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Development of Emission and Removal Factors in upland forest, Cambodia

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Development of Emission and Removal Factors in upland forest, Cambodia

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ACRONYMS AND ABBREVIATIONS

AGB	Aboveground Biomass
AIC	Akaike Information Criterion
BGB	Below Ground Biomass
DBH	Diameter at Breast Height
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
GPS	Global Positioning System
H	Height
NFI	National Forest Inventory
RD	Root Density
RUA	Royal University of Agriculture
SSE	Sum of Squares Estimation
UNDP	United Nations Development Programme
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Country
WD	Wood Density

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TABLE OF CONTENTS

Acronyms and abbreviations.....	1
Acknowledgements.....	2
Table of contents.....	3
Introduction	6
1.1 Forest in Cambodia	6
Deciduous Forest.....	7
Semi-evergreen forest.....	8
1.2 Allometric equations	8
1.3 Ongoing support to improve Biomass estimates.....	8
Objectives.....	9
Methodology.....	11
3.1 Research location	11
3.2 Sample plot establishment.....	12
Location	12
Tools	12
Plot design.....	12
Procedure to setup sample plot.....	13
3.3 Plot inventory	13
3.4 Procedures for destructive measurement of fresh aboveground biomass and stem volume of the trees	14
3.5 Procedure for measurement of Below Ground Biomass (BGB)	14
Tree selection	14
Setup polygons	15
Fine roots sampling	15
3.6 Procedures of Laboratory Measurement.....	16
Equipment	16
Measurements for estimating dry mass of tree compartments.....	17
Measurements for wood density	17
Results	18
4.1 Species composition.....	18
4.2 DBH Classes	20
4.3 Allometric Equations for Upland forest in Cambodia	21
Sample tree selection for allometric equation development.....	21

Sample BGB selection of <i>Dipterocarpus tuberculatus</i>	22
Relationship between tree height and diameter of AGB.....	24
Relationship between Below Ground Biomass and DBH	25
Model development (AGB)	22
4.4 Wood Density.....	2
Wood Density of AGB.....	2
Wood Density of BGB.....	3
References.....	4
Appendixes.....	1

List of Table

Table 1 Statistics of Forest Cover 2014	7
Table 2 The main species composition of tree layer upland Forest in Srepok wildlife sanctuary.....	19
Table 3 Felling sample tree for allometric equation development.....	21
Table 4 Sample Below Ground Biomass selection	23
Table 5 Result of BGB from field (BGB per Polygon and Ha)	25
Table 6 Model development indicators for the aboveground biomass equations.....	23

List of Figure

Figure 1 Land use/cover Map 2014 (Source: Forest Administration, 2016)	7
Figure 2 Map of research location for allometric equation development, Koh Nhek district , Mondulkiri province, Cambodia	11
Figure 3 Nested square plot layout.....	13
Figure 4 Wood density sample divisions	14
Figure 5 Method used to draw a Vironoi polygons.....	15
Figure 6 Fine roots sampling by zones and layers.....	16
Figure 7 water displacement method.....	17
Figure 8 DBH distribution by species	21
Figure 9 Relationship between tree height and diameter (A), tree aboveground biomass and dbh (B), dbh+h (C) or dbh+h+wd (D).....	24
Figure 10 Relationship between BGB kg/polygon and Diameter, BGB kg/ha and Diameter.....	25
Figure 11 Graph 1: model + observations, Graph 2: Observed against Predictions, Graph 3: Res against the predictions of model m1.....	2
Figure 12 Graph 1: model + observations, Graph 2: Observed against Predictions, Graph 3: Res against the predictions of model m2.....	2

INTRODUCTION

Cambodia's forests play a significant role in traditional rural livelihoods, providing construction wood, fuel wood, food and medicine, as well as ensuring ecosystem functions such as changes in albedo and soil carbon storage, reduced runoff and downstream water supply, and effects on biodiversity. Thus forests make up a very important part of the country's natural resource base which can help on stable improvement from environmental, economic and social perspectives.

Cambodia, as a REDD+ country, has submitted its FRL to UNFCCC on a volunteer basis in the context of results-based payments for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries (REDD+). The FRL is a benchmark to assess a country's progress in reducing emissions from deforestation and forest degradation. To improve the FRL, Allometric equation is an indispensable integral part for establish the Emission Factor. So far Single Allometric equations and wood density were conducted by the Royal University of Agriculture (UN-REDD, 2015; FCPF 2017) as effort to later on developing multi-species models by forest type.

1.1 Forest in Cambodia

In Cambodia, forests are classified into 8 classes: evergreen forests, semi-evergreen forests, deciduous forests, flooded forests, mangrove forests, rear Mangrove, pine forests, and bamboo forests.

According to the Forest Definition used by the Cambodia REDD+ programme, forest refers to a unit of an ecosystem in the form of wetland and dry land, covered by natural or planted vegetation with height from 5 meters on an area of at least 0.5 hectares and a canopy of more than 10 percent. Areas also included in the REDD+ programme are forest regrowth and areas under afforestation or reforestation. Rubber, Oil Palm plantation and perennial crops are excluded from this definition. (Forestry Administration, Cambodia Forest Cover 2014).

According to result of the assessment of the land use/cover in year 2014. The forest covers an area of 8,518,173 hectares, equal to 49.48 percent of the country's total land area.

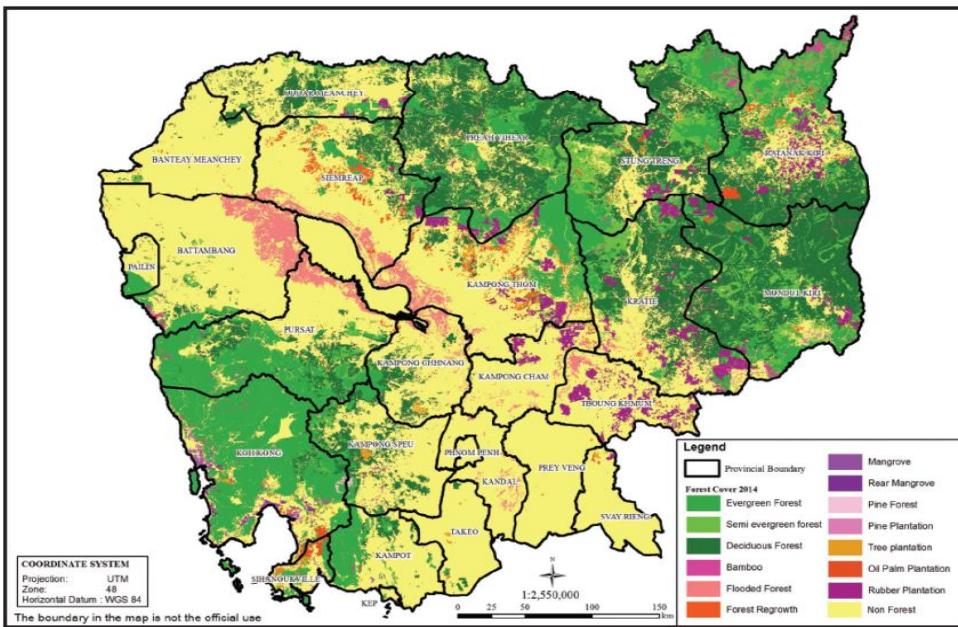


Figure 1 Land use/cover Map 2014 (Source: Forest Administration, 2016)

Table 1 Statistics of Forest Cover 2014

No	Land Cover Classes	Hectares (Ha)	Percentage (%)
1	Evergreen Forest	2,973,903	16.38%
2	Semi-evergreen Forest	1,108,320	6.10%
3	Deciduous Forest	3,480,532	19.17%
4	Flooded Forest	481,078	2.65%
5	Regrowth Forest	228,560	1.26%
6	Bamboo	130,678	0.72%
7	Mangrove	33,002	0.18%
8	Rear Mangrove	25,906	0.14%
9	Pine Forest	8,196	0.05%
10	Pine Plantation	3,710	0.02%
11	Tree Plantation	44,289	0.24%
12	Oil Palm Plantation	36,311	0.20%
13	Rubber Plantation	484,316	2.67%
Total Forest Land Cover		8,518,173	49.48%

Deciduous Forest

One of the largest forests is the area defined as deciduous forest. Deciduous forests comprise dry mixed deciduous forests and dry Dipterocarp forests. Deciduous forests drop their leaves

more or less completely during the dry season. Human impact such as fire is usually much higher compared to other forest types (FA, Cambodia Forest Cover 2010). Dry Dipterocarp forests naturally have an open character. In Cambodia the deciduous forest extended in the area of 3,480,532 ha equal to 19.17% of the Cambodia total area (FA, Cambodia Forest Cover 2014). Important species in the deciduous forest are: Khlong (*Dipterocarpus tuberculatus*), Tbeng (*Dipterocarpus obtusifolius*), Phcek (*Shorea obtusa*), Chhlich (*Terminalia tomentosa*), Reang Phnom (*Pentacle siamensis*), Trach (*Dipterocarpus intricatus*), and Sokram (*Xylia dolabriformis*) (FAO, Project CMB/95/002. Field Document No. 10; Council for the Development of Cambodia, 2013).

Semi-evergreen forest

Another large area of forest that contains deciduous trees in Cambodia is the Semi-evergreen forest. Semi-evergreen forests contain variable percentages of evergreen and deciduous trees, the percentage of evergreen trees varying from 30% to 70%. Semi-evergreen forests continue to appear evergreen throughout the year even when the percentage of deciduous trees is high (FA, Cambodia Forest Cover 2010).

1.2 Allometric equations

Within each tree population there is a statistical relation between individual tree measurements, and for instance the proportions between height (H) and diameter (D), between crown height and diameter, between biomass and diameter, that follow rules that are the same for all trees, big or small, as long as they are growing under the same conditions (Picard et al., 2012). These statistical relations expressed in equations are called allometric equations. The allometric equations relate tree volume or biomass to easy-to-measure tree characteristics (D, H, ...) with statistically determined parameters. Tree biomass allometric equations establish the relation between tree biomass (AGB, BGB, ...) and one or several dendrometric variables, whereas tree volume allometric equations establish the relation between tree volume and one or several dendrometric variable. There are also differences in allometric equation developments such as single and multi-species allometric equations; single-species model are often established for commercial purposes (eg. tree plantations); whereas multi-species models establish the relation between tree characteristics for a whole forest type or forest biome.

1.3 Ongoing support to improve Biomass estimates

In the context of REDD+ the Royal Government of Cambodia (RGC) is undertaking several activities to improve estimates emissions and removals from forest. Primary REDD+ readiness support has been provided through the UN-REDD Programme to enhance the overall capacities of four elements of REDD+ according to the Cancun Agreements of the UNFCCC, including National Forest Monitoring Systems (NFMS), Forest Reference Levels (FRLs) and REDD+ Strategy development. Several National Forest Inventory (NFI) activities, which link to the NFMS, were supported by FAO Technical Cooperation Programme under the project TCP/CMB/3304 'Designing a multipurpose national forest inventory to support reduced emissions from

deforestation and forest degradation (REDD+) mechanisms'. And under support of the later initiative, a NFI sampling design proposal and a field manual were developed in cooperation with national experts and RGC entities (Forestry Administration (FA), the Fisheries Administration (FiA) of MAFF and the General Department of Administration of Nature Conservation and Protection (GDANCP) of the Ministry of Environment (MoE)), existing allometric equations and forest inventory data were collected, and emission factors were developed for evergreen, semi-evergreen and deciduous forests. The NFI design activities were followed on by specific UN-REDD technical assistance to trial the NFI in two provinces in Cambodia, as well as to develop a mono-specific allometric equations for the dominant flooded forest tree species: Barringtonia acutangula.

During the literature and data analysis for the development of emission factors, none of the available equations developed in Cambodia was found to be sufficiently reliable to estimate tree biomass but several pan-tropical equations could be used for the main forest types. As no suitable equation was found for flooded forest, despite the fact that this forest type is very important and quite unique in Cambodia, first inroads were made for developing an equation for flooded forest in Cambodia, with support of the Royal University of Agriculture (RUA).

Since 2014, Cambodia also started implementing the Forest Carbon Partnership Facility (FCPF) project. The FCPF project in Cambodia builds on work undertaken under the UN-REDD programme and the TCP project, and aims to further assist the RGC to prepare for REDD+ implementation. FAO was asked to provide technical assistance to address the limited monitoring capacities and capacities on REDD+ Measuring, Reporting and Verification (MRV), and to further improve experiences in applying international standards relevant to REDD. In particular the technical assistance contributes to Component 4 of the FCPF project: "Designing the Monitoring System for REDD+ with capacity for implementation". The component also aims to provide required assistance to the government agencies to collect, collate and improve the necessary data on forest cover and emission factors.

OBJECTIVES

In order to support the work to improve forest biomass estimates a letter of agreement was developed with the Royal University of Agriculture (RUA), to undertake measurement and equation development work on flooded forest biomass, building on the single species model, and upland forest and build further capacity to improve forest biomass estimates as part of its academic curriculum, and aiming to eventually establish multi-species allometric models. The findings of the work on flooded forest biomass can be found in the report: Development of Emission and Removal Factors in Tonle Sap flooded forest, *Diospyros bejaudii*, Cambodia. This report focusses on the work undertaken to improve upland forest biomass, and specifically those for deciduous species present in semi-evergreen and deciduous forest types.

As part of the current Letter of Agreement (LOA) between FAO and RUA the following activities were undertaken to improve upland forest allometric models:

1. Measurements 80 sample trees in one area of upland forest and the establishment of a database of tree biomass measurement (area determined in discussion with FA and GDANCP),
2. Measurement of 10 sample trees for testing below-ground biomass equation development

METHODOLOGY

3.1 Research location

Mondulkiri province was selected as the research location to represent the Upland forest in North-East region of Cambodia (Figure 5), since also NFI tests were planned in this province. Mondulkiri Province is located in northeast Cambodia, 382 km from Phnom Penh, through National Road No.6A, No.7 or No.8, and then No.76. Sen Monorom is the provincial town, Landscape of the area is mostly are mountainous and hilly area with many valleys and steams. The attitude is around 800 meters above sea level, total area of the province is 14,288 km², temperature is between 18 °C to 22 °C (Average: 20 °C), rainfall is 1800 mm/year. Mondulkiri has a total forest area of 1,366,892 ha (CDC, 2013) of which:

- Protected area: 372,862 ha
- Mix wildlife sanctuary: 238,992 ha
- Nam Lear wildlife sanctuary: 50,950 ha
- Lom Phat Wildlife Sanctuary: 47,402 ha
- Phnom Prech wildlife sanctuary: 221,818 ha
- Snoul wilflife Sanctuary: 12,508 ha

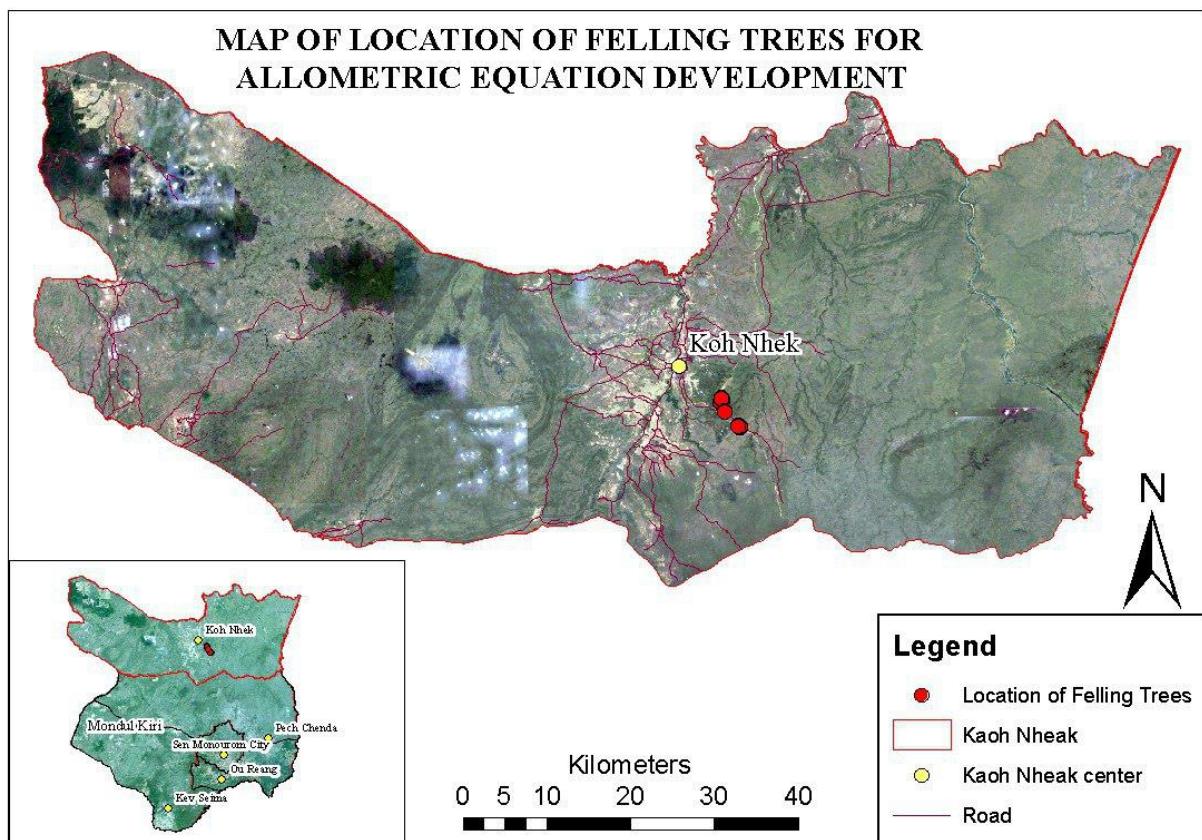


Figure 2 Map of research location for allometric equation development, Koh Nhek district , Mondulkiri province, Cambodia

3.2 Sample plot establishment

Location

The choice of location of setting up the sample plots was not based on a statistical method such as would be possible in case of implementing a full NFI, however plot location selection followed the following criteria:

- i) Representative of the forest types being studied;
- ii) Representative for topographic conditions; and
- iii) Covering a numbers of different trees sizes

One plot 100m x 100m was established for the species composition and trees size. The small quadrants were made for Bitterlich method study between small pots, NFI plots and big plot (the result of Bitterlich study is presented in the GDANCP report). Some of the sample trees were selected outside the sample plot to ensure an adequate distribution of trees per dbh range.

