



## Some Common Non-Timber Forest Products Traded by Indigenous Community in Sabah, Malaysia

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### Abstract

The survey showed that a total number of 109 species of NTFPs were traded locally in the *tamu* (open market), comprising 35 species of wild edible plants, 32 species of medicinal plants, 8 species of orchids, 4 species of bamboos, 6 species of rattans, 8 species of fish, 8 species of wild fruit trees and 8 species of other products. This survey covered ten most common *tamu* and major ethnic groups in Sabah, mainly Kadazandusun, Rungus and Murut.

**Keywords:** Traded Non-Timber Forest Products, *Tamu* (open market), Indigenous community, Sabah

### 1. Introduction

Non-Timber Forest Products (NTFPs) play a major role in the lives of more than 30 million forest dependent people in Southeast Asia (de Beer & McDermott 1989). The situation is similar throughout the tropics, where people utilize NTFPs within the household and trade them for money and other products locally or in the region (Tiwari 1994). For many years, non-timber species such aromatic and medicinal plants, bamboo, rattan, fruits, nuts, resins, gums and mushrooms played important roles in the socio-economic development of Malaysia (Azizol & Appanah 1998).

Many of the NTFPs have provided useful and important products for the local people of the state of Sabah. There are about 84 species of rattans found in Sabah (Dransfield 1984). Sabah has at least seven genera of bamboos with an approximately thirty four species (Kulip 1992). There are more than 100 species used as medicinal plants to treat 34 ailments in the west coast and interior of Sabah. The main sources of medicinal plants in Sabah are from plants growing wild in the primary or secondary forests. Some commonly used plants are planted around houses (Kulip 1997). Lee & Gibot (1986) have reported on more than 200 species of native edible plants found in Sabah. Whilst, Wong (1992) reported that Sabah's tropical is home to about 155 species of freshwater fish and 1500 species of orchids.

The term NTFPs used in this study include all forest goods, except timber and the forest services. They are tangible objects of biological origin such as plants, animals and their products derived from the forest that traded in the *tamu*. *Tamu* or "Open Market" is a place where most of indigenous traders gather to buy, sell or barter their farm produce, NTFPs, handicrafts, traditional ware, musical instruments and etc. *Tamu* is also one of the tourist attractions. The main objective of this study was to identify the types of NTFPs collected and traded by the indigenous communities at the various *tamu* in Sabah, Malaysia.

## 2. Materials & Methods

Sabah, the second largest Malaysian state, has a land area of 7.3 million ha and a population of 2.45 million (Sabah Statistics Dept. 2000). The main indigenous communities are Kadazandusun, Murut, Rungus and Bajau. There are more than 50 ethnic groups in Sabah (Lasimbang and Moo-Tan 1997). The Kadazandusuns alone comprise more than 30 different groups (Tombung 1990). Other groups in Sabah include the Chinese, Bruneians and Indians.

The general approach of this study is to survey indigenous communities involved in the collection and selling of NTFPs at the selected *tamu* using a structured questionnaire. In each *tamu*, personal interviews were conducted with the sellers and the data gathered were analyzed to determine the types of NTFPs traded in the *tamu*. The survey was conducted in ten *tamu*, namely Tamu Kudat (6°52.794'N, 116°51.128'E), Tamu Kota Marudu (6°29.925'N, 116° 46.224'E), Tamu Tandek (6°32.083'N, 116°51.197'E), Tamu Tenom (5°07.268'N, 115° 56.580'E), Tamu Keningau (5°20.333'N, 116°09.551'E), Tamu Tambunan (5°40.250'N, 116°21.858'E), Tamu Kiulu (6°03.527'N, 116°16.912'E), Tamu Tamparuli (6°08.043'N, 116°16.097'E), Tamu Telipok (6°05.372'N, 116°11.740'E) and Tamu Donggonggon (5° 54.757'N, 116°06.085'E) (Fig 1).

A personal interview technique was used to collect desired information such as respondent background (this covers age, gender, races, education level, household and employment) and inventory of NTFPs traded by the respondent (this covers species, uses, price, sources, distance traveled). For big *tamu*, random survey was conducted with each seller of NTFPs and for small *tamu* a 100 percent survey was conducted with each seller of NTFPs. The survey was conducted during weekday and weekend, in the month of September until November 2004. In cases where the NTFPs were not identified in the field, they were bought and brought to the Forest Research Centre (FRC), Sepilok, Sandakan, where the specimens were identified by the botanists of the centre. This was to ensure that all the species collected and sold in the *tamu* were correctly identified.

