

TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	i
LIST OF TABLES	iii
LIST OF FIGURES	vi
ABBREVIATIONS AND ACRONYMS USED	ix
INTRODUCTION	1
Objectives	1
LITERATURE REVIEWS	3
Community Forestry	3
Development of the Community Forestry in Thailand	3
Minor Forest Products (MFPs)	10
Minor Forest Products in Thailand.....	11
Categorization of Minor Forest Products (MFPs)	16
Minor Forest Products Plantation in Homestead	21
Sustainable Uses of MFPs	22
Development of MFPs Marketing and Trading	23
Sustainable Harvesting of MFPs	26
Status of Minor Forest Products Research in Thailand	28
MATERIALS AND METHODS	30
Materials	30
Methods	30
Sampling Method and Data Collection	30
Data Analysis	33
STUDY AREA	36
RESULTS AND DISCUSSION	42
Community Forest	42
Community Structure	42
Minor Forest Products Uses Description	97
Soil Profile of Ban Thung Soong Community Forest.....	110

TABLE OF CONTENTS (Continued)

	Page
People and Community Forest	113
Homestead	124
Minor Forest Products in Ban Thung Soong Homestead	124
Bamboo Uses and Planting in Homestead	135
Above-Ground Biomass	140
CONCLUSIONS	152
RECOMMENDATIONS	154
LITERATURE CITED	156
APPENDICES.....	168

LIST OF TABLES

Table	Page
1 Basic data and forest cover of the Thailand	4
2 The Draft of Community Forestry Bill and Amendments made by the Senate on 15 th March 2002	9
3 Overview of main MFPs groups in Thailand	13
4 Groups of animal in Ban Thung Soong Village in Krabi Province	18
5 Land use of Ban Thung Soong Village	18
6 Minor Forest Products exports from Thailand during 1995-1999 (million baht)	26
7 Total rainfall, air temperature and wind at Krabi Station during 1994-1995	35
8 Quantitative characteristics of trees, saplings and seedlings in Ban Thung Soong Community Forest	43
9 List of plant in Ban Thung Soong Community Forest	44
10 Minor Forest Products in Ban Thung Soong Community Forest	48
11 DBH distribution classes of trees with DBH \geq 4.5 cm at 0-100 m altitude in Ban Thung Soong Community Forest	53
12 DBH distribution classes of trees with DBH \geq 4.5 cm at 100-200 m altitude in Ban Thung Soong Community Forest	56
13 DBH distribution classes of trees with DBH \geq 4.5 cm at 200-300 m altitude in Ban Thung Soong Community Forest	63
14 Total basal area (BA) and number of individual trees with DBH \geq 4.5 cm in Ban Thung Soong Community Forest	74
15 The average height of trees at three elevation levels	81
16 The average height, diameter at breast height and total basal area of <i>Bambusa bambos</i> in BTS Community Forest	88
17 Relative density, relative frequency, relative dominance and importance value index of trees (DBH \geq 4.5 cm) in Ban Thung Soong Community Forest	91

LIST OF TABLES (Continued)

Table	Page
18 The highest IVI value for ten species of trees with DBH ≥ 4.5 and saplings in Ban Thung Soong Community Forest	95
19 Important Value Index for Bamboo in BTS Community Forest	97
20 Minor Forest Products uses as medicinal plants	100
21 Minor Forest Products uses as edible plants	104
22 Minor Forest Products uses as non-edible plants	106
23 Bamboo uses description	109
24 Soil profile description for Ban Thung Soong Community Forest	112
25 Analysis of Variance of respondent knowledge about MFPs according to the age of respondents	115
26 Analysis of Variance for age of respondents that collecting MFPs in the forest	116
27 The main uses of MFPs among people in Ban Thung Soong	117
28 The perception of people in BTS regarding the level of MFPs resource in the forest	118
29 Suggestion methods for sustainable development of MFPs by people in BTS	119
30 Respondents interest to participate in sustainable MFPs program	120
31 The percentage of respondents whose collect bamboo in BTS Community Forest	121
32 Analysis of Variance for the main uses of bamboo collecting in BTS Community Forest	121
33 Main uses of bamboo	122
34 Bamboo species that collected by the people in BTS	122
35 The parts of bamboo that collected among the respondents	122
36 Frequency of bamboo collection	123
37 Analysis of Variance for frequency of bamboo collection according to the uses	123

LIST OF TABLES (Continued)