Tools

Depending on the work plan, tools and materials should be prepared before the field work takes place (see appendix 8 for a list of tools and materials).

Plot design

In absence of recent field data, a 1 ha sample plot divided in four compartments of 50mx50m was applied for the forest species composition inventory, each compartment divided in to sub-plots (as NFI size and another extended areas):

- 10m x 10m (100m²) for DBH from 5cm to 14.9cm
- 21.21m x 21.21m (450m²) for DBH from 15cm to 29.9cm
- 38.73m x 38.73m (1500m²) for DBH from > 30cm
- 50m x 50m (2500m²) for DBH from > 30cm (plots for species composition)

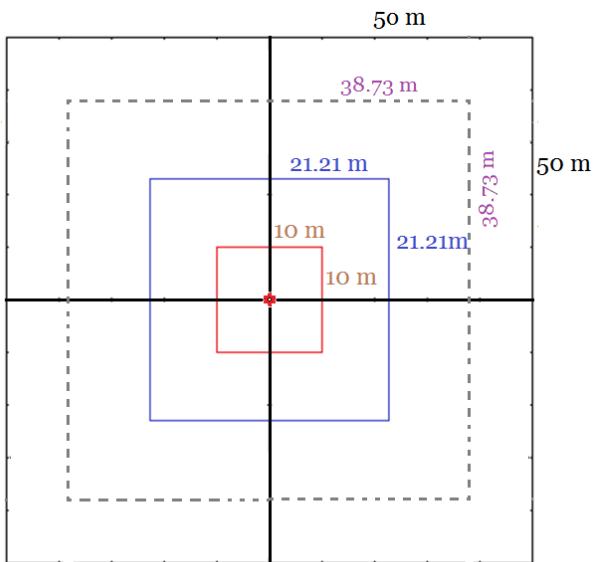


Figure 3 Nested square plot layout

Procedure to setup sample plot

The procedure to setup the plots is the following:

- 1) Finding location for set up plots
- 2) Set the “starting point” with a stake;
- 3) The plot size is a 100m x 100m. This is called nested square plot.
- 4) Established “starting point” the North-South line and East-West line
- 5) Using the measuring tape measures the distance from “start point” following the four direction worked with stake for 10m, 21.21m and 50m.
- 6) From these worked, elongate to two directions for established the sub-plots 10m*10m, 21.21m*21.21m, 38.73m*38.73m and 50m*50m, all this plots have the same command corner as the centre (starting point)
- 7) Use poly ropes to mark the plots through the stake makers (for longer line use additional stake to help as the interval of 5-10m).

3.3 Plot inventory

Once the plot has been established, the next step is record general information (location, coordinates at plot centre) in the field data form in each sub-plot, use a camera to take the picture of the sample plots and plots measurement related activities. The parameter to be measured are: tree species, dbh, h... as the size of tree depend the plot size 5-14.9 in 100m², plot size 15-29.9 in 450 m² and > 30 in 1500m². These data will be used for:

- i) The analysing of tree species composition;
- ii) The distribution of tree numbers and species by DBH (N-D distribution) and basal area (N-G distribution) class;

- iii) Selecting sampling trees for destructive measurement, basing on the species composition and diameter distribution and determining which trees could be sampled.

3.4 Procedures for destructive measurement of fresh aboveground biomass and stem volume of the trees

Once the sampled trees have been selected, the measurement of stem volume and fresh aboveground biomass of sample trees is carried out as follows:

- 1) Use chain saw to cut down the trees at its base;
- 2) Measure diameter at stump;
- 3) Measure DBH at 1.3m;
- 4) Measure total tree height (from the stump to the top);
- 5) Measure length of tree bole - from the stump to the first main branch;
- 6) Measure length of stem - from the stump to the point where diameter becomes 10cm;
- 7) Collect sample wood disks for identify the wood density:
 - a. The sample tree (main stem) is divided into 5 equal parts and marks these points as D00, D01, D02, D03 and D04 as shown below (the length of each part is equal to $1/5$ of its length),
 - b. At these points, wood disks will be taken for wood density analysis; in addition branches/twig also collect for the same purpose.
 - c. Leaves also separate and take sample for biomass calculation.

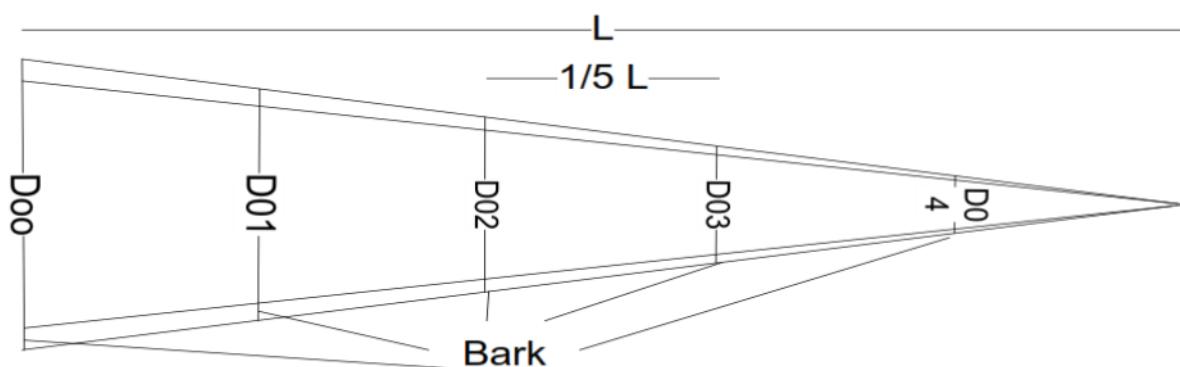


Figure 4 Wood density sample divisions

- 8) Cut the sample tree in to small portions (appropriate weight for lifting by two people), then weight separately: stems, branches, leaves and buttress (if tree with buttress);
- 9) All data should be carefully record and verifying prior to leave the site.

3.5 Procedure for measurement of Below Ground Biomass (BGB)

Tree selection

- i) Trees selected should be truly representative of upland forest-grown trees;
- ii) In its natural stand without heavy disturbance;

- iii) Represent different DBH classes (for this trial the trees will be the same trees selected for AGB measurement);
- iv) Not a marginal tree

Setup Voronoi polygons

- 1) Identify neighbour trees,
- 2) Establish the straight line (virtual or physical line) from the centre of the main tree to each of the neighbour tree,
- 3) Find the middle point, then establish a perpendicular line by using a small coloured rope and stretch by two poles,
- 4) These lines will limited by the intercept point from other lines, these segments are the base of the triangles with common summit (centre of the main tree), these line will not remove until completed excavate process,
- 5) Connect all intercept point to the centre point,
- 6) Measure all segments for calculation the area of each individual triangle
- 7) The total area of the Voronoi polygons is the sum of all the triangles area, and it represent the living space of the sample tree for further calculate BGB/ha.

Voronoi polygons

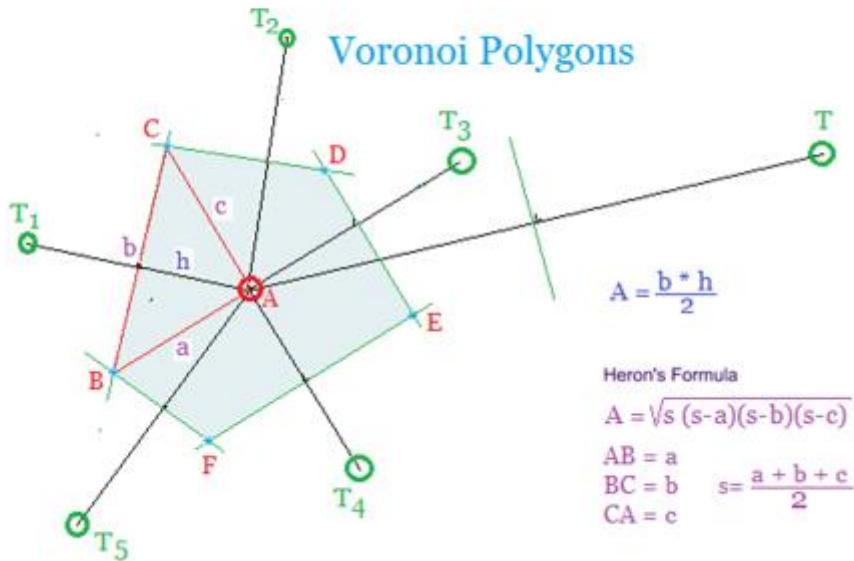


Figure 5 Method used to draw a Voronoi polygons

Fine roots sampling

- 1) Establish two lines E-W and N-S pass the centre point,
- 2) Team divide to two groups,

- 3) Each group start to excavate the cross section profile E-W,
- 4) The 2 group start simultaneously in opposite side, the same direction clockwise (or counter clockwise) together,
- 5) From the centre of the tree to the border line (of the polygons) divide into three equal zones,
- 6) In the middle zone take the soil block of $15 \times 15 \times 30$ cm, as 30 cm is the depth of each layer,
- 7) Separate fine roots (< 5 cm) then weight it,
- 8) Continue to another layer,
- 9) Restart profile at line N-S,
- 10) Mix those fine roots; followed by taking samples to the lab.

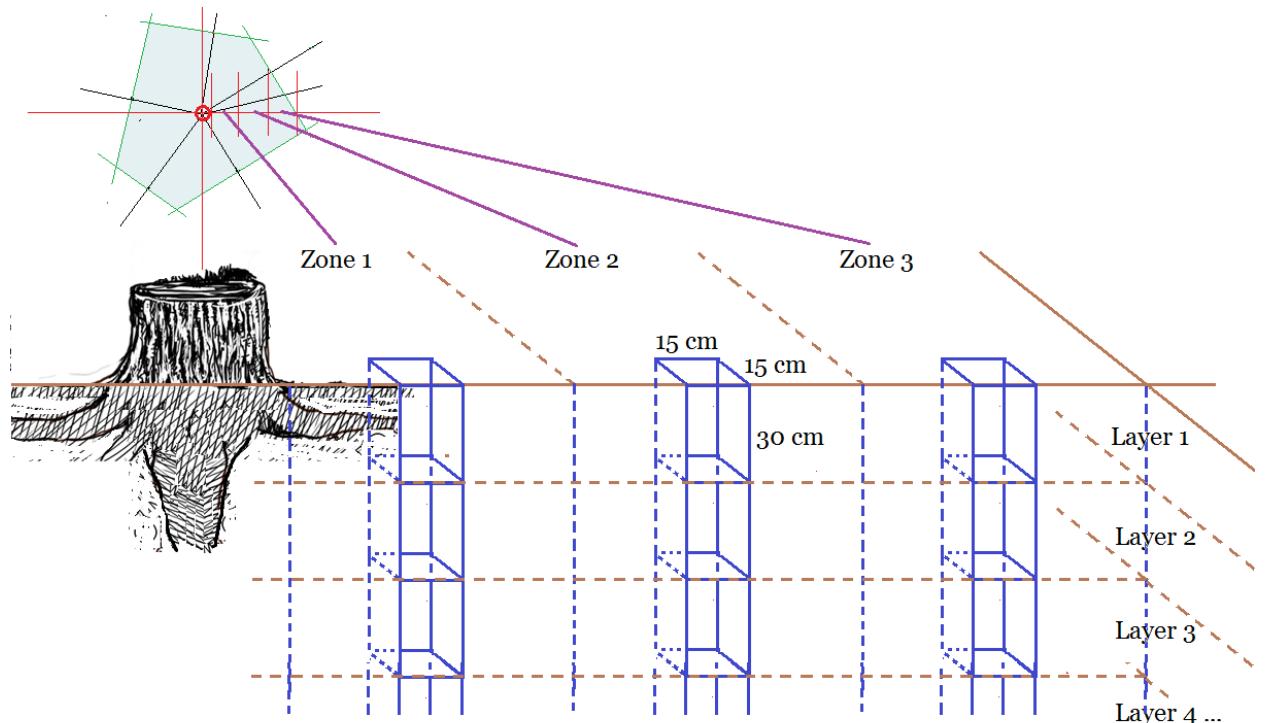


Figure 6 Fine roots sampling by zones and layers.

3.6 Procedures of Laboratory Measurement

Equipment

The required equipment for analysis are:

- i) Drying oven
- ii) Laboratory scale
- iii) Graduated tube to measure samples volume

Measurements for estimating dry mass of tree compartments

Below are the steps for measuring estimating dry mass of tree compartments

- 1) Dry the samples using an oven at a temperature of 100°C (65°C if the samples are subsequently to undergo chemical analysis) until samples reach constant weight
- 2) Weight the dry samples;
- 3) All analytical data must be recorded carefully in a spread sheet format.

Measurements for wood density

Estimating the wood density of a tree compartment is followed by these steps:

- 1) Remove bark for those wood density sample
- 2) Take only a small part of the sample
- 3) Measure the volume of the wood density sample. The water displacement method can be used: the sample or a sub-sample is immersed in a graduated tube containing water. The volumes of displaced water correspond to the volume of the sample.
- 4) Measure the dry mass of the sample (or subsample).

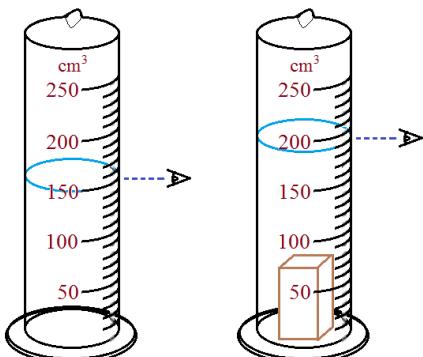


Figure 7 water displacement method

Formula and calculations

The biomass (dry) was calculated using fresh-to-dry ratios developed with the wood samples. The wood samples were measured before and after mass stabilization in an oven.

The models were developed using the function nlme() with the R software. This functions allow the development of non-linear models, corrections for the data heteroscedasticity and testing different category variables as random effects.

The different model tested were:

$$agb = a * dbh^b$$

$$agb = a * d2h^b$$

$agb = a * surr_b ^b$

$agb = a * dbh ^b * h^c * wd^d$

With:

- agb : aboveground biomass (in kg)
- dbh : diameter at breast height (in cm)
- h : the tree total height (in m)
- wd : the wood density (in g/cm³)
- $d2h = (dbh/200)^2 * h$, the surrogate of volume (in m³)
- $surr_b = d2h * wd * 1000$, the surrogate of biomass (in kg).

The species name was used as random effect to identify if the model performance would be improved. For the 10 Dipterocarpus belowground biomass measurements , the same model forms were tested.

A power function of the dbh was applied to the residuals to correct the data heteroscedasticity. An example of the model function in R would be:

```
m1 <- nlme(model = agb ~ a * dbh^b,  
           data = cbind(tree, g = "no group"),  
           fixed = a + b ~ 1,  
           random = a + b ~ 1,  
           start = mystart,  
           groups = ~g,  
           weights = varPower(form = ~dbh))
```

RESULTS

4.1 Species composition

Based on the inventory data more than 20 species found in upland forest in the Srepok wildlife sanctuary, Mondulkiri province. In our study we have chosen only to study the deciduous tree layer in upland forest, the vegetation layer was not studied. The 5 main species found in the

deciduous tree layer are *Shorea obtusa*, *Xylia xylocarpa*, *Terminalia alata*, *Dipterocarpus tuberculatus* and *Albizia lebeck* (table 3).

Table 2 The main species composition of tree layer upland Forest in Srepok wildlife sanctuary.

Plot 1: main species *Dipterocarpus tuberculatus*, *Xylia xylocarpa*, *Shorea obtusa* and *Terminalia alata*.