## 3. Results and Discussion

The total number of respondent interviewed was 102 respondents, comprising 8 males and 94 females. The majority of the respondents were the Kadazan/Dusun ethnic group, followed by the Rungus and the Murut. The average age of the respondents was 46 years. Most of the NTFPs resources came from the forest with the average distance travelled of 2.1 kilometer by the indigenous traders from their house to the source.

From the surveys, the NTFPs were categorized into eight groups, namely, wild edible plants, medicinal plants, orchids, bamboos, rattans, fish, wild fruit trees and others (Table 1). The most common category of NTFPs traded in the *tamu* were wild edible plants (32.1 percent) and medicinal plants (29.4 percent).

The composition of various NTFPs species found traded in the *tamu* shows in Table 2. The total number of NTFPs species identified were 109 species, comprising 35 species of wild edible plants, 32 species of medicinal plants, 8 species of orchids, 4 species of bamboos, 6 species of rattans, 8 species of fish, 8 species of wild fruit trees and 8 species of others.

During the surveys, it was also observed that the most expensive NTFPs was Buah Mentayang (*Caesalpinia bonduc*) followed by Jerangau Merah or Akar Bumi (*Baesenbergia stenophylla*) and Lumut Gunung (*Usnea* sp.). All of these species belong to medicinal plants group of NTFPs. In addition, the most frequent of wild edible plants identified were Bungar (*Lasia spinosa*), Daun Sirih Hutan (*Piper betle*), Lamiding (*Stenochlyna palustris*), Pakis (*Cylosorus contiguous*), Tuhau (*Etlingera punicea*) and Tutan (*Solanum* sp.). The surveys also found that the most common species of orchid traded at the *tamu* ground was *Dendrobium* sp..

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## References

- Azizol, A.K. and Appanah, S. (1998). Research and development on the economic benefits of non-timber forest product in Malaysia. (In) Mohd. Yaakub, J., Maryati, M. & Mary, S.(eds.), proceedings of the seminar and workshop. *Sustainable use of forest resources: The prospects of Non-Timber Forest Products (NTFPs) in Sabah*. 4-5 May 1998, Kota Kinabalu, Sabah. Pp.1-11.
- De Beer, J. and McDermott, M.J. (1989). *The economic volume of non-timber forest products in Southeast Asia*. Netherlands Committee for IUCN, Amsterdam.
- Dransfield, J. (1984). *The rattans of Sabah*. Sabah Forest Records No. 13. Sabah Forestry Department, Sandakan. 182 pp
- Kulip, J. (1992). Survey of bamboo resource and its present status of utilizations in Sabah. Unpublished. Sabah Forestry Department, Sandakan.
- Kulip, J. (1997). A preliminary survey of traditional medicinal plants in the West Coast and interior of Sabah. *Journal of Tropical Forest Science* 10(2): 271-274.
- Lasimbang, R. and Moo-Tan, S. (1997). *An introduction to the traditional costumes of Sabah*. Kota Kinabalu: Natural History Publications. 115 pp.
- Lee, Y.F. and Gibot, A. (1986). *Indigenous edible plants of Sabah*. FRC Publication No. 25. Sabah Forestry Department, Sandakan, Sabah. 9 pp.
- Sabah Statistics Dept. (2000). Buku laporan perangkaan kiraan permulaan banci tahun 2000. Jabatan Perangkaan Malaysia Cawangan Sabah.
- Tiwari, D.D. (1994). Developing and sustaining non-timber forest products: Policy issues and concerns with special reference to India. *Journal of World Forest Resource Management* 7: 51-78.
- Tombung, R.B. (1990). Keluarga Dusun. Sabah, Persatuan Dusun Sabah Bersatu.
- Wong, K.M. (1992). Rafflesias, anyone? Sabah's plant life: a new look at a priceless wonder. (In) *The environment – the future is in our hands*. Intan Junior Chamber, Sabah. Pp. 26-30.

