae		√		√	√	√	√	√
Syzygium ripicola (Craib) Merr. & L.M. Perry	Myrtaceae		√		√	√	√	√	√
Chionanthus microstigma Gagnep.	Oleaceae		√		√	√	√	√	√
Aporusa octandra (Buch.-Ham. Ex D.Don) Vickery var. *octandra*	Phyllanthaceae			√	√	√	√	√	√
Aporusa villosa Baill.	Phyllanthaceae			√	√	√	√	√	√
Baccaurea ramiflora Lour.	Phyllanthaceae		√		√	√	√	√	√
Phyllanthus emblica L.	Phyllanthaceae		√		√	√	√	√	√
Glochidion assamicum Hook.f.	Phyllanthaceae			√	√	√	√	√	√
Pinus kesiya Royle ex Gordon	Phyllanthaceae		√		√	√	√	√	
Drypetes harmandii Pierre ex Gagnep.	Phyllanthaceae		√		√	√	√	√	√
Drypetes hainanensis Merr.	Phyllanthaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Drypetes cambodica Gagnep.	Phyllanthaceae		√		√	√	√	√	√
Carallia brachiata (Lour.) Merr.	Rhizophoraceae		√		√	√	√	√	√
Prunus grisea Kalkm. var. *tomentosa* Kalkm	Rosaceae			√	√		√	√	√
Gardenia sootepensis Hutch.	Rubiaceae			√	√	√	√	√	√
Morinda elliptica Ridl.	Rubiaceae			√	√	√	√	√	√
Haldina cordifolia Ridsd.	Rubiaceae		√		√	√	√	√	√
Hymenodictyon orixense (Roxb.) Kuntze	Rubiaceae			√	√	√	√	√	√
Mitragyna rotundifolia (Roxb.) Kuntze	Rubiaceae			√	√	√	√	√	√
Morinda coreia Ham.	Rubiaceae			√	√	√	√	√	√
Rothmannia witii (Craib) Bremek.	Rubiaceae			√	√	√	√	√	√
Catunaregam tomentosa (Blume. ex DC.) Tirveng.	Rubiaceae			√	√	√	√	√	√
Tarennoidea wallichii (Hook.f.) Tirveng. & Sastre	Rubiaceae			√	√	√	√	√	√
Zanthoxylum limonella Aslton	Rutaceae			√	√	√	√	√	√
Acronychia pedunculata Miq.	Rutaceae		√		√	√	√	√	√

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Schima wallichii Korth.	Theaceae			√	√	√	√	√	√
Casearia grewiifolia Vent. var. *grewiifolia*	Flacourtiaceae			√	√	√	√	√	√
Hydnocarpus ilicifolia King	Flacourtiaceae		√		√	√	√	√	√
Mischocarpus pentapetalus Radlk.	Sapindaceae		√				√	√	√
Nephelium hypoleucum Kurz	Sapindaceae		√		√	√	√	√	√
Xerospermum laevigatum Radlk. var. *laevigatum*	Sapindaceae		√				√	√	√
Lepisanthes rubiginosa Leenh.	Sapindaceae			√	√	√	√	√	√
Madhuca dongnaiensis (Pierre) Baehni	Sapotaceae		√				√	√	√
Madhuca pierrei (William) H.J.Lam	Sapotaceae		√		√		√	√	√
Madhuca thorelii (Dubard) H.J. Lam.	Sapotaceae		√		√	√	√	√	√
Palaquium obovatum (Griff.) Engl.	Sapotaceae		√				√	√	
Payena lucida (G.Don) DC.	Sapotaceae		√				√	√	
Xantolis cambodiana (Pierre ex Dubard) P.Royen	Sapotaceae		√		√	√	√	√	√
Eurycoma longifolia Jack	Simaroubaceae			√			√	√	

Annex 7 (Cont'd)