Species	Plot_01	Plot_02	Plot_03	Plot_04	Constancy	Frequency(%)	Class
<i>Dipterocarpus tuberculatus</i>	5	12	6	11	4	100	1
<i>Xylia xylocarpa</i>	2	1	1	2	4	100	1
<i>Shorea obtusa</i>	8	7	6	10	4	100	1
<i>Terminalia alata</i>	1	2	2	3	4	100	1
<i>Garcinia delpyana</i>	1	0	2	1	3	75	5
<i>Unknow</i>	1	0	2	1	3	75	5
<i>Dipterocarpus obtusifolius</i>	5	1	0	0	2	50	7
<i>Acacia megaladena</i>	2	1	0	0	2	50	7
<i>Terminalia mucronata</i>	2	1	0	0	2	50	7
<i>Careya arborea</i>	0	0	1	0	1	25	10
<i>Sindora siamensis</i>	0	1	0	0	1	25	10
<i>tomentosa Roth</i>	0	0	0	1	1	25	10
<i>Syzygium sp</i>	0	0	1	0	1	25	10
<i>Dalbergia nigrescens</i>	0	0	0	1	1	25	10
<i>Croton cascarilloides</i>	1	0	0	0	1	25	10

Cluster 2: main species *Xylia xylocarpa*, *Shorea obtusa* *Terminalia alata*, and *Albizia lebeck*

Species	Plot_05	Plot_06	Plot_07	Plot_08	Constancy	Frequency(%)	Class
<i>Xylia xylocarpa</i>	3	6	3	11	4	100	1
<i>Shorea obtusa</i>	6	6	13	8	4	100	1
<i>Terminalia alata</i>	7	3	3	4	4	100	1
<i>Albizia lebbeck</i>	1	1	1	1	4	100	1
<i>Acacia caesia</i>	1	1	0	0	2	50	5
<i>Careya arborea</i>	1	0	0	0	1	25	6
<i>Sindora siamensis</i>	2	0	0	0	1	25	6
<i>Bauhinia variegata</i>	1	0	0	0	1	25	6
<i>Canarium subulatum</i>	1	0	0	0	1	25	6
<i>Dipterocarpus intricatus</i>	1	0	0	0	1	25	6
<i>Terminalia bialata</i>	0	1	0	0	1	25	6
<i>Combretum quadrangulare</i>	0	1	0	0	1	25	6

Note: DBH of inventory taken from 5 cm up

4.2 DBH Classes

There was a considerable difference in tree species abundance at different size classes based on the combined data from all plots (Figure 8). It was found that the size class distribution at breast height (DBH) was dominated by a few tree species in the Upland forest, *Shorea obtusa*, *Xylia xylocarpa* and *Dipterocarpus tuberculatus*.

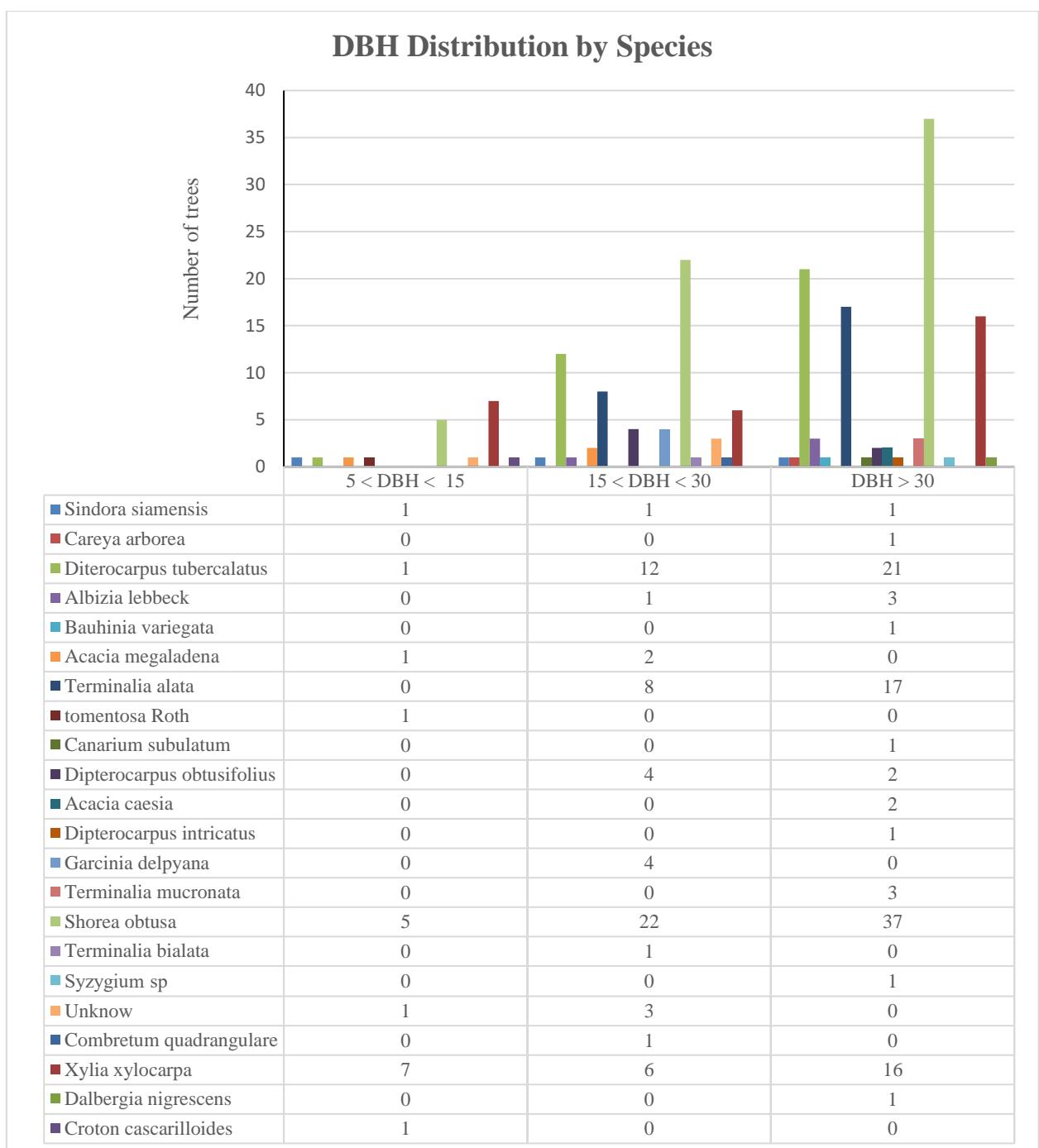


Figure 8 DBH distribution by species

4.3 Allometric Equations for Upland forest in Cambodia

Sample tree selection for allometric equation development

The sample tree selection is based on the DBH classification from the field survey, in (table 4 DBH is classified into 9 categories; 2 species of tree in Mondulkiri province has felled, the total of number of felling trees are 80 and ranking from 5 cm to 50 cm, the number of felling trees in DBH class depending on calculation. This study focuses on *Xylia xylocarpa* and *Dipterocarpus tuberculatus*. *Shorea obtusa* and *Terminalia alata* will be measured in another field measurement campaign. The selected species for this study are also present both in deciduous forest and in mixed deciduous forest.

Table 3 Felling sample tree for allometric equation development

Species Name	DBH class	Number of tree for cutting
<i>Xylia dolabriformis</i> (ឃុំប្រាប់)	5cm - 10cm	5
	10cm - 15cm	5
	15cm - 20cm	5
	20cm - 25cm	5
	25cm - 30cm	5
	30cm - 35cm	5
	35cm - 40cm	4
	40cm - 45cm	3
	45cm - 50cm	3
	<i>Sub-Total</i>	40
<i>Dipterocarpus tuberculatus</i> (ឈុំប្រាប់)	5cm - 10cm	5
	10cm - 15cm	5
	15cm - 20cm	5
	20cm - 25cm	5
	25cm - 30cm	5
	30cm - 35cm	5
	35cm - 40cm	4

	40cm - 45cm	3
	45cm - 50cm	3
	<i>Sub-Total</i>	40
Two Species	Total	80

Sample BGB selection of *Dipterocarpus tuberculatus*

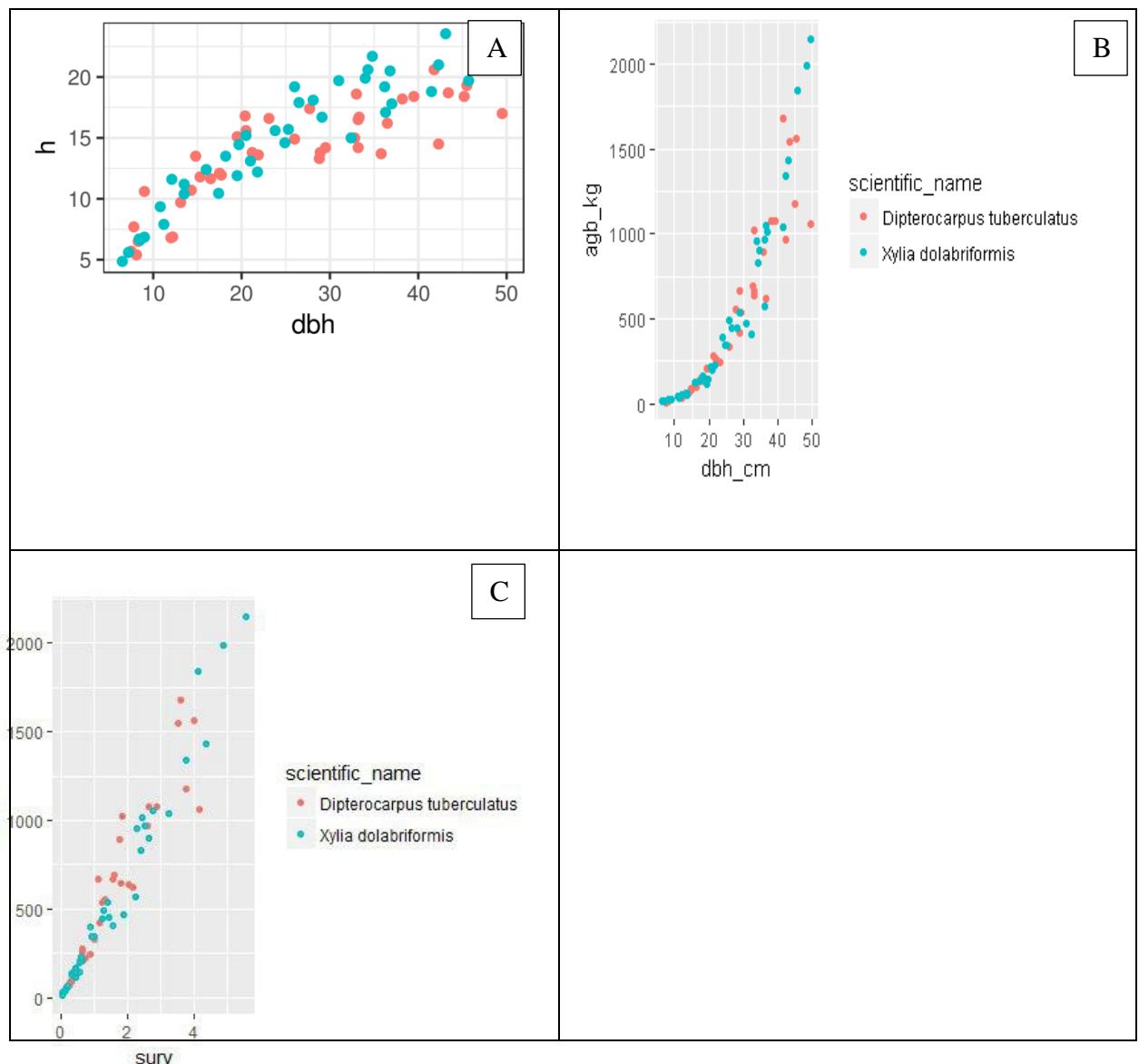
The root sample selection is also based on DBH distribution (Table 5). In this case the DBH has been classified into 9 categories, the total of number of root samples were 10 roots, ranking from 5 cm to 50 cm. In the DBH class 40-45 two roots were sampled.

Table 4 Sample Below Ground Biomass selection

Srepok wildlife sanctuary		
No	DBH	Number of Tree
1	5-10	1
2	10-15	1
3	15-20	1
4	20-25	1
5	25-30	1
6	30-35	1
7	35-40	1
8	40-45	2
9	45-50	1
Total		10

Relationship between tree height and diameter of AGB

All trees were measured in Mondulkiri province. Sample trees covered the whole diameter range. All the trees were found to follow a similar trend in terms of agb - dbh relationship. The tree height (h) – diameter (dbh) relationship and the relation between aboveground biomass (AGB) and dbh, dbh + h or dbh + h + wd¹ (wood density) all seem to show predictable relationships (figure 11).



Dipterocarpus is represented with red dots and *Xylia* with blue dots.

Figure 9 Relationship between tree height and diameter (A), tree aboveground biomass and dbh (B), dbh+h (C) or dbh+h+wd (D).

¹ SURV refers to the surrogate of volume: SURV = (dbh/100)²*h in m³ (dbh in cm and h in m). SURB refers to the surrogate of biomass: SERB = SURV*wd*1000, in kg (D2H in m³ and wd in g/cm³).

Relationship between Below Ground Biomass and DBH

The relationship between Below Ground Biomass (BGB) and dbh was determined with allometric equations. Despite the small number of trees, a reasonably good model was found for bgb using d2h as an input variable.

HERE ADD BETTER QUALITY GRAPH: bgb against dbh, bgb against d2h

HERE ADD table with the model tested and the AIC

HERE ADD THE 4 GRAPHES of the model

Figure 10 Relationship between BGB kg/polygon and Diameter (A), BGB kg/ha and Diameter (B).

The results show that there is a clear relationship between the DBH and the BGB contained in the polygon,

Table 5 Result of BGB models

Model development (AGB)

Id	Model equation	Random effect	AIC
M1	Agb = 0.111 * dbh^2.433	no	857
M2	Agb = 0.211 * dbh^2.122	Species_name a b Dipter 0.01 0.002 Xylia -0.01 -0.002	841

PLACE THIS TABLE IN ANNEX

After fixed effect add a colum with the p-value.

Id	Model equation	Start	Model variance	Radom effect	Ranef Parameter	parameters	AIC
m1	agb_kg~a*dbh_cm^b	starter <- c(1,1)	varPower(form=~dbh_cm)	Scientific_name	no	fixef(m1) a b 0.074 2.613	872.06
m2	agb_kg~a*surv^b	starter <- c(360.90 ,0.99)	varPower(form=~surv)	Scientific_name	no	fixef(m2) a b 363.134 1.014	869.09

m3	agb_kg~a*dbh_cm^b*h_m^c	starter <- c(1,1,1)	varPower(form=~ dbh_cm)	Scientific_name	no	fixef(m3) a b c 0.048 2.299 0. 541	868.42
m4	agb_kg~a*dbh_cm^b*wd_c	starter <- c(1,1,1)	varPower(form=~dbh_cm)	Scientific_name	no	fixef(m4) a b c 0.112 2.537 0.59 9	871.86
m5	agb_kg~a*surb^b	starter a b 0.684 0.944	varPower(form=~surb)	Scientific_name	no	fixef(m5) a b 617.104 0.965	879.63

Table 6 Model development indicators for the aboveground biomass equations.

Based on the AIC values the two best models are m1 and m2 (Table 9).

The models without random effect are therefore recommended:

- $\text{agb} = 0.074 * \text{dbh}^{2.613}$
- $\text{agb} = 363.134 * \text{surv}^{1.014}$

The model quality increases (i.e. AIC is smaller) with the number of input variables, therefore the measurement of tree height should be included in tree measurements carried out as part of forest inventories.