Table 1. Number of species of traded Non-timber forest products (NTFP's) in the *tamu*

No.	Categories of NTFPs	No. of species	Percent (%)
1	Wild edible plants	35	32.1
2	Medicinal plants	32	29.4
3	Orchids	8	7.3
4	Bamboos	4	3.8
5	Rattans	6	5.5
6	Fish	8	7.3
7	Wild fruit trees	8	7.3
8	Others	8	7.3
	Total	109	100.00

Table 2. List of traded Non-timber forest products (NTFP's) found in the *tamu***a) Medicinal plants**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Akar Bumi/Jarangau Merah	<i>Baesebergia stenophylla</i>	Zingiberaceae
2	Akar Mengkudu	<i>Morinda citrifolia</i>	Rubiaceae
3	Akar Petai	<i>Parkia</i> sp.	Leguminosae
4	Bawang Hutan	<i>Scorodocarpus borneensis</i>	Olaceae
5	Binuang	<i>Octomeles sumatrana</i>	Datisceae
6	Buah Mentayang	<i>Caesalpinia bonduc</i>	Leguminosae
7	Dundurok	<i>Rhodomyrtus tomentosa</i>	Myrtaceae
8	Gangon	<i>Artabotrys roseus</i>	Annonaceae
9	Gingor	<i>Spatholobus</i> sp.	Leguminosae
10	Ginseng	<i>Renellia borneensis</i>	Rubiaceae
11	Kayu Panas	<i>Goniothalamus roseus</i>	Annonaceae
12	Kokos	<i>Dichapetalum gelonioides</i>	Diclapetalaceae
13	Kosob/Pinang	<i>Areca catechu</i>	Palmae
14	Kulat Merah	<i>Polystictus sanguineus</i>	Polyporaceae
15	Lalamba	(na)	(na)
16	Lautan Seribu	<i>Gnetum</i> sp.	Gueteae
17	Lautan Seribu	<i>Smilax</i> sp.	Smilacaceae
18	Lingzi	<i>Ganoderma</i> sp.	(na)
19	Lumut Gunung	<i>Usnea</i> sp.	(na)
20	Pako	<i>Angiopteris</i> sp.	Marattiaceae
21	Pakodita	<i>Alphitonia excelsa</i>	Rhamnaceae
22	Raja Kayu	<i>Koompassia malaccensis</i>	Leguminosae
23	Remunduk	<i>Tetrastigma</i> sp.	Vitaceae
24	Rosok	<i>Syzygium</i> sp.	Myrtaceae
25	Sapang	<i>Caesalpinia sappan</i>	Leguminosae
26	Sikat	<i>Bauhinia</i> sp.	Leguminosae
27	Sungkang Seribu	<i>Diospyros foxworthyi</i>	Ebenaceae
28	Tampan Kuning	<i>Tetracera akara</i>	Dilleniaceae
29	Tampan Merah	<i>Xylocarpus granatum</i>	Meliaceae
30	Tapako	<i>Drynaria</i> sp.	Polypodiaceae
31	Tapurau	<i>Enicosanthum</i> sp.	Annonaceae
32	Tongkat Ali	<i>Eurycoma longifolia</i>	Simaroubaceae