Botanical name	Family	Wood quality			Location species occurred				
		Good	Medium	Fair	PT	KN	PJ	YD	BM
Picrasma javanica Bl.	Simaroubaceae			√	√	√	√	√	√
Styrax benzoin Dryander	Stryracaceae			√			√	√	
Symplocos racemosa Roxb.	Symplocaceae			√	√	√	√	√	√
Symplocos cochinchinesis (Lour.)S.Moor subsp. *cochinchinensis*	Symplocaceae			√	√	√	√	√	√
Fagraea fragrans Roxb.	Loganiaceae		√		√	√	√	√	√
Anneslea fragrans Wall.	Theaceae			√	√	√	√	√	

Remark: 1) √ = occurred

Annex 8 Dye plants in PTPFC. *. (*Field work inventory had done only in dry season 2009)

Botanical name	Thai name	Family	Habit	Used parts	Colour
Indigofera galegoides DC.	Cha kraam	Fabaceae	S	leaves	Indigo
Indigofera tinctoria L.	Kraam	Fabaceae	S	leaves	Indigo
Indigofera suffruticosa Mill.	Kraam yai	Fabaceae	S	leaves	Indigo
Artocarpus lakucha Roxb.	Ma hat	Moraceae	T	Heartwood	Yellow
Maclura cochinchinensis (Lour.) Corner	Kae lae	Moraceae	S	Heartwood	Yellow
Syzygium cumini (L.) Skeel	Waa	Myrtaceae	T	Stem bark	Yellowish brown
Syzygium cumini (L.) Skeel	Waa	Myrtaceae	T	Mature fruit	Pale purple
Caesalpinia sappan L.	Phaang	Fabaceae	S	Heartwood	Red
Mallotus philippinensis Müell.	Ma kai kat	Euphorbiaceae	T	Flower	Red
Morinda elliptica Ridl.	Yo tuen	Rubiaceae	T	Wood	Red
Morinda coreia Buch.-Ham	Yo paa	Rubiaceae	T	Wood	Red
Terminalia chebula Retz.	Samor thai	Combretaceae	T	Fruit	Black
Butea monosperma (Lour) Taub.	Thong kwao	Fabaceae	T	Flower	Yellow
Pterocarpus mocrocarpus Kurz	Praduu paa	Fabaceae	T	Stem bark	Brown
Toddalia asiatica (L.) Lam.	Krue ngu hao	Rutaceae	WC	Wood	Yellow
Ailanthus triphysa (Dennst.) Alston	Ma gok paa	Simaroubaceae	T	Leaf	Black
Cassytha filiformis L.	Sang wan phra in	Lauraceae	H-P	Stem	Brown
Coscinium fenestratum (Gaerth.) Clolebr.	Haem	Menispermaceae	WC	Stem	Yellow
Diospyros mollis Griff.	Ma klue	Ebenaceae	T	Fruit	Black
Dioscorea bulbifera L.	Waan phra jim	Dioscoreaceae	H-C	Tuber	Pale purple
Heliotropium trigosum L.	Ya ngua chang	Boringaceae	H	Leaf	Black
Peltophorum dasyrachis Kurz.	A - rang	Fabaceae	T	Wood	Brown

Annex 9 Plants used for house equipment, handicraft, tools, wrapping materials in PTPFC*. (*Field work inventory had done only in dry season 2009)