A The report show only plot 1, place plots 2 3 and 4 in annex

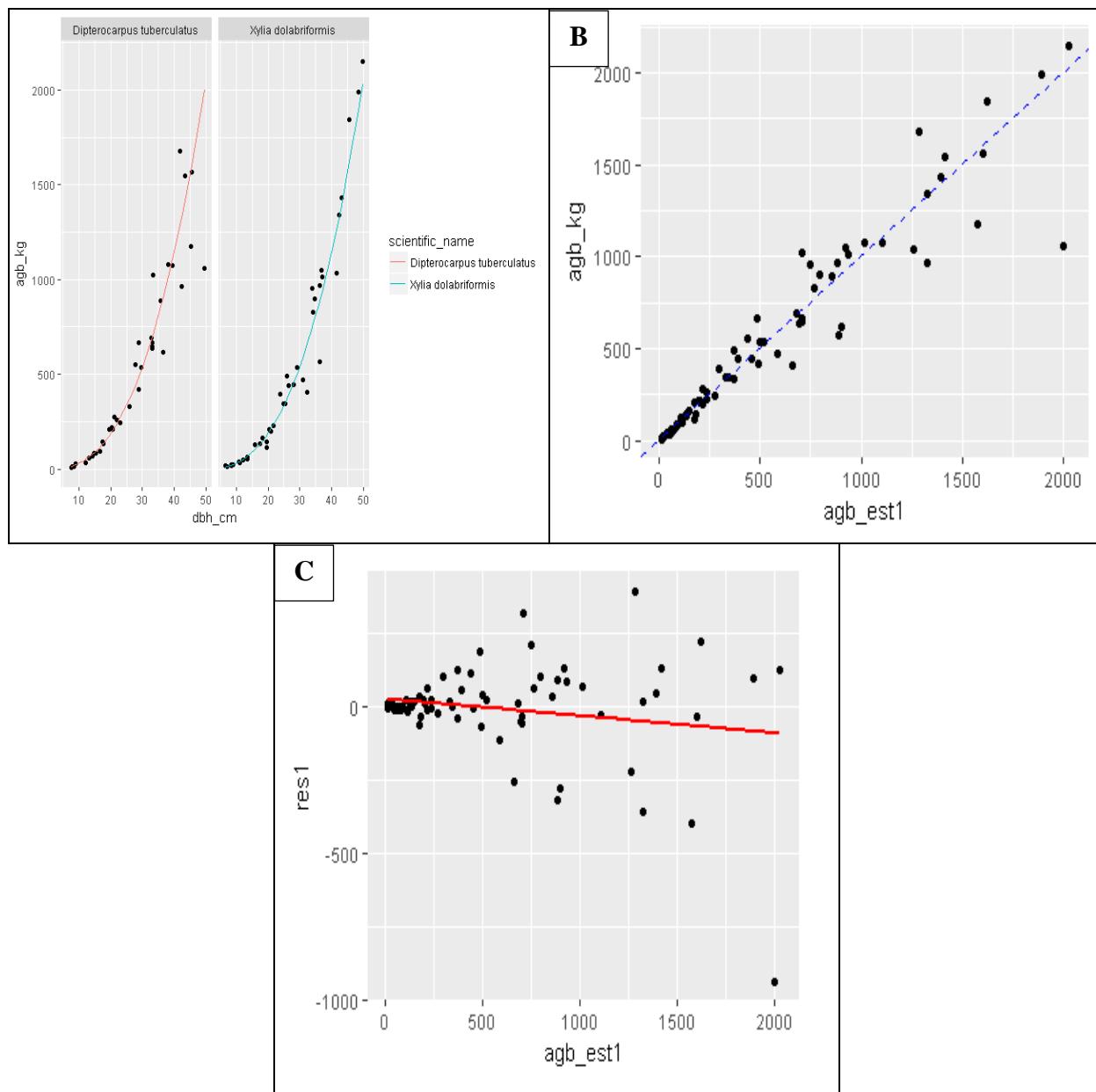


Figure 11 Graph 1: model + observations, Graph 2: Observed against Predictions, Graph 3: Res against the predictions of model m1

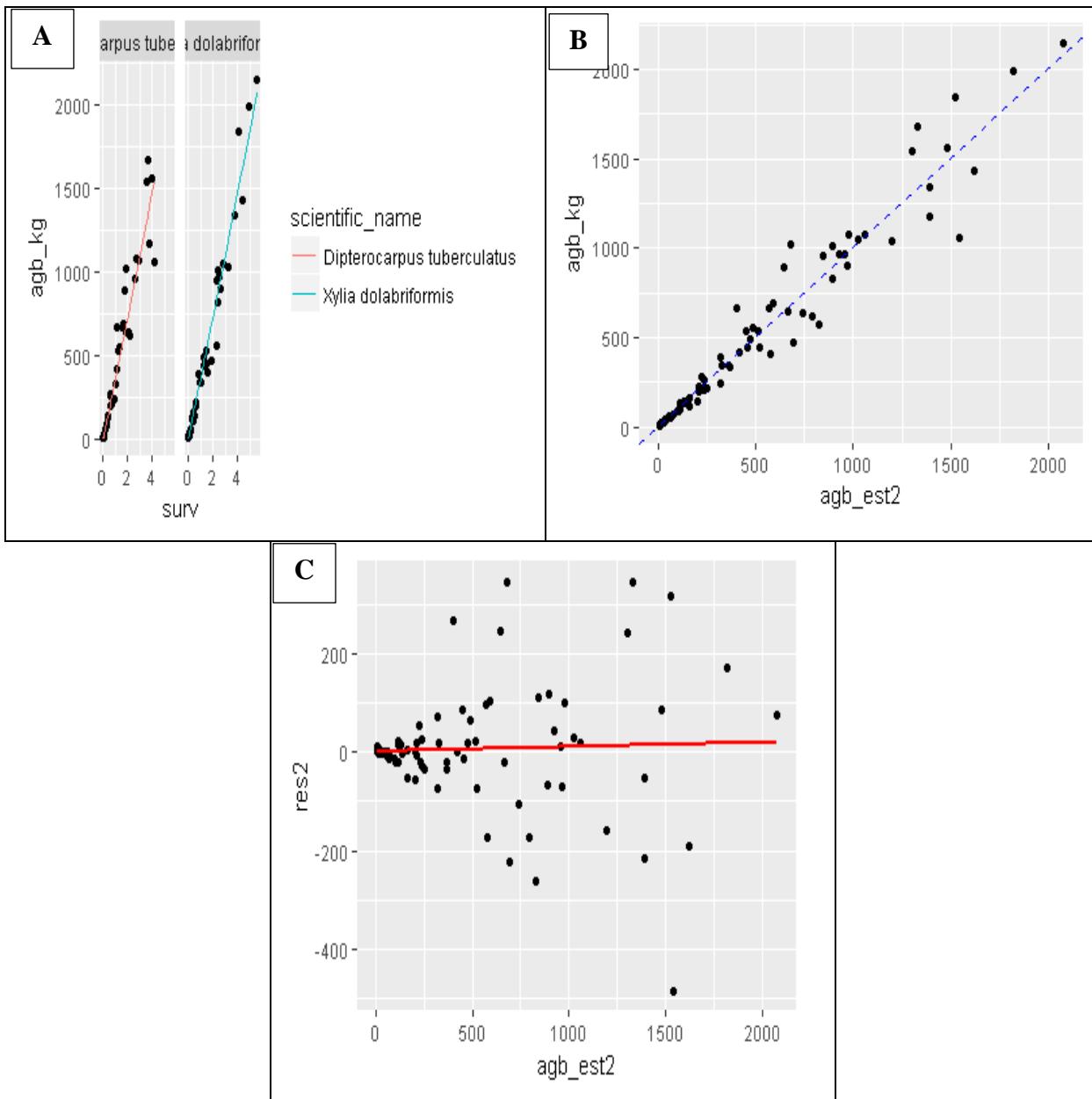


Figure 12 Graph 1: model + observations, Graph 2: Observed against Predictions, Graph 3: Res against the predictions of model m2

4.4 Wood Density

Wood Density of AGB

According to the inventory in Srepok wildlife Sanctuary in Mondulkiri province more than 20 species occurred in the tree layer of the upland forest; deciduous and semi-ever green forest. The main species in the forest were *Shorea obtusa*, *Dipterocarpus tuberculatus*, *Xylia xylocarpa*, *Terminalia*

alata and *Dipterocarpus obtusifolius*. Based on budget and time constrained the research focused only on two species, *Diterocarpus tuberculatus* and *Xylia xylocarpa*, to develop allometric equations, and determine the wood density in the laboratory using the water replacement method. The results found the wood densities to be **WD=0.688 gcm³** for *Diterocarpus tuberculatus* and **WD=0.820 gcm³** for *Xylia xylocarpa* (see Appendix 5).

Wood Density of BGB

The species chosen for the BGB trial was *Diterocarpus tuberculatus*. The identified root density using the water replacement method was found at **RD=0.51 gcm³** for *Diterocarpus tuberculatus* (Appendices 7).

Root to shoot ratio

The root-to-shoot ratio is defined as the belowground biomass (dry) divided by the aboveground biomass (dry). IPCC default values are around 0.2. The data show that the root-to-shoot ratio varies greatly with the dbh. For small trees it can be bigger than one, but for trees bigger than 30 cm diameter the RS is quickly reduced to 0.27.

ADD the graph bgb against agb and rs against dbh.

Conclusion

Speak about the next campaign to increase the number of trees and species available for modeling agb and bgb.

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APPENDICES

Appendix 1: List of Tree species by DBH Between than 5 cm to 15 cm

Plot ID	Stratum	Village	Commune	District	Province	UTM_X	UTM_Y	Khmer Name	Species	DBH (cm)	Top_Height	Location_X	Location_Y
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	សុក្រម	<i>Xylia xylocarpa</i>	12	9	3.4	7.5
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ទំព្យុងក្រឹង	<i>Croton cascarilloides</i>	9.5	4.8	5	0.7
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	លើអ៉ែម	<i>Acacia megaladena</i>	8.8	5.6	8	10
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	សុក្រម	<i>Xylia xylocarpa</i>	10.4	6	8.5	-9.5
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	រដ្ឋិក	Unknow	8	4.5	-0.5	-3
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ព្យូ	<i>tomentosa Roth</i>	7.8	3.5	-2	4
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ដីក	<i>Shorea obtusa</i>	11.1	4	-3	5
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ខ្សោង	<i>Diterocarpus tuberculatus</i>	11.8	6.5	-8	2
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	សុក្រម	<i>Xylia xylocarpa</i>	12.2	8.3	-9	5
MDk_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	កោកោះ	<i>Sindora siamensis</i>	8	4	5	4
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ដីក	<i>Shorea obtusa</i>	11.5	12	6	4
MDk_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	សុក្រម	<i>Xylia xylocarpa</i>	12.4	11	4	7
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុក្រម	<i>Xylia xylocarpa</i>	12.1	12	-6	5
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ដីក	<i>Shorea obtusa</i>	10.5	10	-4	5
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ដីក	<i>Shorea obtusa</i>	11.4	7	-5	4
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុក្រម	<i>Xylia xylocarpa</i>	15	12	-6	4
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ដីក	<i>Shorea obtusa</i>	14.6	11	-7	4
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុក្រម	<i>Xylia xylocarpa</i>	11.6	14	-6	7

Appendix 2: List of Tree species by DBH Between than 15 cm to 30 cm

Plot ID	Stratum	Village	Commune	District	Province	UTM_X	UTM_Y	Khmer Name	Species	DBH (cm)	Top_Height	Location_X	Location_Y
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	សុខុប់	<i>Xilia xylocarpa</i>	16.5	13	17	20
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ឈង	<i>Diterocarpus tuberculatus</i>	29.7	18	15.5	17.5
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ពិដ្ឋារ៉ា	<i>Acacia megaladena</i>	18	6.5	13	18
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ក្បែង	<i>Dipterocarpus obtusifolius</i>	19	12.5	9	17
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ក្បែង	<i>Dipterocarpus obtusifolius</i>	21.6	12.3	8	15
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ក្បែង	<i>Dipterocarpus obtusifolius</i>	24.6	13	7	15
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ក្បែង	<i>Dipterocarpus obtusifolius</i>	19.5	12	5	12
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ក្បែង	<i>Garcinia delphyana</i>	21	9.5	0.5	10
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727825	1440721	ឃីរក	Unknown	18.5	7.6	1.5	7
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	ឈង	<i>Diterocarpus tuberculatus</i>	29.8	11	10	-15
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	ឈង	<i>Diterocarpus tuberculatus</i>	29	15	8.5	-7
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	ក្បែង	<i>Sindora siamensis</i>	27.3	7.8	3.2	-7.5
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	ពិដ្ឋារ៉ា	<i>Acacia megaladena</i>	18.5	5.5	13	-4
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727832	1440664	ឈង	<i>Diterocarpus tuberculatus</i>	29.8	14.4	12	-10
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ក្បែង	<i>Garcinia delphyana</i>	18.2	10.5	-14	-19
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ឃីរក	<i>Terminalia alata</i>	29.2	18.5	-1	-18
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ឈង	<i>Diterocarpus tuberculatus</i>	25.3	13.4	-3	-17
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ក្បែង	<i>Careya arborea</i>	17.5	4.2	-4.2	-3
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ក្បែង	<i>Garcinia delphyana</i>	20	13.4	-13	-8
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ឃីរក	Unknown	23.5	7.35	-12	-9
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ឃីរក	<i>Shorea obtusa</i>	15	8.5	-15	-13
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727774	1440653	ឈង	<i>Diterocarpus tuberculatus</i>	16.5	12	-16	-17
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	22.5	7.5	-9	2
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	19.8	14.6	-5	9
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	23.8	19	-1	15
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	23	19.8	-3	18
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	15.3	14	-5	19
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	21	15.3	-9	18
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Shorea obtusa</i>	15.5	4	-2	19
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឈង	<i>Diterocarpus tuberculatus</i>	27.4	15.8	-13	17
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ក្បែង	<i>Garcinia delphyana</i>	27.5	13	-19	15
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727782	1440691	ឃីរក	Unknown	17.5	11	-12	1.19
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឃីរក	<i>Terminalia alata</i>	25.3	12	10	12
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឃីរក	<i>Terminalia alata</i>	18.8	8	5	17
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឈង	<i>Shorea obtusa</i>	18	16	15	13
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឈង	<i>Shorea obtusa</i>	24.2	12	17	14
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឈង	<i>Shorea obtusa</i>	15.9	7	18	15
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727527	1440465	ឈង	<i>Terminalia alata</i>	25.5	11	11	6
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ឈង	<i>Shorea obtusa</i>	19	7	17	-1
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ឈង	<i>Shorea obtusa</i>	26	17	15	-4
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ឈង	<i>Terminalia alata</i>	27	19	17	-2
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ឈង	<i>Shorea obtusa</i>	23.7	23.5	17	-4
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ឈង	<i>Shorea obtusa</i>	28	17	15	-6
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	ពាកាយលូល	<i>Terminalia bialata</i>	28	21	1.5	-19
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	សុគ្រប់	<i>Xilia xylocarpa</i>	17.4	6.5	21	-4
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727529	1440434	សុគ្រប់	<i>Combretum quadrangulare</i>	22.3	9	10	-19
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	20.2	13	-2	-6
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	22.2	14.7	-2	-7
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	16.7	13.7	-1.5	-14
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	26	23	-17	-6
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	24.4	15.3	-2	-15
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	21.5	9	-11	-2
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Albizia lebbeck</i>	30	21	-19	-3
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	15.9	11.3	-4.5	-21
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	28	20	-20	-6
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Shorea obtusa</i>	11	11.5	-8	-16
MDK_09	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727503	1440437	ឈង	<i>Terminalia alata</i>	28	22	-15	-10
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ឈង	<i>Shorea obtusa</i>	17.2	14	-11	7
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុគ្រប់	<i>Xilia xylocarpa</i>	20.4	15	-7	6
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុគ្រប់	<i>Xilia xylocarpa</i>	21.3	14	-11	17
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ឈង	<i>Terminalia alata</i>	29	16	-21	16
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ឈង	<i>Terminalia alata</i>	25.5	12	-20	17
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុគ្រប់	<i>Xilia xylocarpa</i>	26.7	14	-19	16
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	សុគ្រប់	<i>Xilia xylocarpa</i>	17	12	-14	15
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ឈង	<i>Shorea obtusa</i>	16.4	10	-16	18
MDK_10	Upland	Srae Chong	Ou Buon Leu	Koah Nheaek	Modulkiri	727494	1440462	ឈង	<i>Shorea obtusa</i>	20.4	12	-19	14

Appendix 3: List of Tree species by DBH Bigger than 30 cm

Plot ID	Stratum	Village	Commune	District	Province	UTM_X	UTM_Y	Khmer Name	Species	DBH (cm)	Top_Height	Location_X	Location_Y
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	64	24	20	45
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	85.8	16.5	11	40
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	55.9	18	5	35
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	50.8	11	8	35
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Terminalia mucronata</i>	46.5	12	25	36
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	49.8	18.5	20	30
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	63.5	17	8	25
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	40.4	15.3	0.4	35
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	40	15.5	1	13
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	61.5	23.5	21	13
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Terminalia mucronata</i>	46.2	19.3	32	8
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	52.2	22	40	7.5
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Terminalia alata</i>	35.5	19.5	30	3
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Dipterocarpus obtusifolius</i>	40.9	21	35.5	8.5
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	44	22.1	47	18
MDK_02	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727825	1440721	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	37	22.5	38	25
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	32.3	14	1	-5
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	63.2	22.7	13	-0.5
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	30.7	14	11	-14
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	36.7	17.7	15	-12
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	48.3	20.4	9	-16
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	38.9	20.7	17	-9
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	32.1	20.8	20	-17
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	33.8	21.45	15	-19
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	60	22.5	30	-35
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	55.5	23	15	-37
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus obtusifolius</i>	45.4	20.3	22	-40
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	38.3	14.4	10	-35
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	43	21.3	20	-40
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Terminalia alata</i>	47.2	14	25	-41
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	31.9	15	35	-45
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	59.3	22.4	30	-48
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Terminalia alata</i>	35.5	13	49	-49.5
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	34	17.5	33	-35
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	55	24	45	-20
MDK_03	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727832	1440664	ស្រែបុរិយាយ	<i>Terminalia mucronata</i>	45	17	45	-14
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	42.7	21.3	-15	-16
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Syzygium sp</i>	40	22.5	-5	-20
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	31	21	-0.5	-20
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	60.8	22.5	-5	-8
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Terminalia alata</i>	30.2	17.3	-19	-20
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	61.8	23.5	-30	-21
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	42.8	21.9	-35	-20
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	54.5	22.5	-47	-45
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Xylia xylocarpa</i>	35	11.5	-49	-47
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	37.5	15.5	-49	-49
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	33.5	20.5	-40	30
MDK_04	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727774	1440653	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	41.3	19.4	-50	-35
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	34.7	18.3	-25	15
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	51.5	20	-19	17
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	33.3	21	-20	19
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	33	23	-12	17
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	71.3	23.5	-12	3.5
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Dipterocarpus tuberculatus</i>	35.6	2.5	-15	20
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Dalbergia nigrescens</i>	32.5	16.5	-35	49
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	34	19.5	-36	49
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Terminalia alata</i>	35	18	-40	36
MDK_05	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727782	1440691	ស្រែបុរិយាយ	<i>Xylia xylocarpa</i>	39.5	17	0	0
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Sindora siamensis</i>	52.5	20.5	6	4.5
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Terminalia alata</i>	39.3	27	7	9
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Terminalia alata</i>	41	19.5	10	5
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Xylia xylocarpa</i>	31.2	16.7	2	15
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Albizia lebbek</i>	64.5	18.4	8	20
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Dipterocarpus intricatus</i>	32	16.7	3	20
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Acacia caesia</i>	46.7	19.3	9	27
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Terminalia alata</i>	56.2	15.7	17	40
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Careya arborea</i>	42	13.5	20	27
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727527	1440465	ស្រែបុរិយាយ	<i>Carinaria subulatum</i>	36	15.5	20	19
MDK_07	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727529	1440434	ស្រែបុរិយាយ	<i>Xylia xylocarpa</i>	40.5	15.2	10	-10
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727529	1440434	ស្រែបុរិយាយ	<i>Bauhinia variegata</i>	38	12	31	12
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727529	1440434	ស្រែបុរិយាយ	<i>Shorea obtusa</i>	38.5	14.7	15	-10
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727529	1440434	ស្រែបុរិយាយ	<i>Xylia xylocarpa</i>	60.2	26	35	-19
MDK_08	Upland	Srae Chong	Ou Buon Leu	Koah Nheaeak	Modulkiri	727529	1440434	ស្រែប					