Table		Page
38	List of bamboo species in Ban Thung Soong homestead	125
39	The culms of the different species and culms development stage classes	128
40	The correlation analysis between culms development stage classes, average diameter and average height culms of <i>D. asper</i>	130
41	Bamboo species planted by respondents	135
42	Period time for bamboo planting	135
43	Culms characteristics of <i>Dendrocalamus asper</i>	137
44	Culms characteristic of <i>Bambusa bambos</i>	138
45	Culms characteristic of <i>Melocanna humilis</i>	139
46	Analysis of Variance for culms average height	142
47	Fresh and dry weight of <i>Dendrocalamus asper</i> with different culms development stage classes	145
48	Total above-ground biomass (kg/culms) for <i>Dendrocalamus asper</i>	146
49	Fresh and dry weight of each bamboo components of <i>Bambusa bambos</i>	147
50	Total above-ground biomass (kg/culm) for <i>Bambusa bambos</i>	148
51	Fresh and dry weight of each bamboo components of <i>Melocanna humilis</i>	149
52	Total above-ground biomass (kg/culm) for <i>Melocanna humilis</i>	150
53	Production of biomass of <i>D. asper</i> , <i>B. bambos</i> and <i>M. humilis</i> on unit per culms per clumps (tone/culms)	151

LIST OF FIGURES

Figure	Page
1 Distribution of MFPs studies in Thailand according to the products categories	29
2 Stands of 20x50 m ² , numbering labels show the number of samples plots (10x10 m ²), all trees studied in all samples plots, saplings in each 4x4 m ² and seedlings in 1x1 m ² in each 10x10 m ²	31
3 Map of Ban Thung Soong Village in Krabi Province in Thailand	37
4 Map of stands (20x50 m ² /10 plots) distribution in Ban Thung Soong Community Forest	38
5 The average monthly rainfall in Ao Luek District (9 km from BTS Community Forest)	40
6 The average monthly temperature at Ao Luek District (9 km from BTS Community Forest)	40
7 The diameter classes of 5 main species with high number of individual trees at 0-100 m altitude	70
8 The diameter classes of 5 main species with high number of individual trees at 100-200 m altitude	71
9 The diameter classes of 5 main species with high number of individual trees at 200-300 m altitude	72
10 Total basal area of trees according to three level of elevation in BTS Community Forest	73
11 The average number of <i>Bambusa bambos</i> clumps in each plots in Ban Thung Soong Community Forest	89
12 Map of soil survey collected in Ban Thung Soong Community Forest	111
13 People in Ban Thung Soong awareness on Minor Forest Products	114
14 MFPs collection in the BTSCF (previous time)	116

LIST OF FIGURES (Continued)

Figure	Page
15 MFPs collection in the BTSCF (present time)	116
16 Types of MFPs that collected in the previous and present time in Ban Thung Soong Community Forest	117
17 Factors that caused in MFPs decreasing	118
18 Respondents agree with Ban Thung Soong Community Forestry program	120
19 Type of annual plants planted by people in their homestead	124
20 Type of perennial plants planted by people in their homestead	125
21 Average numbers of clumps of difference bamboo species in Ban Thung Soong homestead	126
22 Map of bamboo distributions in Ban Thung Soong	126
23 The culms growth among six bamboo species according to the average culms diameter and height	127
24 Map of <i>Dendrocalamus asper</i> distribution in Ban Thung Soong	129
25 Map of <i>Bambusa bambos</i> distribution in Ban Thung Soong	131
26 Map of <i>Bambusa blumeana</i> distribution in Ban Thung Soong	132
27 Relationship between DBH average and height in each culms development stage classes of <i>B. blumeana</i>	133
28 Map of <i>Melocanna humilis</i> distribution in Ban Thung Soong	134
29 The average culms diameter of <i>Melocanna humilis</i> according to the diameter and height	134
30 The average DBH of three bamboo species according to culms development stage classes	136
31 The average bamboo biomass according to culms development stage classes at 0-5 m	140
32 The average bamboo biomass according to culms development stage classes at 5-10 m	140

LIST OF FIGURES (Continued)

Figure		Page
33	The average bamboo biomass according to culms development stage classes at 10-15 m	141
34	The average bamboo biomass according to culms development stage classes at 15-20 m	141
35	The regression relationship between culms development stage classes and total biomass in fresh and dry weight of <i>D. asper</i>	143
36	The regression relationship between culms development stage classes and total biomass in fresh and dry weight of <i>B. bambos</i>	144
37	The regression relationship between culms development stage classes and total biomass in fresh and dry weight of <i>M. humilis</i>	144

ABBREVIATIONS AND ACRONYMS USED

ABBREVIATION

BTS	Ban Thung Soong
CF	Community Forest
FAO	Food and Agriculture Organization of the United Nations
GPS	Global Positioning System
JICA	Japan International Cooperation Agency
MFPs	Minor Forest Products
NGOs	Non-Government Organizations
NRF	Natural Reserve Forest
NTFPs	Non-Timber Forest Products
RFD	Royal Forest Department

UNIT

B	Baht
Ha	Hectare
Km	Kilometer
Km ²	Square kilometer
GDP	Gross Domestic Products

GLOSSARY

Changwat	Province
Amphoe	District
Tambon	Sub-District
Mubaan	Village
Phatom	Primary School
Matayom	Secondary School
Po wo cho	Diploma
Po wo so	Upper Diploma

UNIT OF MEASUREMENT

1 rai	0.16 ha
1 ha	6.25 rai

CURRENCY

US dollar
Baht