Botanical name	Family	Plant parts	Type of used				Species occurred locality				
			Handicraft	Wrapping material	Roofing	Roping and Fiber	PT	KN	PJ	YD	BM
Imperata cylindrica (L.) P.Beauv.	Poaceae	Leaf	-	-	√	-	√	√	√	√	√
Licaula spinosa Thunb.	Arecaceae	Leaf	√	√	-	-	-	-	√	√	√
Livistona saribus (Lour.) Merr. ex Chev.	Arecaceae	Leaf	-	-	√	-	-	-	√	√	-
Schumannianthus dichotomus (Roxb.) Gagnep.	Marantaceae	Stem	√	-	-	-	-	-	√	√	-
Calamus viminalis Willd.	Arecaceae	Crane	√	-	-	-	√	-	√	√	√
Capillipedium parviflorum (R.Br.)Stapf	Poaceae	Inflorescense	√	-	-	-	√	√	√	√	√
Thysanolaena maxima Kuntze	Poaceae	Inflorescense	√	-	-	-	-	-	√	√	√
Thysanolaena maxima Kuntze		Leaf	-	√	-	-					
Bambusa bambos (L.) Voss	Poaceae	Clum	√	-	-	-	√	-	√	√	√
Bambusa longispatha Gamble	Poaceae	Clum	√	-	-	-	-	-	√	√	
Nayraudia reynaudiana	Poaceae	Inflorescense	√	-	-	-	√	√	√	√	√
Calamus palustris Griff.	Poaceae	Crane	√	-	-	-	√	-	√	√	√
Calamus tenuis Roxb.	Poaceae	Crane	√	-	-	-	-	-	√	-	-
Pandanus acaulescens H.St.John	Pandanaceae	Leaf	√	-	-	-	√	√	√	√	√

Annex 9 (Cont'd)

Botanical name	**Family**	**Plant parts**	**Type of used**				**Species occurred locality**				
			Handicraft	**Wrapping material**	**Roofing**	**Roping and Fiber**	**PT**	**KN**	**PJ**	**YD**	**BM**
Dendrocalamus brandisii (Munro) Kurz	Poaceae	Clum	√	-	-	-	-	-	√	√	-
Thyrsostachys siamensis Gamble	Poaceae	Clum	√	-	-	-	√	-	√	√	√
Schizostachyum blumei Nees	Poaceae	Clum	√	-	-	-	-	-	√	-	-
Gigantochloa albociliata (Munro) Munro	Poaceae	Clum	√	-	-	-	√	-	√	√	√
Broussonetia papyrifera (L.) Vent.	Malvaceae	Stem bark	-	-	-	√	-	-	√	√	√
Sterculia guttata Roxb.	Malvaceae	Stem bark	-	-	-	√	√	√	√	√	√
Sterculia pexa Pierre	Malvaceae	Stem bark	-	-	-	√	√	√	√	√	√
Sterculia hypochra Pierre	Malvaceae	Stem bark	-	-	-	√	√	√	√	√	√
Flegellaria indica L.	Flagellaceae	Stem	-	-	-	√	-	-	√	√	-
Tiliacora triandra (Colebr.) Diels	Menispermaceae	Stem	-	-	√	-	√	√	√	√	√
Dipterocarpus tuberculatus Roxb.	Dipterocarpaceae	Leaf	-	√	√	-	√	√	-	-	-
Cyperus corymbosus Rottb.	Cyperaceae	Leaf	√	-	-	-	-	-	-	-	√

Remark; √ = occurred

Annex 10 Economic potential of edible, medicinal plant and dye plants found in PTPFC*. (*Field work inventory had done only in dry season 2009)