Appendix 4: List of Sample Tree felling

tree_no	ID_tree	X	Y	species	local_name	dbh_cm	h_m	Bole_h_m	fresh_mass_stem_kg	fresh_mass_branches_kg	fresh_mass_leaves_kg	fresh_agb_kg
AGB-01	MDK-AGB-1	727093	1441788	Dipterocarpus tuberculatus	8 8	21.9	13.60	6.8	302	130.6	20	452.6
AGB-02	MDK-AGB-2	727096	1441769	Dipterocarpus tuberculatus	8 8	20.5	15.60	10.5	286.5	39	14	339.5
AGB-03	MDK-AGB-3	727140	1441759	Dipterocarpus tuberculatus	8 8	20.4	16.80	11.65	271.5	78	16.5	366
AGB-04	MDK-AGB-4	727145	1441772	Dipterocarpus tuberculatus	8 8	23.1	16.60	11	356	55	14.5	425.5
AGB-05	MDK-AGB-5	727138	1441797	Dipterocarpus tuberculatus	8 8	21.2	13.80	9.8	323.5	112	20	455.5
AGB-06	MDK-AGB-6	727142	1441800	Dipterocarpus tuberculatus	8 8	28.8	13.30	7	585.5	507.5	55	1148
AGB-07	MDK-AGB-7	727153	1441793	Dipterocarpus tuberculatus	8 8	16.5	11.65	9.11	132	26	8.5	166.5
AGB-08	MDK-AGB-8	727175	1441749	Dipterocarpus tuberculatus	8 8	28.9	13.80	6.8	600.5	88	20.5	709
AGB-09	MDK-AGB-9	727140	1441752	Dipterocarpus tuberculatus	8 8	27.7	17.40	9.3	625	226.8	31	882.8
AGB-10	MDK-AGB-10	727150	1441699	Dipterocarpus tuberculatus	8 8	26	14.90	6.9	473.5	85	10	568.5
AGB-11	MDK-AGB-11	727176	1441693	Dipterocarpus tuberculatus	8 8	29.5	14.20	8.35	580	345.5	35	960.5
AGB-12	MDK-AGB-12	727154	1441777	Dipterocarpus tuberculatus	8 8	33	18.60	13.1	850	180	42.5	1072.5
AGB-13	MDK-AGB-13	727157	1441776	Dipterocarpus tuberculatus	8 8	17.7	11.95	8.6	174	56	10	240
AGB-14	MDK-AGB-14	727193	1441813	Dipterocarpus tuberculatus	8 8	14.3	10.70	6.1	93.5	22	6.5	122
AGB-15	MDK-AGB-15	727117	1441768	Dipterocarpus tuberculatus	8 8	15.3	11.80	9.2	125	19	7.5	151.5
AGB-16	MDK-AGB-16	727102	1441770	Dipterocarpus tuberculatus	8 8	17.5	12.10	7.8	198	33	11	242
AGB-17	MDK-AGB-17	727115	1441733	Dipterocarpus tuberculatus	8 8	19.5	15.10	8.5	281	64	17.5	362.5
AGB-18	MDK-AGB-18	727120	1441717	Dipterocarpus tuberculatus	8 8	14.8	13.50	6	115	38	12	165
AGB-19	MDK-AGB-19	727107	1441763	Dipterocarpus tuberculatus	8 8	13.1	9.70	7.7	81	22	5.5	108.5
AGB-20	MDK-AGB-20	727094	1441758	Dipterocarpus tuberculatus	8 8	12.2	6.87	2.83	48.5	13.5	5	67
AGB-21	MDK-AGB-21	727090	1441747	Dipterocarpus tuberculatus	8 8	12	6.80	3.9	55	4.5	2.5	62
AGB-22	MDK-AGB-22	727205	1441886	Dipterocarpus tuberculatus	8 8	36.5	16.20	10.9	752.5	274	33.5	1060
AGB-23	MDK-AGB-23	727225	1441952	Dipterocarpus tuberculatus	8 8	7.5	5.70	4.05	13.5	3	2	18.5
AGB-24	MDK-AGB-24	727260	1441886	Dipterocarpus tuberculatus	8 8	32.8	15.00	9.18	739.5	403.5	47.5	1190.5
AGB-25	MDK-AGB-25	727295	1441912	Dipterocarpus tuberculatus	8 8	33.2	14.20	8.6	660	412.5	42	1114.5
AGB-26	MDK-AGB-26	727199	1441868	Dipterocarpus tuberculatus	8 8	33.2	16.50	12.45	792	247	35.5	1074.5
AGB-27	MDK-AGB-27	727374	1442060	Dipterocarpus tuberculatus	8 8	38.2	18.20	7.13	1099.6	621.9	67	1788.5
AGB-28	MDK-AGB-28	727354	1442040	Dipterocarpus tuberculatus	8 8	41.8	20.60	7.65	1700.3	992	60	2752.3
AGB-29	MDK-AGB-29	727385	1442061	Dipterocarpus tuberculatus	8 8	9	10.60	9.2	40.5	6.5	2.5	49.5
AGB-30	MDK-AGB-30	727383	1442045	Dipterocarpus tuberculatus	8 8	33.3	16.70	9	1008	579	44	1631
AGB-31	MDK-AGB-31	727409	1441936	Dipterocarpus tuberculatus	8 8	45.2	18.40	9	1501.5	461	42	2004.5
AGB-32	MDK-AGB-32	727311	1442214	Dipterocarpus tuberculatus	8 8	8.1	5.40	2	16	11	2.5	29.5
AGB-33	MDK-AGB-33	727277	1442178	Dipterocarpus tuberculatus	8 8	8.3	6.50	2.1	24	2.5	1.5	28
AGB-34	MDK-AGB-34	727270	1442171	Dipterocarpus tuberculatus	8 8	7.8	7.70	4.1	21	4	1.5	26.5
AGB-35	MDK-AGB-35	727301	1442211	Dipterocarpus tuberculatus	8 8	35.8	13.70	6.7	773.5	670	31	1474.5
AGB-36	MDK-AGB-36	727269	1440670	Dipterocarpus tuberculatus	8 8	49.5	17.00	11.1	1385.5	342.5	32	1760
AGB-37	MDK-AGB-37	727677	1440715	Dipterocarpus tuberculatus	8 8	42.3	14.50	6.2	1160.5	495	44.5	1700
AGB-38	MDK-AGB-38	727665	1440697	Dipterocarpus tuberculatus	8 8	45.5	19.30	10.9	1968	650.5	42	2660.5
AGB-39	MDK-AGB-39	727687	1440697	Dipterocarpus tuberculatus	8 8	39.5	18.40	10.18	1187.5	547	67	1801.5
AGB-40	MDK-AGB-40	727674	1440844	Dipterocarpus tuberculatus	8 8	43.4	18.70	11.2	1898.5	608	39	2545.5
AGB-41	MDK-AGB-41	727317	1442299	Xylia dolabriformis	8 8	42.3	21.00	9.3	1376	571.5	48.5	1996
AGB-42	MDK-AGB-42	727296	1442275	Xylia dolabriformis	8 8	26.5	17.90	6.2	452	203	16.5	671.5
AGB-43	MDK-AGB-43	727296	1442272	Xylia dolabriformis	8 8	10.8	9.35	7.05	53.5	7.5	2.5	63.5
AGB-44	MDK-AGB-44	727296	1442180	Xylia dolabriformis	8 8	24.9	14.60	5.9	371.5	201.5	19.5	592.5
AGB-45	MDK-AGB-45	727250	1442271	Xylia dolabriformis	8 8	25.3	15.70	7.2	378	168.5	32	578.5
AGB-46	MDK-AGB-46	727251	1442338	Xylia dolabriformis	8 8	34	19.90	8.6	983.5	529	30	1542.5
AGB-47	MDK-AGB-47	727295	1442268	Xylia dolabriformis	8 8	19.5	11.90	6.35	152	18.5	5.5	176
AGB-48	MDK-AGB-48	727312	1442304	Xylia dolabriformis	8 8	43.1	23.55	8.8	1387	681	45	2113
AGB-49	MDK-AGB-49	727671	1440750	Xylia dolabriformis	8 8	17.4	10.45	5.17	140.5	79.5	12.5	232.5
AGB-50	MDK-AGB-50	727661	1440687	Xylia dolabriformis	8 8	9	6.85	4.4	27	9	5.5	41.5
AGB-51	MDK-AGB-51	727692	1440688	Xylia dolabriformis	8 8	8.4	6.70	3.72	25	15.5	5	45.5
AGB-52	MDK-AGB-52	727681	1440677	Xylia dolabriformis	8 8	13.5	11.20	3.4	74	31	10	115
AGB-53	MDK-AGB-53	727672	1440767	Xylia dolabriformis	8 8	12.1	11.60	6.55	64	15.5	7	86.5
AGB-54	MDK-AGB-54	727678	1440778	Xylia dolabriformis	8 8	11.2	7.90	2.75	41	12	8.5	61.5
AGB-55	MDK-AGB-55	727673	1440805	Xylia dolabriformis	8 8	13.5	10.40	5.63	66.5	20	10.5	97
AGB-56	MDK-AGB-56	727660	1440806	Xylia dolabriformis	8 8	8.5	6.60	2.3	29	5.5	2.5	37
AGB-57	MDK-AGB-57	727644	1440816	Xylia dolabriformis	8 8	6.5	4.86	2.6	34	1	1.5	36.5
AGB-58	MDK-AGB-58	727673	1440831	Xylia dolabriformis	8 8	32.4	15.00	8.05	491.5	117	24	632.5
AGB-59	MDK-AGB-59	727685	1440810	Xylia dolabriformis	8 8	7.2	5.60	2.7	14	4.5	4.5	23
AGB-60	MDK-AGB-60	727643	1440769	Xylia dolabriformis	8 8	21	13.10	3.75	213	133	21.5	367.5
AGB-61	MDK-AGB-61	727733	1440680	Xylia dolabriformis	8 8	20.5	15.20	6.8	254	81	16	351
AGB-62	MDK-AGB-62	727714	1440692	Xylia dolabriformis	8 8	26	19.20	9.2	537	208	26	771
AGB-63	MDK-AGB-63	727739	1440686	Xylia dolabriformis	8 8	31	19.70	13.3	592.5	115	7	714.5
AGB-64	MDK-AGB-64	727730	1440754	Xylia dolabriformis	8 8	21.8	12.20	5.4	243.5	91.5	24	359
AGB-65	MDK-AGB-65	727739	1440756	Xylia dolabriformis	8 8	23.8	15.60	3.9	466	131	22.5	619.5
AGB-66	MDK-AGB-66	729472	1438849	Xylia dolabriformis	8 8	18.2	13.50	7.25	193	50.5	16.5	260
AGB-67	MDK-AGB-67	729461	1438842	Xylia dolabriformis	8 8	19.7	14.45	5.55	170	64.5	15.5	250
AGB-68	MDK-AGB-68	729477	1438845	Xylia dolabriformis	8 8	29.1	16.70	5.7	504	345	42	891
AGB-69	MDK-AGB-69	729450	1438851	Xylia dolabriformis	8 8	16	12.40	3.2	110	88	20	218
AGB-70	MDK-AGB-70	729562	1438897	Xylia dolabriformis	8 8	41.5	18.80	8.7	1179	346.5	23	1548.5
AGB-71	MDK-AGB-71	729596	1438910	Xylia dolabriformis	8 8	37	17.80	9.3	970.5	584	61.5	1616
AGB-72	MDK-AGB-72	729328	1438964	Xylia dolabriformis	8 8	34.3	20.60	8.9	918	384	58	1360
AGB-73	MDK-AGB-73	729316	1438976	Xylia dolabriformis	8 8	34.8	21.70	13	1016	269.5	34	1319.5
AGB-74	MDK-AGB-74	729315	1438969	Xylia dolabriformis	8 8	28.1	18.10	8.25	510.5	145.5	30	686
AGB-75	MDK-AGB-75	729326	1439004	Xylia dolabriformis	8 8	49.8	22.50	8.5	2331	1004.5	44	3379.5
AGB-76	MDK-AGB-76	729289	1438975	Xylia dolabriformis	8 8	48.5	20.80	7.5	2138.5	944	39	3121.5
AGB-77	MDK-AGB-77	729286	1438975	Xylia dolabriformis	8 8	36.8	20.50	9.4	998	535	26.5	1559.5
AGB-78	MDK-AGB-78	729273	1438948	Xylia dolabriformis	8 8	36.2	19.20	8.9	962	511	24.5	1497.5
AGB-79	MDK-AGB-79	727721	1440664	Xylia dolabriformis	8 8	36.3	17.10	9.7	585.5	251	27.5	864
AGB-80	MDK-AGB-80	727723	1440654	Xylia dolabriformis	8 8	45.7	19.70	7.8	1955.5	827.5	39	2822

