

October 2004 with 50 sets of questionnaires covered information about demographic, livelihood and MFPs in BTS Community Forest and homestead. Interviews with village committee include the Head of BTS village, parataxonomist and the other committees for collect information about BTS people and their village. Second questionnaire was covered information about bamboo species include bamboo collection in BTS Community Forest area, bamboo plantation, marketing, trade, information, and knowledge about bamboo cultivation and utilization.

1.4 Homestead

In homestead area some of MFPs were collected. The selection was undertaken based on the main MFPs that used by people in Ban Thung Soong such as bamboo etc. Whole areas of BTS village were randomly collected according to the distribution of bamboo species. Distribution and coordination of each species are recorded by using GPS including information regarding bamboo clumps. For measurement purposes, the height of bamboo were collected and each diameter of culms were measured from three segments (basal, middle and top) from four classes of bamboo culms development stage classes such as bamboo shoots, young culms (2 m and 5 m height) and mature bamboo (5-10 m, 10-15 m, 15-20 m height) according to the four parts of the crown with reference to East, West, North and South. Number of culms per clump and number of shoots per clump of bamboo species in BTS were recorded.

1.5 Study of main MFPs

The study on above-ground biomass of bamboo based on mature culms development stage classes which as follows: 0-5 m, 5-10 m, 10-15 m and 15-20 m height. Two samples from each component were taken as a sample which including culms, branches and leaves. Only mature culms from one sample clumps from each bamboo species were taken as test materials for aboveground biomass. All information about bamboo species such as local name, scientific name, length of culms, culms diameter, wall thickness, number of internodes and nodes, biomass study for fresh weight and dry weight for four components of bamboo such as bamboo culms, leaves, branches and shoots were taken. The branches, leaves and culms are cut and removed then separated for measuring the fresh weight. The culms were cut in three segments (basal, middle and top) of the same length, depending on total height and the diameter of each segment that measured. The 10 cm length culms of each segment are taken as a sample for dry weight measurement. For the fresh weight of branches and leaves, each sample of 200 g was taken. Every fresh weight of each component will be measured and dried to constant weight. All samples were dried at 85°C for 48 hours and dry weight for the samples will be determined after the temperature decrease to room temperature.

2. Data Analysis

All information data and inputs from the questionnaires were analyzed by using Statistical Package for Social Science (SPSS) software and by Analysis of Variance (ANOVA). Calculation of the variables was based on sample plots means.

2.1 Global Positioning System

Data from field collection recorded by Global Positioning System (GPS) were analyzed by using ArcView GIS 3.2a software program for mapping the distribution of some Minor Forest Products (MFPs) in BTS homestead. Data from GPS could be displayed and analyzed based on X and Y geo-coordinates.

2.2 Important Value Index

In this study, quantitative ecological methods were used such as the Important Value Index (IVI) to show the number of dominant plant species in community forest. The IVI analysis used to determine the dominant and species composition in community forest as well as to indicate the sustainable uses status of MFPs among people in BTS. The Important Value Index (IVI) of all stands was determined as:

$$\text{IVI} = \text{relative density (\%)} + \text{relative frequency (\%)} + \text{relative dominance (\%)}$$

Important Value Index (IVI) is the sum of relative frequency value (frequency of one species as a percentage of total frequency of all species), relative density value (percentage of the total number of stems contributed by a single species) and relative dominance value (percentage of total basal areas contributed by single species). The IVI indicates the figure of ecological importance of a plant species (Curtis and McIntosh, 1951; Risser and Rice, 1971). According to Sukwong (1982), IVI can be used to indicate the ecological succession of plant occupying the areas. The species that has high IVI is the dominant tree. It plays an important role in the community. Since each component value has a maximum value of 100, the IVI of any species in communities range between 0-300.

2.2.1 Species Density

Density refers to the quantity or number of a plant species per unit area or per unit volumes (Wongkhaluang, 1983). According to Kershaws (1973) it is usual to count the number of individuals within a series of randomly distributed quadrats, calculating the average number of individuals related to the size quadrat used, from the sample. Vegetation density can be calculated by method of Greig-Smith, 1964 and Cottam, 1949. The relative density will be determined from all standing tree of DBH larger than 4.5 cm in each stands of 20x50 m².

$$\text{Density} = \frac{\text{Total number of species i}}{\text{Quadrat size}}$$