Botanical name	Family	Plant 's use parts	Type of used (mainly)				Abundance in each site[1)]				
			Edible plants	Medicinal plants	Dye plants	Others	PT	KN	PJ	YD	BM
Alpinia galanga (L.) Willd.	Zingiberaceae	Rhizome, shoot	√	-	-	-	+	+	+++	++	+
Calamus viminalis Willd.	Arecaceae	Shoot	√	-	-	-	++	+	+++	+	++
Antidesma puncticulatum Miq.	Phyllanthaceae	Fruit	√	-	-	-	+	-	++	+	-
Dracaena angustifolia Roxb.	Ruscaceae	Shoot	√	-	-	-	++	+	+++	+++	++
Melientha suavis Pierre	Opiliaceae	Young leaf	√	-	-	-	++	++	++	+	++
Phyllanthus emblica L.	Phyllanthaceae	Fruit	√	√	-	-	+++	+++	++	+	++
Crateva magna DC.	Capparaceae	Young leaf, flower	√	-	-	-	+	-	++	+++	+
Terminalia chebula Retz.	Combretaceae	Fruit	√	√	-	-	+++	+++	++	+	+
Bambusa bambos (L.) Voss	Poaceae	Shoot	√	-	-	-	+	-	+	+	+
Pandanus acaulescens H.St.John	Pandanaceae	Leaf	-	-	-	√ (mat)	++	+	+++	++	+
Cyperus corymbosus Rottb.	Cyperaceae	Leaf	-	-	-	√ (mat)	+	-	++	++	+
Dendrocalamus brandisii (Munro) Kurz	Poaceae	Shoot	√	-	-	√ (weaving)	-	-	+	++	-
Indigofera suffruticosa Mill.	Fabaceae	Whole	-	-	√	-	+	-	-	+	-
Coscinium fenestratus (Gaertn.) Colebr.	Menispermaceae	Stem	-	√	-	-	-	-	+	-	+
Tiliacora triandra (Colebr.)Diels	Menispermaceae	Leaf	√	√	-	-	++	+	+++	+++	+++
Tinospora crispa (L.) Miers ex Hook.f. & Thomson	Menispermaceae	Stem	-	√	-	-	++	+	++	+	+
Baccaurea ramiflora Lour.	Phyllanthaceae	Fruit	√	-	-	-	+	+	+++	+++	+
Vandopsis lissochiloides (Gaudish.) Pfitzer	Orchidaceae	Whole	-	-	-	√ (ornamental)	+	-	+++	+++	+

Remark: 1) Abundance: - = no data, + = a few, ++ = medium, +++ = many

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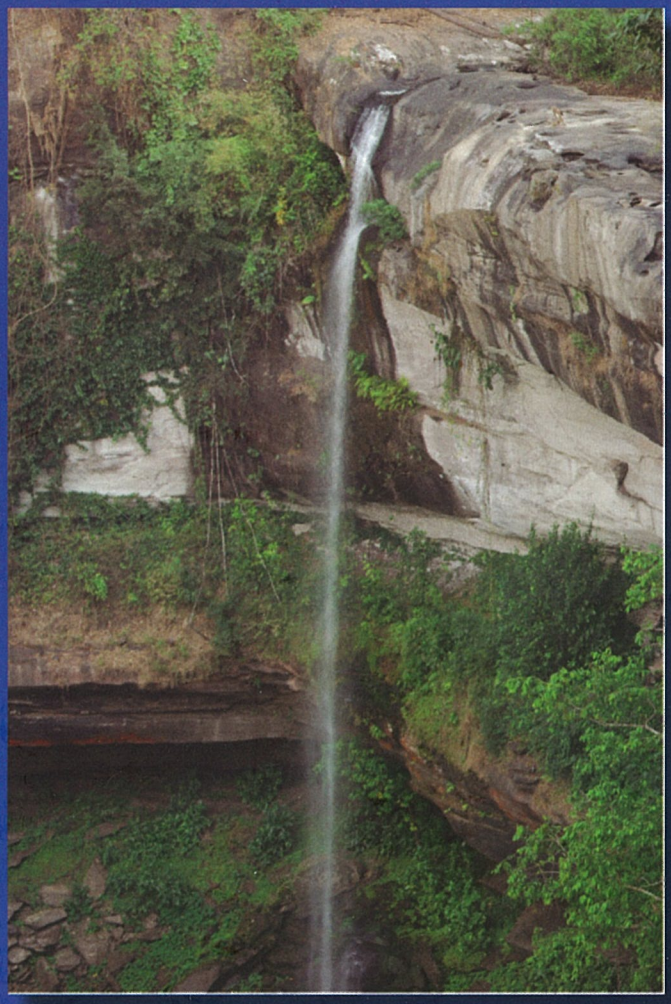

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