Appendix 5: The table of wood density analysis in the laboratory

Sample Information		Fresh mass (Kg)			
Tree ID	Species	Stump	1/4	1/2	3/4
MDK-AGB-01	<i>Dipterocarpus tuberculatus</i>	0.664	1.139	1.089	0.564
MDK-AGB-02	<i>Dipterocarpus tuberculatus</i>	1.439	1.289	0.679	0.309
MDK-AGB-03	<i>Dipterocarpus tuberculatus</i>	1.389	0.709	0.479	0.229
MDK-AGB-04	<i>Dipterocarpus tuberculatus</i>	0.644	1.139	0.674	0.554
MDK-AGB-05	<i>Dipterocarpus tuberculatus</i>	0.739	0.969	0.219	0.484
MDK-AGB-06	<i>Dipterocarpus tuberculatus</i>	0.539	0.609	0.454	0.699
MDK-AGB-07	<i>Dipterocarpus tuberculatus</i>	0.889	0.579	0.384	0.214
MDK-AGB-08	<i>Dipterocarpus tuberculatus</i>	0.569	0.742	0.681	0.812
MDK-AGB-09	<i>Dipterocarpus tuberculatus</i>	0.599	0.629	0.469	0.754
MDK-AGB-10	<i>Dipterocarpus tuberculatus</i>	0.539	0.626	0.889	0.349
MDK-AGB-11	<i>Dipterocarpus tuberculatus</i>	0.734	0.679	0.939	1.189
MDK-AGB-12	<i>Dipterocarpus tuberculatus</i>	0.824	0.7	0.639	0.674
MDK-AGB-13	<i>Dipterocarpus tuberculatus</i>	0.989	0.624	0.524	0.229
MDK-AGB-14	<i>Dipterocarpus tuberculatus</i>	0.585	0.298	0.309	0.109
MDK-AGB-15	<i>Dipterocarpus tuberculatus</i>	0.689	0.476	0.299	0.209
MDK-AGB-16	<i>Dipterocarpus tuberculatus</i>	1.139	0.649	0.489	0.289
MDK-AGB-17	<i>Dipterocarpus tuberculatus</i>	1.139	0.779	0.559	0.379
MDK-AGB-18	<i>Dipterocarpus tuberculatus</i>	0.414	0.399	0.219	0.087
MDK-AGB-19	<i>Dipterocarpus tuberculatus</i>	0.364	0.329	0.249	0.151
MDK-AGB-20	<i>Dipterocarpus tuberculatus</i>	0.514	0.259	0.199	0.179
MDK-AGB-21	<i>Dipterocarpus tuberculatus</i>	0.339	0.339	0.199	0.126
MDK-AGB-22	<i>Dipterocarpus tuberculatus</i>	0.719	0.559	0.874	0.439
MDK-AGB-23	<i>Dipterocarpus tuberculatus</i>	0.159	0.134	0.079	0.049
MDK-AGB-24	<i>Dipterocarpus tuberculatus</i>	0.789	0.839	0.739	0.619
MDK-AGB-25	<i>Dipterocarpus tuberculatus</i>	0.689	0.894	0.214	0.304
MDK-AGB-26	<i>Dipterocarpus tuberculatus</i>	0.609	0.509	1.039	0.939
MDK-AGB-27	<i>Dipterocarpus tuberculatus</i>	1.039	0.684	0.864	0.611
MDK-AGB-28	<i>Dipterocarpus tuberculatus</i>	1.189	0.969	0.744	0.784
MDK-AGB-29	<i>Dipterocarpus tuberculatus</i>	0.294	0.134	0.108	0.054
MDK-AGB-30	<i>Dipterocarpus tuberculatus</i>	1.129	0.869	0.774	0.784
MDK-AGB-31	<i>Dipterocarpus tuberculatus</i>	1.219	1.159	0.949	0.581
MDK-AGB-32	<i>Dipterocarpus tuberculatus</i>	0.264	0.089	0.078	0.074
MDK-AGB-33	<i>Dipterocarpus tuberculatus</i>	0.164	0.139	0.129	0.139
MDK-AGB-34	<i>Dipterocarpus tuberculatus</i>	0.208	0.139	0.15	0.104
MDK-AGB-35	<i>Dipterocarpus tuberculatus</i>	0.534	0.734	0.544	0.509
MDK-AGB-36	<i>Dipterocarpus tuberculatus</i>	0.639	0.634	0.674	0.599
MDK-AGB-37	<i>Dipterocarpus tuberculatus</i>	1.129	0.539	0.689	0.689
MDK-AGB-38	<i>Dipterocarpus tuberculatus</i>	1.189	1.149	1.139	0.984
MDK-AGB-39	<i>Dipterocarpus tuberculatus</i>	0.837	0.554	0.837	0.619
MDK-AGB-40	<i>Dipterocarpus tuberculatus</i>	1.089	1.339	0.739	0.861
MDK-AGB-41	<i>Xylia dolabriformis</i>	0.759	1.089	0.739	0.499
MDK-AGB-42	<i>Xylia dolabriformis</i>	1.039	0.609	0.684	0.289
MDK-AGB-43	<i>Xylia dolabriformis</i>	0.193	0.236	0.154	0.214
MDK-AGB-44	<i>Xylia dolabriformis</i>	0.979	0.751	0.548	0.328
MDK-AGB-45	<i>Xylia dolabriformis</i>	0.419	0.454	0.694	0.294
MDK-AGB-46	<i>Xylia dolabriformis</i>	0.591	0.809	1.009	0.399
MDK-AGB-47	<i>Xylia dolabriformis</i>	0.194	0.609	0.209	0.134
MDK-AGB-48	<i>Xylia dolabriformis</i>	1.589	0.629	0.672	0.469
MDK-AGB-49	<i>Xylia dolabriformis</i>	0.649	0.719	0.438	0.254
MDK-AGB-50	<i>Xylia dolabriformis</i>	0.369	0.201	0.159	0.129
MDK-AGB-51	<i>Xylia dolabriformis</i>	0.439	0.224	0.219	0.099
MDK-AGB-52	<i>Xylia dolabriformis</i>	0.704	0.369	0.209	0.144
MDK-AGB-53	<i>Xylia dolabriformis</i>	0.529	0.244	0.179	0.127
MDK-AGB-54	<i>Xylia dolabriformis</i>	0.524	0.249	0.144	0.114
MDK-AGB-55	<i>Xylia dolabriformis</i>	0.804	0.399	0.247	0.088
MDK-AGB-56	<i>Xylia dolabriformis</i>	0.349	0.206	0.137	0.104
MDK-AGB-57	<i>Xylia dolabriformis</i>	0.189	0.179	0.109	0.044
MDK-AGB-58	<i>Xylia dolabriformis</i>	0.799	0.774	0.659	0.319
MDK-AGB-59	<i>Xylia dolabriformis</i>	0.289	0.187	0.162	0.034
MDK-AGB-60	<i>Xylia dolabriformis</i>	0.569	0.989	0.479	0.179
MDK-AGB-61	<i>Xylia dolabriformis</i>	0.394	0.394	0.469	0.239
MDK-AGB-62	<i>Xylia dolabriformis</i>	1.169	0.809	0.799	0.547
MDK-AGB-63	<i>Xylia dolabriformis</i>	0.804	0.654	0.817	0.369
MDK-AGB-64	<i>Xylia dolabriformis</i>	0.904	0.409	0.671	0.123
MDK-AGB-65	<i>Xylia dolabriformis</i>	0.919	0.834	0.691	0.429
MDK-AGB-66	<i>Xylia dolabriformis</i>	0.844	0.969	0.419	0.276
MDK-AGB-67	<i>Xylia dolabriformis</i>	0.934	0.774	0.389	0.149
MDK-AGB-68	<i>Xylia dolabriformis</i>	0.844	0.969	0.419	0.276
MDK-AGB-69	<i>Xylia dolabriformis</i>	0.481	0.383	0.334	0.114
MDK-AGB-70	<i>Xylia dolabriformis</i>	0.879	0.949	0.698	0.339
MDK-AGB-71	<i>Xylia dolabriformis</i>	1.454	0.704	0.966	0.352
MDK-AGB-72	<i>Xylia dolabriformis</i>	1.129	0.73	0.698	0.519
MDK-AGB-73	<i>Xylia dolabriformis</i>	0.574	0.494	0.379	0.617
MDK-AGB-74	<i>Xylia dolabriformis</i>	0.824	0.759	0.948	0.279
MDK-AGB-75	<i>Xylia dolabriformis</i>	1.129	0.778	0.734	0.809
MDK-AGB-76	<i>Xylia dolabriformis</i>	1.059	0.894	0.614	0.614
MDK-AGB-77	<i>Xylia dolabriformis</i>	0.809	1.139	0.486	0.541
MDK-AGB-78	<i>Xylia dolabriformis</i>	0.587	0.604	0.43	0.417
MDK-AGB-79	<i>Xylia dolabriformis</i>	0.659	0.369	0.504	0.189
MDK-AGB-80	<i>Xylia dolabriformis</i>	0.709	0.45	0.529	0.218

Sample Information		Wood (Kg)			
Tree ID	Species	Stump	1/4	1/2	3/4
MDK-AGB-01	<i>Dipterocarpus tuberculatus</i>	0.493	0.919	0.885	0.418
MDK-AGB-02	<i>Dipterocarpus tuberculatus</i>	1.197	1.016	0.542	0.224
MDK-AGB-03	<i>Dipterocarpus tuberculatus</i>	1.124	0.571	0.37	0.169
MDK-AGB-04	<i>Dipterocarpus tuberculatus</i>	0.577	0.907	0.525	0.41
MDK-AGB-05	<i>Dipterocarpus tuberculatus</i>	0.614	0.795	0.138	0.339
MDK-AGB-06	<i>Dipterocarpus tuberculatus</i>	0.44	0.515	0.38	0.555
MDK-AGB-07	<i>Dipterocarpus tuberculatus</i>	0.641	0.424	0.254	0.132
MDK-AGB-08	<i>Dipterocarpus tuberculatus</i>	0.491	0.662	0.564	0.631
MDK-AGB-09	<i>Dipterocarpus tuberculatus</i>	0.524	0.513	0.377	0.605
MDK-AGB-10	<i>Dipterocarpus tuberculatus</i>	0.473	0.525	0.736	0.246
MDK-AGB-11	<i>Dipterocarpus tuberculatus</i>	0.609	0.546	0.778	0.92
MDK-AGB-12	<i>Dipterocarpus tuberculatus</i>	0.688	0.589	0.497	0.498
MDK-AGB-13	<i>Dipterocarpus tuberculatus</i>	0.806	0.501	0.407	0.161
MDK-AGB-14	<i>Dipterocarpus tuberculatus</i>	0.449	0.224	0.223	0.066
MDK-AGB-15	<i>Dipterocarpus tuberculatus</i>	0.56	0.372	0.224	0.144
MDK-AGB-16	<i>Dipterocarpus tuberculatus</i>	0.994	0.527	0.397	0.224
MDK-AGB-17	<i>Dipterocarpus tuberculatus</i>	0.955	0.646	0.443	0.28
MDK-AGB-18	<i>Dipterocarpus tuberculatus</i>	0.308	0.273	0.139	0.047
MDK-AGB-19	<i>Dipterocarpus tuberculatus</i>	0.287	0.239	0.177	0.097
MDK-AGB-20	<i>Dipterocarpus tuberculatus</i>	0.378	0.174	0.126	0.108
MDK-AGB-21	<i>Dipterocarpus tuberculatus</i>	0.278	0.249	0.139	0.075
MDK-AGB-22	<i>Dipterocarpus tuberculatus</i>	0.588	0.461	0.718	0.334
MDK-AGB-23	<i>Dipterocarpus tuberculatus</i>	0.1	0.067	0.039	0.019
MDK-AGB-24	<i>Dipterocarpus tuberculatus</i>	0.734	0.684	0.609	0.472
MDK-AGB-25	<i>Dipterocarpus tuberculatus</i>	0.599	0.772	0.184	0.223
MDK-AGB-26	<i>Dipterocarpus tuberculatus</i>	0.472	0.418	0.861	0.797
MDK-AGB-27	<i>Dipterocarpus tuberculatus</i>	0.885	0.591	0.712	0.477
MDK-AGB-28	<i>Dipterocarpus tuberculatus</i>	1.073	0.86	0.641	0.621
MDK-AGB-29	<i>Dipterocarpus tuberculatus</i>	0.204	0.085	0.068	0.029
MDK-AGB-30	<i>Dipterocarpus tuberculatus</i>	0.996	0.782	0.707	0.644
MDK-AGB-31	<i>Dipterocarpus tuberculatus</i>	1.121	1.038	0.788	0.444
MDK-AGB-32	<i>Dipterocarpus tuberculatus</i>	0.186	0.057	0.047	0.038
MDK-AGB-33	<i>Dipterocarpus tuberculatus</i>	0.12	0.085	0.083	0.069
MDK-AGB-34	<i>Dipterocarpus tuberculatus</i>	0.142	0.088	0.084	0.052
MDK-AGB-35	<i>Dipterocarpus tuberculatus</i>	0.469	0.649	0.465	0.37
MDK-AGB-36	<i>Dipterocarpus tuberculatus</i>	0.467	0.541	0.571	0.487
MDK-AGB-37	<i>Dipterocarpus tuberculatus</i>	0.948	0.44	0.532	0.53
MDK-AGB-38	<i>Dipterocarpus tuberculatus</i>	1.112	1.049	1.033	0.835
MDK-AGB-39	<i>Dipterocarpus tuberculatus</i>	0.74	0.468	0.756	0.534
MDK-AGB-40	<i>Dipterocarpus tuberculatus</i>	1.005	1.203	0.68	0.782
MDK-AGB-41	<i>Xylia dolabriformis</i>	0.658	0.983	0.648	0.42
MDK-AGB-42	<i>Xylia dolabriformis</i>	0.88	0.526	0.561	0.213
MDK-AGB-43	<i>Xylia dolabriformis</i>	0.159	0.172	0.114	0.158
MDK-AGB-44	<i>Xylia dolabriformis</i>	0.87	0.608	0.448	0.228
MDK-AGB-45	<i>Xylia dolabriformis</i>	0.326	0.379	0.552	0.21
MDK-AGB-46	<i>Xylia dolabriformis</i>	0.48	0.698	0.855	0.303
MDK-AGB-47	<i>Xylia dolabriformis</i>	0.158	0.492	0.161	0.096
MDK-AGB-48	<i>Xylia dolabriformis</i>	1.425	0.543	0.572	0.353
MDK-AGB-49	<i>Xylia dolabriformis</i>	0.492	0.556	0.34	0.183
MDK-AGB-50	<i>Xylia dolabriformis</i>	0.251	0.124	0.095	0.067
MDK-AGB-51	<i>Xylia dolabriformis</i>	0.338	0.137	0.126	0.051
MDK-AGB-52	<i>Xylia dolabriformis</i>	0.511	0.268	0.144	0.084
MDK-AGB-53	<i>Xylia dolabriformis</i>	0.346	0.159	0.116	0.076
MDK-AGB-54	<i>Xylia dolabriformis</i>	0.415	0.181	0.098	0.076
MDK-AGB-55	<i>Xylia dolabriformis</i>	0.573	0.28	0.158	0.048
MDK-AGB-56	<i>Xylia dolabriformis</i>	0.257	0.132	0.069	0.05
MDK-AGB-57	<i>Xylia dolabriformis</i>	0.111	0.091	0.057	0.016
MDK-AGB-58	<i>Xylia dolabriformis</i>	0.627	0.639	0.522	0.239
MDK-AGB-59	<i>Xylia dolabriformis</i>	0.204	0.123	0.1	0.017
MDK-AGB-60	<i>Xylia dolabriformis</i>	0.44	0.758	0.346	0.111
MDK-AGB-61	<i>Xylia dolabriformis</i>	0.289	0.321	0.365	0.167
MDK-AGB-62	<i>Xylia dolabriformis</i>	0.962	0.668	0.634	0.419
MDK-AGB-63	<i>Xylia dolabriformis</i>	0.745	0.519	0.676	0.254
MDK-AGB-64	<i>Xylia dolabriformis</i>	0.713	0.289	0.517	0.071
MDK-AGB-65	<i>Xylia dolabriformis</i>	0.804	0.712	0.551	0.316
MDK-AGB-66	<i>Xylia dolabriformis</i>	0.614	0.862	0.341	0.189
MDK-AGB-67	<i>Xylia dolabriformis</i>	0.797	0.619	0.302	0.097
MDK-AGB-68	<i>Xylia dolabriformis</i>	0.712	0.816	0.316	0.185
MDK-AGB-69	<i>Xylia dolabriformis</i>	0.382	0.303	0.244	0.071
MDK-AGB-70	<i>Xylia dolabriformis</i>	0.69	0.832	0.563	0.284
MDK-AGB-71	<i>Xylia dolabriformis</i>	1.21	0.642	0.843	0.271
MDK-AGB-72	<i>Xylia dolabriformis</i>	0.932	0.622	0.567	0.371
MDK-AGB-73	<i>Xylia dolabriformis</i>	0.486	0.42	0.327	0.464
MDK-AGB-74	<i>Xylia dolabriformis</i>	0.683	0.651	0.785	0.209
MDK-AGB-75	<i>Xylia dolabriformis</i>	0.997	0.677	0.663	0.668
MDK-AGB-76	<i>Xylia dolabriformis</i>	0.969	0.78	0.538	0.495
MDK-AGB-77	<i>Xylia dolabriformis</i>	0.748	0.996	0.428	0.443
MDK-AGB-78	<i>Xylia dolabriformis</i>	0.469	0.561	0.364	0.345
MDK-AGB-79	<i>Xylia dolabriformis</i>	0.577	0.296	0.391	0.124
MDK-AGB-80	<i>Xylia dolabriformis</i>	0.623	0.364	0.401	0.136