na = not available

**b) Wild edible plants**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Bunga Kantan	<i>Eugenia aromatica</i>	Myrtaceae
2	Bunga Keladi Hutan	<i>Alocasia</i> sp.	Araceae
3	Bungar Tanggara/Gungguripa	<i>Lasia spinosa</i>	(na)
4	Cendawan/Kulat Dilah	<i>Polystictus xanthopus</i>	Polyporaceae
5	Daun Sirih Hutan	<i>Piper betle</i>	Piperaceae
6	Bukaruk	<i>Schismatoglottis ahmadi</i>	Araceae
7	Garungang	<i>Goniothalamus</i> sp.	Annonaceae
8	Halia Merah	<i>Zingiber</i> sp.	Zingiberaceae
9	Hohombih	(na)	(na)
10	Kakatung	<i>Limnocharis flava</i>	Limnocharithaceae
11	Kemangi	<i>Oscimum basilicum</i>	Lamiaceae
12	Komburiong	<i>Pouzolzia</i> sp.	Urticaceae
13	Kulat Kodop/Batang	<i>Lentinus sajor-caju</i>	Polyporaceae
14	Kulat Galanut	(na)	(na)
15	Kunsui	(na)	(na)
16	Kuyo	<i>Piper umbellatum</i>	Piperaceae
17	Lamiding	<i>Stenochlyna palustris</i>	Blechiaceae
18	Lapak	<i>Physalis minima</i>	Solanaceae
19	Limposu	<i>Baccaurea lanceolata</i>	Euphorbiaceae
20	Molopook	<i>Opilia</i> sp.	Opiliaceae
21	Pakis	<i>Cylosorus contiguus</i>	Thelypteridaceae
22	Peria Hutan	<i>Momordica</i> sp.	Cucurbitaceae
23	Polod	<i>Arenga undulatifolium</i>	Palmae
24	Sang Ngob Tuan	<i>Cucumis</i> sp.	Cucurbitaceae
25	Sayur Pahit Kampung/Impipiton	<i>Solanum</i> sp.	Solanaceae
26	Sunsulak	<i>Alocasia</i> sp.	Araceae
27	Taraan/Ayaan	<i>Monochoria elata</i>	Pontederiaceae
28	Terung Hutan	<i>Solanum torvum</i>	Solanaceae
29	Terung Kampung	<i>Solanum</i> sp.	Solanaceae
30	Terung Pipit	<i>Solanum</i> sp.	Solanaceae
31	Tongkat Langit/Sesangah	<i>Helminthostachys zeylanica</i>	Ophioglossaceae
32	Tuhau	<i>Etingera punicea</i>	Zingiberaceae
33	Tutan Hijau	<i>Solanum</i> sp.	Solanaceae
34	Tutan Hitam	<i>Solanum</i> sp.	Solanaceae
35	Wegang/Ular-ularan	<i>Armorhophyllus pendulus</i>	Araceae

na = not available

**c) Orchids**

No.	NTFPs sale (Scientific Name)	Family
1	<i>Dendrobium</i> sp.	Orchidaceae
2	<i>Phalaenopsis amabilis</i>	Orchidaceae
3	<i>Aerides</i> sp.	Orchidaceae
4	<i>Bulbophyllum mandibulare</i>	Orchidaceae
5	<i>Phaius</i> sp.	Orchidaceae
6	<i>Kingidium</i> sp.	Orchidaceae
7	<i>Coelogyne</i> sp.	Orchidaceae
8	<i>Renanthera bella</i>	Orchidaceae

**d) Bamboos**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Rebung Nipis	<i>Schizostachyum brachycladum</i>	Gramineae
2	Rebung Poring	<i>Gigantochloa levis</i>	Gramineae
3	Rebung Tambalang	<i>Bambusa vulgaris</i>	Gramineae
4	Rebung Tongkungon	<i>Bambusa blumeana</i>	Gramineae

**e) Rattans**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Rotan Lempinit/Lasun	<i>Calamus ornatus</i>	Palmae
2	Rotan Lesas	<i>Korthalsia hispida</i>	Palmae
3	Rotan Logong	<i>Calamus acuminatus</i>	Palmae
4	Rotan Menempun	<i>Calamus levigatum</i>	Palmae
5	Rotan Saga	<i>Calamus caesius</i>	Palmae
6	Rotan Tambarua(Umbut)	<i>Plectocomiopsis geminiflora</i>	Palmae

**f) Wild fruit trees**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Buah Kamansi	<i>Artocarpus komendo</i>	Moraceae
2	Buah Keras	<i>Aleurites mollucana</i>	Euphorbiaceae
3	Buah Panggi	<i>Pangium edule</i>	Flacourtiaceae
4	Buah Rambai/Kampod	<i>Baccaurea motleyana</i>	Euphorbiaceae
5	Durian Hutan/Sukang	<i>Durio oxleyanus</i>	Bombacaceae
6	Takob Akob	<i>Garcinia parviflora</i>	Guttiferae
7	Lampun Belanda	<i>Annona muricata</i>	Annonaceae
8	Mapiu	(na)	(na)

na = not available

**g) Fish**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Ikan Belut	<i>Monopterus albus</i>	Synbranchidae
2	Ikan Haruan/Jalak	<i>Ophicephalus melanosoma</i>	Ophicephalidae
3	Ikan Karuk	<i>Anabas testudineus</i>	Anabantidae
4	Ikan Keli	<i>Clarias</i> sp.	Clariidae
5	Ikan Selap	<i>Puntius bramoides</i>	Cyprinidae
6	Ikan Sepat Kampung	<i>Trichogaster trichopterus</i>	Anabantidae
7	Ikan Sepat Siam	<i>Trichogaster</i> sp.	Anabantidae
8	Ikan Talapia	<i>Tilapia</i> sp.	Cichlidae