Sample Information		Bark (Kg)			
Tree ID	Species	Stump	1/4	1/2	3/4
MDK-AGB-01	<i>Dipterocarpus tuberculatus</i>	0.171	0.22	0.204	0.146
MDK-AGB-02	<i>Dipterocarpus tuberculatus</i>	0.242	0.273	0.137	0.085
MDK-AGB-03	<i>Dipterocarpus tuberculatus</i>	0.265	0.138	0.109	0.06
MDK-AGB-04	<i>Dipterocarpus tuberculatus</i>	0.067	0.232	0.149	0.144
MDK-AGB-05	<i>Dipterocarpus tuberculatus</i>	0.125	0.174	0.081	0.145
MDK-AGB-06	<i>Dipterocarpus tuberculatus</i>	0.099	0.094	0.074	0.144
MDK-AGB-07	<i>Dipterocarpus tuberculatus</i>	0.248	0.155	0.13	0.082
MDK-AGB-08	<i>Dipterocarpus tuberculatus</i>	0.078	0.08	0.117	0.181
MDK-AGB-09	<i>Dipterocarpus tuberculatus</i>	0.075	0.116	0.092	0.149
MDK-AGB-10	<i>Dipterocarpus tuberculatus</i>	0.066	0.101	0.153	0.103
MDK-AGB-11	<i>Dipterocarpus tuberculatus</i>	0.125	0.133	0.161	0.269
MDK-AGB-12	<i>Dipterocarpus tuberculatus</i>	0.136	0.111	0.142	0.176
MDK-AGB-13	<i>Dipterocarpus tuberculatus</i>	0.183	0.123	0.117	0.068
MDK-AGB-14	<i>Dipterocarpus tuberculatus</i>	0.136	0.074	0.086	0.043
MDK-AGB-15	<i>Dipterocarpus tuberculatus</i>	0.129	0.104	0.075	0.065
MDK-AGB-16	<i>Dipterocarpus tuberculatus</i>	0.145	0.122	0.092	0.065
MDK-AGB-17	<i>Dipterocarpus tuberculatus</i>	0.184	0.133	0.116	0.099
MDK-AGB-18	<i>Dipterocarpus tuberculatus</i>	0.106	0.126	0.08	0.04
MDK-AGB-19	<i>Dipterocarpus tuberculatus</i>	0.077	0.09	0.072	0.054
MDK-AGB-20	<i>Dipterocarpus tuberculatus</i>	0.136	0.085	0.073	0.071
MDK-AGB-21	<i>Dipterocarpus tuberculatus</i>	0.061	0.09	0.06	0.051
MDK-AGB-22	<i>Dipterocarpus tuberculatus</i>	0.131	0.098	0.156	0.105
MDK-AGB-23	<i>Dipterocarpus tuberculatus</i>	0.059	0.067	0.04	0.03
MDK-AGB-24	<i>Dipterocarpus tuberculatus</i>	0.055	0.155	0.13	0.147
MDK-AGB-25	<i>Dipterocarpus tuberculatus</i>	0.09	0.122	0.03	0.081
MDK-AGB-26	<i>Dipterocarpus tuberculatus</i>	0.137	0.091	0.178	0.142
MDK-AGB-27	<i>Dipterocarpus tuberculatus</i>	0.154	0.093	0.152	0.134
MDK-AGB-28	<i>Dipterocarpus tuberculatus</i>	0.116	0.109	0.103	0.163
MDK-AGB-29	<i>Dipterocarpus tuberculatus</i>	0.09	0.049	0.04	0.025
MDK-AGB-30	<i>Dipterocarpus tuberculatus</i>	0.133	0.087	0.067	0.14
MDK-AGB-31	<i>Dipterocarpus tuberculatus</i>	0.098	0.121	0.161	0.137
MDK-AGB-32	<i>Dipterocarpus tuberculatus</i>	0.078	0.032	0.031	0.036
MDK-AGB-33	<i>Dipterocarpus tuberculatus</i>	0.044	0.054	0.046	0.07
MDK-AGB-34	<i>Dipterocarpus tuberculatus</i>	0.066	0.051	0.066	0.052
MDK-AGB-35	<i>Dipterocarpus tuberculatus</i>	0.065	0.085	0.079	0.139
MDK-AGB-36	<i>Dipterocarpus tuberculatus</i>	0.172	0.093	0.103	0.112
MDK-AGB-37	<i>Dipterocarpus tuberculatus</i>	0.181	0.099	0.157	0.159
MDK-AGB-38	<i>Dipterocarpus tuberculatus</i>	0.077	0.1	0.106	0.149
MDK-AGB-39	<i>Dipterocarpus tuberculatus</i>	0.097	0.086	0.081	0.085
MDK-AGB-40	<i>Dipterocarpus tuberculatus</i>	0.084	0.136	0.059	0.079
MDK-AGB-41	<i>Xylia dolabriformis</i>	0.101	0.106	0.091	0.079
MDK-AGB-42	<i>Xylia dolabriformis</i>	0.159	0.083	0.123	0.076
MDK-AGB-43	<i>Xylia dolabriformis</i>	0.034	0.064	0.04	0.056
MDK-AGB-44	<i>Xylia dolabriformis</i>	0.109	0.143	0.1	0.1
MDK-AGB-45	<i>Xylia dolabriformis</i>	0.093	0.075	0.142	0.084
MDK-AGB-46	<i>Xylia dolabriformis</i>	0.111	0.111	0.154	0.096
MDK-AGB-47	<i>Xylia dolabriformis</i>	0.036	0.117	0.048	0.038
MDK-AGB-48	<i>Xylia dolabriformis</i>	0.164	0.086	0.1	0.116
MDK-AGB-49	<i>Xylia dolabriformis</i>	0.157	0.163	0.098	0.071
MDK-AGB-50	<i>Xylia dolabriformis</i>	0.118	0.077	0.064	0.062
MDK-AGB-51	<i>Xylia dolabriformis</i>	0.101	0.087	0.093	0.048
MDK-AGB-52	<i>Xylia dolabriformis</i>	0.193	0.101	0.065	0.06
MDK-AGB-53	<i>Xylia dolabriformis</i>	0.183	0.085	0.063	0.051
MDK-AGB-54	<i>Xylia dolabriformis</i>	0.109	0.068	0.046	0.038
MDK-AGB-55	<i>Xylia dolabriformis</i>	0.231	0.119	0.089	0.04
MDK-AGB-56	<i>Xylia dolabriformis</i>	0.092	0.074	0.068	0.054
MDK-AGB-57	<i>Xylia dolabriformis</i>	0.078	0.088	0.052	0.028
MDK-AGB-58	<i>Xylia dolabriformis</i>	0.172	0.135	0.137	0.08
MDK-AGB-59	<i>Xylia dolabriformis</i>	0.085	0.064	0.062	0.017
MDK-AGB-60	<i>Xylia dolabriformis</i>	0.129	0.231	0.133	0.068
MDK-AGB-61	<i>Xylia dolabriformis</i>	0.105	0.073	0.104	0.072
MDK-AGB-62	<i>Xylia dolabriformis</i>	0.207	0.141	0.165	0.128
MDK-AGB-63	<i>Xylia dolabriformis</i>	0.059	0.135	0.141	0.115
MDK-AGB-64	<i>Xylia dolabriformis</i>	0.191	0.12	0.154	0.052
MDK-AGB-65	<i>Xylia dolabriformis</i>	0.115	0.122	0.14	0.113
MDK-AGB-66	<i>Xylia dolabriformis</i>	0.23	0.107	0.078	0.087
MDK-AGB-67	<i>Xylia dolabriformis</i>	0.137	0.155	0.087	0.052
MDK-AGB-68	<i>Xylia dolabriformis</i>	0.132	0.153	0.103	0.091
MDK-AGB-69	<i>Xylia dolabriformis</i>	0.099	0.08	0.09	0.043
MDK-AGB-70	<i>Xylia dolabriformis</i>	0.189	0.117	0.135	0.055
MDK-AGB-71	<i>Xylia dolabriformis</i>	0.244	0.062	0.123	0.081
MDK-AGB-72	<i>Xylia dolabriformis</i>	0.197	0.108	0.131	0.148
MDK-AGB-73	<i>Xylia dolabriformis</i>	0.088	0.074	0.052	0.153
MDK-AGB-74	<i>Xylia dolabriformis</i>	0.141	0.108	0.163	0.07
MDK-AGB-75	<i>Xylia dolabriformis</i>	0.132	0.101	0.071	0.141
MDK-AGB-76	<i>Xylia dolabriformis</i>	0.09	0.114	0.076	0.119
MDK-AGB-77	<i>Xylia dolabriformis</i>	0.061	0.143	0.058	0.098
MDK-AGB-78	<i>Xylia dolabriformis</i>	0.118	0.043	0.066	0.072
MDK-AGB-79	<i>Xylia dolabriformis</i>	0.082	0.073	0.113	0.065
MDK-AGB-80	<i>Xylia dolabriformis</i>	0.086	0.086	0.128	0.082

Sample Information		bark (kg)											
Tree ID	Species	Stump			1/4			1/2			3/4		
		Stump_Fresh	Stump_Dry	Stump_Dry_Fresh_ratio	1/4_Fresh	1/4_Dry	1/4_Dry_Fresh_ratio	1/2_Fresh	1/2_Dry	1/2_Dry_Fresh_Ratio	3/4_Fresh	3/4_Dry	3/4_Dry_Fresh_ratio
MDK-AGB-01	Dipterocarpus tuberculatus	0.171	0.101	0.591	0.22	0.109	0.495	0.204	0.103	0.505	0.146	0.07	0.479
MDK-AGB-02	Dipterocarpus tuberculatus	0.242	0.137	0.566	0.273	0.144	0.527	0.137	0.069	0.504	0.085	0.042	0.494
MDK-AGB-03	Dipterocarpus tuberculatus	0.265	0.146	0.551	0.138	0.07	0.507	0.109	0.058	0.532	0.06	0.031	0.517
MDK-AGB-04	Dipterocarpus tuberculatus	0.067	0.036	0.537	0.232	0.126	0.543	0.149	0.081	0.544	0.144	0.071	0.493
MDK-AGB-05	Dipterocarpus tuberculatus	0.125	0.076	0.608	0.174	0.093	0.534	0.081	0.041	0.506	0.145	0.078	0.538
MDK-AGB-06	Dipterocarpus tuberculatus	0.099	0.058	0.586	0.094	0.049	0.521	0.074	0.035	0.473	0.144	0.08	0.556
MDK-AGB-07	Dipterocarpus tuberculatus	0.248	0.132	0.532	0.155	0.08	0.516	0.13	0.059	0.454	0.082	0.043	0.524
MDK-AGB-08	Dipterocarpus tuberculatus	0.078	0.035	0.449	0.08	0.039	0.488	0.117	0.065	0.556	0.181	0.094	0.519
MDK-AGB-09	Dipterocarpus tuberculatus	0.075	0.039	0.520	0.116	0.066	0.569	0.092	0.051	0.554	0.149	0.08	0.537
MDK-AGB-10	Dipterocarpus tuberculatus	0.066	0.031	0.470	0.101	0.049	0.485	0.153	0.072	0.471	0.103	0.051	0.495
MDK-AGB-11	Dipterocarpus tuberculatus	0.125	0.071	0.568	0.133	0.071	0.534	0.161	0.086	0.534	0.269	0.145	0.539
MDK-AGB-12	Dipterocarpus tuberculatus	0.136	0.072	0.529	0.111	0.057	0.514	0.142	0.078	0.549	0.176	0.091	0.517
MDK-AGB-13	Dipterocarpus tuberculatus	0.183	0.097	0.530	0.123	0.059	0.480	0.117	0.055	0.470	0.068	0.032	0.471
MDK-AGB-14	Dipterocarpus tuberculatus	0.136	0.077	0.566	0.074	0.041	0.554	0.086	0.05	0.581	0.043	0.02	0.465
MDK-AGB-15	Dipterocarpus tuberculatus	0.129	0.066	0.512	0.104	0.053	0.510	0.075	0.039	0.520	0.065	0.035	0.538
MDK-AGB-16	Dipterocarpus tuberculatus	0.145	0.079	0.545	0.122	0.062	0.508	0.092	0.046	0.500	0.065	0.033	0.508
MDK-AGB-17	Dipterocarpus tuberculatus	0.184	0.101	0.549	0.133	0.068	0.511	0.116	0.06	0.517	0.099	0.046	0.465
MDK-AGB-18	Dipterocarpus tuberculatus	0.106	0.045	0.425	0.126	0.058	0.460	0.08	0.037	0.463	0.04	0.018	0.450
MDK-AGB-19	Dipterocarpus tuberculatus	0.077	0.041	0.532	0.09	0.049	0.544	0.072	0.038	0.528	0.054	0.03	0.556
MDK-AGB-20	Dipterocarpus tuberculatus	0.136	0.073	0.537	0.085	0.046	0.541	0.073	0.039	0.534	0.071	0.038	0.535
MDK-AGB-21	Dipterocarpus tuberculatus	0.061	0.028	0.459	0.09	0.042	0.467	0.06	0.029	0.483	0.051	0.026	0.510
MDK-AGB-22	Dipterocarpus tuberculatus	0.131	0.08	0.611	0.098	0.047	0.480	0.156	0.074	0.474	0.105	0.049	0.467
MDK-AGB-23	Dipterocarpus tuberculatus	0.059	0.024	0.407	0.067	0.025	0.373	0.04	0.017	0.425	0.03	0.014	0.467
MDK-AGB-24	Dipterocarpus tuberculatus	0.055	0.03	0.545	0.155	0.09	0.581	0.13	0.075	0.577	0.147	0.08	0.544
MDK-AGB-25	Dipterocarpus tuberculatus	0.09	0.049	0.544	0.122	0.077	0.631	0.03	0.017	0.567	0.081	0.05	0.617
MDK-AGB-26	Dipterocarpus tuberculatus	0.137	0.075	0.547	0.091	0.052	0.571	0.178	0.098	0.551	0.142	0.087	0.613
MDK-AGB-27	Dipterocarpus tuberculatus	0.154	0.086	0.558	0.093	0.049	0.527	0.152	0.074	0.487	0.134	0.061	0.455
MDK-AGB-28	Dipterocarpus tuberculatus	0.116	0.066	0.569	0.109	0.058	0.532	0.103	0.055	0.534	0.163	0.093	0.571
MDK-AGB-29	Dipterocarpus tuberculatus	0.09	0.043	0.478	0.049	0.025	0.510	0.04	0.02	0.500	0.025	0.014	0.560
MDK-AGB-30	Dipterocarpus tuberculatus	0.133	0.072	0.541	0.087	0.046	0.529	0.067	0.035	0.522	0.14	0.073	0.521
MDK-AGB-31	Dipterocarpus tuberculatus	0.098	0.053	0.541	0.121	0.066	0.545	0.161	0.09	0.559	0.137	0.073	0.533
MDK-AGB-32	Dipterocarpus tuberculatus	0.078	0.038	0.487	0.032	0.016	0.500	0.031	0.017	0.548	0.036	0.02	0.556
MDK-AGB-33	Dipterocarpus tuberculatus	0.044	0.025	0.568	0.054	0.031	0.574	0.046	0.024	0.522	0.07	0.037	0.529
MDK-AGB-34	Dipterocarpus tuberculatus	0.066	0.03	0.455	0.051	0.027	0.529	0.066	0.033	0.500	0.052	0.025	0.481
MDK-AGB-35	Dipterocarpus tuberculatus	0.065	0.035	0.538	0.085	0.045	0.529	0.079	0.039	0.494	0.139	0.076	0.547
MDK-AGB-36	Dipterocarpus tuberculatus	0.172	0.073	0.424	0.093	0.045	0.484	0.103	0.05	0.485	0.112	0.06	0.536
MDK-AGB-37	Dipterocarpus tuberculatus	0.181	0.082	0.453	0.099	0.051	0.515	0.157	0.095	0.605	0.159	0.088	0.553
MDK-AGB-38	Dipterocarpus tuberculatus	0.077	0.04	0.519	0.1	0.052	0.520	0.106	0.053	0.500	0.149	0.077	0.517
MDK-AGB-39	Dipterocarpus tuberculatus	0.097	0.051	0.526	0.086	0.044	0.512	0.081	0.043	0.531	0.085	0.043	0.506
MDK-AGB-40	Dipterocarpus tuberculatus	0.084	0.051	0.607	0.136	0.071	0.522	0.059	0.033	0.559	0.079	0.042	0.532
MDK-AGB-41	Xylia dolabiformis	0.101	0.053	0.525	0.106	0.051	0.481	0.091	0.048	0.527	0.079	0.039	0.494
MDK-AGB-42	Xylia dolabiformis	0.159	0.072	0.453	0.083	0.039	0.470	0.123	0.056	0.455	0.076	0.036	0.474
MDK-AGB-43	Xylia dolabiformis	0.034	0.011	0.324	0.064	0.028	0.438	0.04	0.017	0.425	0.056	0.024	0.429
MDK-AGB-44	Xylia dolabiformis	0.109	0.038	0.349	0.143	0.059	0.413	0.1	0.041	0.410	0.1	0.039	0.390
MDK-AGB-45	Xylia dolabiformis	0.093	0.04	0.430	0.075	0.032	0.427	0.142	0.063	0.444	0.084	0.036	0.429
MDK-AGB-46	Xylia dolabiformis	0.111	0.044	0.396	0.111	0.055	0.495	0.154	0.066	0.429	0.096	0.041	0.427
MDK-AGB-47	Xylia dolabiformis	0.036	0.016	0.444	0.117	0.056	0.479	0.048	0.02	0.417	0.038	0.017	0.447
MDK-AGB-48	Xylia dolabiformis	0.164	0.07	0.427	0.086	0.042	0.488	0.1	0.047	0.470	0.116	0.055	0.474
MDK-AGB-49	Xylia dolabiformis	0.157	0.068	0.433	0.163	0.067	0.411	0.098	0.04	0.408	0.071	0.029	0.408
MDK-AGB-50	Xylia dolabiformis	0.118	0.046	0.390	0.077	0.03	0.390	0.064	0.023	0.359	0.062	0.023	0.371
MDK-AGB-51	Xylia dolabiformis	0.101	0.041	0.406	0.087	0.033	0.379	0.093	0.036	0.387	0.048	0.019	0.396
MDK-AGB-52	Xylia dolabiformis	0.193	0.078	0.404	0.101	0.038	0.376	0.065	0.024	0.369	0.06	0.023	0.383
MDK-AGB-53	Xylia dolabiformis	0.183	0.072	0.393	0.085	0.033	0.388	0.063	0.025	0.397	0.051	0.02	0.392
MDK-AGB-54	Xylia dolabiformis	0.109	0.038	0.349	0.068	0.025	0.368	0.046	0.016	0.348	0.038	0.015	0.395
MDK-AGB-55	Xylia dolabiformis	0.231	0.092	0.398	0.119	0.047	0.395	0.089	0.035	0.393	0.04	0.015	0.375
MDK-AGB-56	Xylia dolabiformis	0.092	0.035	0.380	0.074	0.027	0.365	0.068	0.024	0.353	0.054	0.02	0.370
MDK-AGB-57	Xylia dolabiformis	0.078	0.031	0.397	0.088	0.029	0.330	0.052	0.02	0.385	0.028	0.008	0.286
MDK-AGB-58	Xylia dolabiformis	0.172	0.076	0.442	0.135	0.058	0.430	0.137	0.058	0.423	0.08	0.034	0.425
MDK-AGB-59	Xylia dolabiformis	0.085	0.033	0.388	0.064	0.024	0.375	0.062	0.022	0.355	0.017	0.005	0.294
MDK-AGB-60	Xylia dolabiformis	0.129	0.068	0.527	0.231	0.094	0.407	0.133	0.052	0.391	0.068	0.028	0.412
MDK-AGB-61	Xylia dolabiformis	0.105	0.048	0.457	0.073	0.031	0.425	0.104	0.045	0.433	0.072	0.03	0.417
MDK-AGB-62	Xylia dolabiformis	0.207	0.097	0.469	0.141	0.062	0.440	0.165	0.071	0.430	0.128	0.056	0.438
MDK-AGB-63	Xylia dolabiformis	0.059	0.026	0.441	0.135	0.057	0.422	0.141	0.062	0.440	0.115	0.051	0.443
MDK-AGB-64	Xylia dolabiformis	0.191	0.096	0.503	0.12	0.055	0.458	0.154	0.072	0.468	0.052	0.024	0.462
MDK-AGB-65	Xylia dolabiformis	0.115	0.047	0.409	0.122	0.054	0.443	0.14	0.061	0.436	0.113	0.051	0.451
MDK-AGB-66	Xylia dolabiformis	0.23	0.103	0.448	0.107	0.047	0.439	0.078	0.036	0.462	0.087	0.039	0.448
MDK-AGB-67	Xylia dolabiformis	0.137	0.053	0.387	0.155	0.06	0.387	0.087	0.033	0.379	0.052	0.019	0.365
MDK-AGB-68	Xylia dolabiformis	0.132	0.059	0.447	0.153	0.062	0.405	0.103	0.043	0.417	0.091	0.036	0.396
MDK-AGB-69	Xylia dolabiformis	0.099	0.044	0.444	0.08	0.035	0.438	0.09	0.04	0.444	0.043	0.017	0.395
MDK-AGB-70	Xylia dolabiformis	0.189	0.										