**h) Others**

No.	NTFPs sale (Local name)	Scientific Name	Family
1	Burung Keruak	<i>Amaurornis phoenicurus</i>	Rallidae
2	Daun Irik	<i>Phacelophrynium maximum</i>	Marante
3	Labi-labi	<i>Amaurornis phoenicurus</i>	(na)
4	Lokan Kogis/bakau	<i>Geloina coxans</i>	(na)
5	Madu lebah <sup>1</sup>	-	-
6	Siput Sungai/Singor	<i>Terebra</i> sp.	(na)
7	Rebung Nibong	<i>Oncosperma horridum</i>	Palmae
8	Umbut Luba/Tiwak	<i>Eugeissonia utilis</i>	Palmae

na = not available, <sup>1</sup> = honey

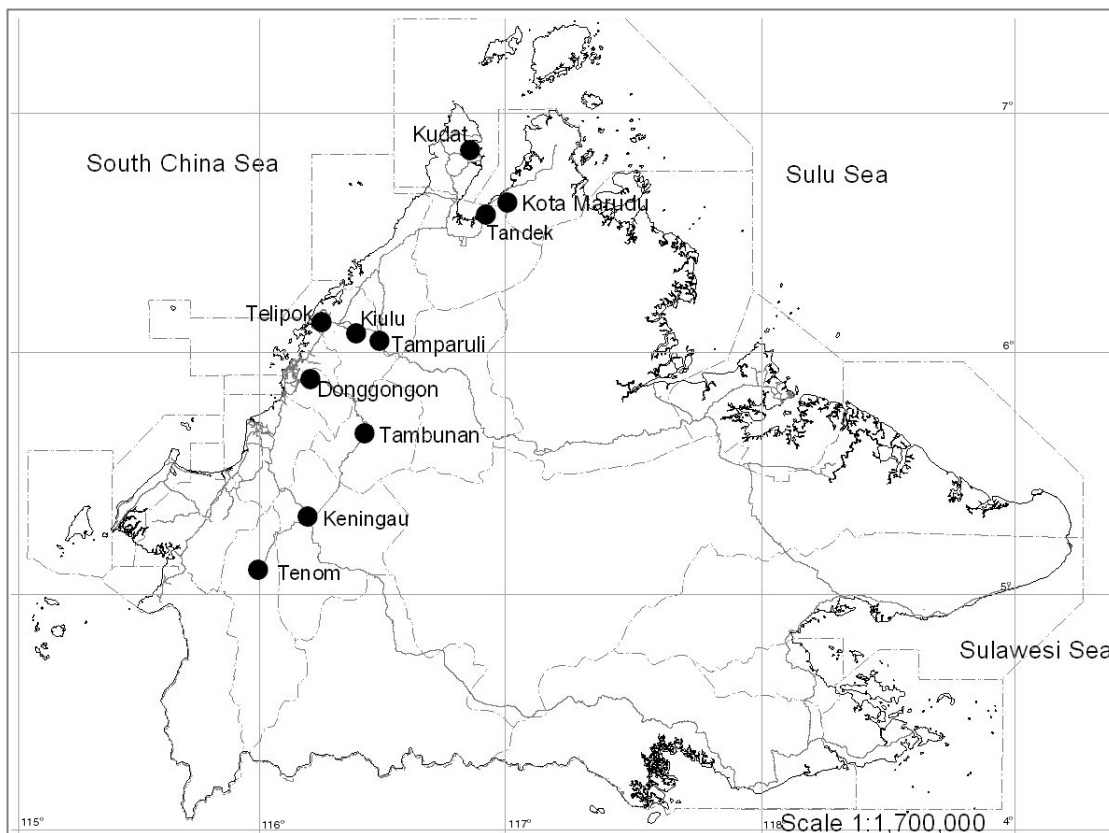


Figure 1. Distribution of locations of the NTFPs survey of ten selected *tamu* in Sabah  
 This figure shows the location of ten selected *Tamu* in this survey