Sample Information		Wood density																			
Tree ID	Species	Stump					1/4				1/2				3/4						
		Fresh mass (g)	Volume (cm³)	Dry mass (g)	Dry_Fre sh_ratio	Wood density (g/cm³)	Fresh mass (g)	Volume (cm³)	Dry mass (g)	Dry_Fre sh_ratio	Wood density (g/cm³)	Fresh mass (g)	Volume (cm³)	Dry mass (g)	Dry_Fre sh_Ratio	Wood density (g/cm³)	Fresh mass (g)	Volume (cm³)	Dry mass (g)	Dry_Fre sh_ratio	Wood density (g/cm³)
MDK-AGB-01	<i>Dipterocarpus tuberculatus</i>	79	70	50	0.633	0.714	67	60	43	0.642	0.717	81	74	52	0.642	0.703	54	48	33	0.611	0.688
MDK-AGB-02	<i>Dipterocarpus tuberculatus</i>	41	37	27	0.659	0.730	53	48	35	0.660	0.729	62	55	42	0.677	0.764	46	43	29	0.630	0.674
MDK-AGB-03	<i>Dipterocarpus tuberculatus</i>	49	43	33	0.673	0.767	44	41	30	0.682	0.732	27	26	17	0.630	0.654	32	30	18	0.563	0.600
MDK-AGB-04	<i>Dipterocarpus tuberculatus</i>	57	48	34	0.596	0.708	51	46	33	0.647	0.717	49	44	32	0.653	0.727	46	52	27	0.587	0.519
MDK-AGB-05	<i>Dipterocarpus tuberculatus</i>	60	50	39	0.650	0.780	42	36	29	0.690	0.806	38	32	23	0.605	0.719	58	50	38	0.655	0.760
MDK-AGB-06	<i>Dipterocarpus tuberculatus</i>	72	64	45	0.625	0.703	51	44	33	0.647	0.750	66	56	42	0.636	0.750	58	48	38	0.655	0.792
MDK-AGB-07	<i>Dipterocarpus tuberculatus</i>	52	45	31	0.596	0.689	49	44	31	0.633	0.705	57	50	37	0.649	0.740	45	42	26	0.578	0.619
MDK-AGB-08	<i>Dipterocarpus tuberculatus</i>	66	56	41	0.621	0.732	53	44	35	0.660	0.795	60	53	37	0.617	0.698	49	42	33	0.673	0.786
MDK-AGB-09	<i>Dipterocarpus tuberculatus</i>	64	58	45	0.703	0.776	66	62	45	0.682	0.726	37	32	25	0.676	0.781	58	50	41	0.707	0.820
MDK-AGB-10	<i>Dipterocarpus tuberculatus</i>	62	54	38	0.613	0.704	56	52	35	0.625	0.673	86	80	56	0.651	0.700	54	58	33	0.611	0.569
MDK-AGB-11	<i>Dipterocarpus tuberculatus</i>	61	51	39	0.639	0.765	64	55	42	0.656	0.764	61	53	39	0.639	0.736	65	56	42	0.646	0.750
MDK-AGB-12	<i>Dipterocarpus tuberculatus</i>	51	44	30	0.588	0.682	66	58	38	0.576	0.655	48	52	38	0.792	0.731	49	51	38	0.776	0.745
MDK-AGB-13	<i>Dipterocarpus tuberculatus</i>	46	28	25	0.543	0.893	51	44	29	0.569	0.659	46	40	27	0.587	0.675	49	48	29	0.592	0.604
MDK-AGB-14	<i>Dipterocarpus tuberculatus</i>	66	58	38	0.576	0.655	56	50	31	0.554	0.620	46	44	23	0.500	0.523	68	60	35	0.515	0.583
MDK-AGB-15	<i>Dipterocarpus tuberculatus</i>	44	40	26	0.591	0.650	35	29	20	0.571	0.690	40	37	23	0.575	0.622	41	39	23	0.561	0.590
MDK-AGB-16	<i>Dipterocarpus tuberculatus</i>	40	40	27	0.675	0.675	50	46	31	0.620	0.674	36	34	23	0.639	0.676	46	42	30	0.652	0.714
MDK-AGB-17	<i>Dipterocarpus tuberculatus</i>	43	39	26	0.605	0.667	36	33	23	0.639	0.697	36	34	21	0.583	0.618	44	40	25	0.568	0.625
MDK-AGB-18	<i>Dipterocarpus tuberculatus</i>	40	37	23	0.575	0.622	36	36	20	0.556	0.556	30	28	17	0.567	0.607	46	44	24	0.522	0.545
MDK-AGB-19	<i>Dipterocarpus tuberculatus</i>	44	39	27	0.614	0.692	42	40	25	0.595	0.625	39	36	22	0.564	0.611	42	39	22	0.524	0.564
MDK-AGB-20	<i>Dipterocarpus tuberculatus</i>	38	34	24	0.632	0.706	37	31	20	0.541	0.645	33	34	18	0.545	0.529	43	41	21	0.488	0.512
MDK-AGB-21	<i>Dipterocarpus tuberculatus</i>	28	25	17	0.607	0.680	49	45	30	0.612	0.667	49	44	27	0.551	0.614	43	38	25	0.581	0.658
MDK-AGB-22	<i>Dipterocarpus tuberculatus</i>	93	79	56	0.602	0.709	48	43	27	0.563	0.628	48	64	38	0.792	0.594	46	41	27	0.587	0.659
MDK-AGB-23	<i>Dipterocarpus tuberculatus</i>	49	43	27	0.551	0.628	70	63	37	0.529	0.587	40	36	20	0.500	0.556	22	20	10	0.455	0.500
MDK-AGB-24	<i>Dipterocarpus tuberculatus</i>	47	49	30	0.638	0.612	55	80	36	0.655	0.450	55	48	36	0.655	0.750	40	36	25	0.625	0.694
MDK-AGB-25	<i>Dipterocarpus tuberculatus</i>	67	60	44	0.657	0.733	56	40	37	0.661	0.925	40	38	27	0.675	0.711	47	42	30	0.638	0.714
MDK-AGB-26	<i>Dipterocarpus tuberculatus</i>	58	52	39	0.672	0.750	49	46	33	0.673	0.717	46	41	28	0.609	0.683	46	38	29	0.630	0.763
MDK-AGB-27	<i>Dipterocarpus tuberculatus</i>	54	50	36	0.667	0.720	39	36	26	0.667	0.722	49	44	33	0.673	0.750	30	26	20	0.667	0.769
MDK-AGB-28	<i>Dipterocarpus tuberculatus</i>	66	58	46	0.697	0.793	63	56	42	0.667	0.750	58	48	39	0.672	0.813	47	40	32	0.681	0.800
MDK-AGB-29	<i>Dipterocarpus tuberculatus</i>	37	34	23	0.622	0.676	24	29	14	0.583	0.483	31	26	18	0.581	0.692	27	23	15	0.556	0.652
MDK-AGB-30	<i>Dipterocarpus tuberculatus</i>	60	54	40	0.667	0.741	46	38	27	0.587	0.711	46	42	31	0.674	0.738	49	43	32	0.653	0.744
MDK-AGB-31	<i>Dipterocarpus tuberculatus</i>	56	43	35	0.625	0.814	52	46	33	0.635	0.717	67	60	39	0.582	0.650	59	51	40	0.678	0.784
MDK-AGB-32	<i>Dipterocarpus tuberculatus</i>	43	38	25	0.581	0.658	27	26	15	0.556	0.577	47	44	27	0.574	0.614	27	24	15	0.556	0.625
MDK-AGB-33	<i>Dipterocarpus tuberculatus</i>	25	22	16	0.640	0.727	39	36	21	0.538	0.583	82	86	45	0.549	0.523	69	68	40	0.580	0.588
MDK-AGB-34	<i>Dipterocarpus tuberculatus</i>	44	40	26	0.591	0.650	89	78	50	0.562	0.641	86	80	50	0.581	0.625	56	42	31	0.554	0.738
MDK-AGB-35	<i>Dipterocarpus tuberculatus</i>	35	32	22	0.629	0.688	65	64	39	0.600	0.609	49	46	31	0.633	0.674	40	36	23	0.575	0.639
MDK-AGB-36	<i>Dipterocarpus tuberculatus</i>	57	50	33	0.579	0.660	33	31	24	0.727	0.774	47	50	41	0.872	0.820	47	38	34	0.723	0.895
MDK-AGB-37	<i>Dipterocarpus tuberculatus</i>	65	56	38	0.585	0.679	55	49	33	0.600	0.673	55	50	35	0.636	0.700	51	46	31	0.608	0.674
MDK-AGB-38	<i>Dipterocarpus tuberculatus</i>	48	38	31	0.646	0.816	53	48	35	0.660	0.729	60	54	39	0.650	0.722	57	47	41	0.719	0.872
MDK-AGB-39	<i>Dipterocarpus tuberculatus</i>	51	46	33	0.647	0.717	56	50	37	0.661	0.740	40	34	25	0.625	0.735	41	36	26	0.634	0.722
MDK-AGB-40	<i>Dipterocarpus tuberculatus</i>	55	49	36	0.655	0.735	51	46	33	0.647	0.717	48	43	33	0.688	0.767	83	76	58	0.699	0.763
MDK-AGB-41	<i>Xyilia dolabriformis</i>	61	48	46	0.754	0.958	94	74	70	0.745	0.946	88	69	67	0.761	0.971	55	44	41	0.745	0.932
MDK-AGB-42	<i>Xyilia dolabriformis</i>	51	42	38	0.745	0.905	34	32	27	0.794	0.844	37	36	30	0.811	0.833	30	28	23	0.767	0.821
MDK-AGB-43	<i>Xyilia dolabriformis</i>	48	42	35	0.729	0.833	43	35	29	0.674	0.829	30	28	24	0.800	0.857	49	44	34	0.694	0.773
MDK-AGB-44	<i>Xyilia dolabriformis</i>	53	40	38	0.717	0.950	51	43	33	0.647	0.767	60	49	40	0.667	0.816	36	32	24	0.667	0.750
MDK-AGB-45	<i>Xyilia dolabriformis</i>	39	34	27	0.692	0.794	47	39	31	0.660	0.795	62	54	47	0.758	0.870	70	58	47	0.671	0.810
MDK-AGB-46	<i>Xyilia dolabriformis</i>	94	74	71	0.755	0.959	52	46	40	0.769	0.870	73	58	55	0.753	0.948	63	50	45	0.714	0.900
MDK-AGB-47	<i>Xyilia dolabriformis</i>	49	46	36	0.735	0.783	39	32	26	0.667	0.813	40	38	30	0.750	0.789	39	36	26	0.667	0.722
MDK-AGB-48	<i>Xyilia dolabriformis</i>	65	54	50	0.769	0.926	42	40	35	0.833	0.875	66	62	53	0.803	0.855	52	46	41	0.788	0.891
MDK-AGB-49	<i>Xyilia dolabriformis</i>	40	40	30	0.750	0.750	50	40	33	0.660	0.825	51	40	35	0.686	0.875	50	42	33	0.660	0.786
MDK-AGB-50	<i>Xyilia dolabriformis</i>	52	44	37	0.712	0.841	47	41	29	0.617	0.707	37	34	23	0.622	0.767	71	64	42	0.592	0.656
MDK-AGB-51	<i>Xyilia dolabriformis</i>	31	25	22	0.710	0.880	37	22	20	0.541	0.909	60	53	39	0.650	0.736	5				

Sample Information		Remaining wood (kg)											
Tree ID	Species	Stump			1/4			1/2			3/4		
		Fresh mass	Dry mass	Dry_Fre sh ratio	Fresh mass	Dry mass	Dry_Fre sh ratio	Fresh mass	Dry mass	Dry_Fre sh ratio	Fresh mass	Dry mass	Dry_Fre sh ratio
MDK-AGB-01	Dipterocarpus tuberculatus	0.406	0.255	0.628	0.847	0.532	0.628	0.802	0.488	0.608	0.358	0.205	0.573
MDK-AGB-02	Dipterocarpus tuberculatus	1.128	0.732	0.649	0.931	0.616	0.662	0.469	0.3	0.640	0.17	0.105	0.618
MDK-AGB-03	Dipterocarpus tuberculatus	1.063	0.688	0.647	0.521	0.333	0.639	0.337	0.209	0.620	0.134	0.079	0.590
MDK-AGB-04	Dipterocarpus tuberculatus	0.509	0.305	0.599	0.827	0.508	0.614	0.466	0.28	0.601	0.354	0.208	0.588
MDK-AGB-05	Dipterocarpus tuberculatus	0.539	0.356	0.660	0.741	0.49	0.661	0.095	0.059	0.621	0.271	0.169	0.624
MDK-AGB-06	Dipterocarpus tuberculatus	0.36	0.235	0.653	0.456	0.298	0.654	0.306	0.197	0.644	0.484	0.314	0.649
MDK-AGB-07	Dipterocarpus tuberculatus	0.577	0.347	0.601	0.363	0.221	0.609	0.201	0.122	0.607	0.081	0.048	0.593
MDK-AGB-08	Dipterocarpus tuberculatus	0.419	0.259	0.618	0.603	0.388	0.643	0.496	0.305	0.615	0.551	0.352	0.639
MDK-AGB-09	Dipterocarpus tuberculatus	0.453	0.319	0.704	0.437	0.286	0.654	0.335	0.219	0.654	0.533	0.356	0.668
MDK-AGB-10	Dipterocarpus tuberculatus	0.404	0.243	0.601	0.462	0.29	0.628	0.639	0.399	0.624	0.186	0.115	0.618
MDK-AGB-11	Dipterocarpus tuberculatus	0.545	0.345	0.633	0.462	0.283	0.613	0.701	0.433	0.618	0.859	0.525	0.611
MDK-AGB-12	Dipterocarpus tuberculatus	0.624	0.395	0.633	0.514	0.324	0.630	0.432	0.267	0.618	0.432	0.276	0.639
MDK-AGB-13	Dipterocarpus tuberculatus	0.749	0.452	0.603	0.446	0.265	0.594	0.346	0.21	0.607	0.108	0.065	0.602
MDK-AGB-14	Dipterocarpus tuberculatus	0.378	0.22	0.582	0.167	0.093	0.557	0	0	0	0	0	0
MDK-AGB-15	Dipterocarpus tuberculatus	0.569	0.344	0.605	0.328	0.197	0.601	0.176	0.103	0.585	0.094	0.054	0.574
MDK-AGB-16	Dipterocarpus tuberculatus	0.919	0.617	0.671	0.464	0.293	0.631	0.35	0.219	0.626	0.17	0.108	0.635
MDK-AGB-17	Dipterocarpus tuberculatus	0.852	0.52	0.610	0.594	0.371	0.625	0.396	0.241	0.609	0.225	0.135	0.600
MDK-AGB-18	Dipterocarpus tuberculatus	0.263	0.154	0.586	0.223	0.132	0.592	0.109	0.064	0.587	0	0	0
MDK-AGB-19	Dipterocarpus tuberculatus	0.241	0.144	0.598	0.192	0.11	0.573	0.136	0.076	0.559	0.055	0.031	0.564
MDK-AGB-20	Dipterocarpus tuberculatus	0.337	0.209	0.620	0.137	0.074	0.540	0.094	0.051	0.543	0.061	0.031	0.508
MDK-AGB-21	Dipterocarpus tuberculatus	0.248	0.148	0.597	0.199	0.114	0.573	0.087	0.048	0.552	0.034	0.02	0.588
MDK-AGB-22	Dipterocarpus tuberculatus	0.493	0.302	0.613	0.415	0.263	0.634	0.631	0.404	0.640	0.284	0.169	0.595
MDK-AGB-23	Dipterocarpus tuberculatus	0.051	0.028	0.549	0	0	0	0	0	0	0	0	0
MDK-AGB-24	Dipterocarpus tuberculatus	0.676	0.417	0.617	0.601	0.389	0.647	0.447	0.283	0.633	0.424	0.265	0.625
MDK-AGB-25	Dipterocarpus tuberculatus	0.624	0.416	0.667	0.734	0.476	0.649	0.142	0.091	0.641	0.171	0.109	0.637
MDK-AGB-26	Dipterocarpus tuberculatus	0.404	0.248	0.614	0.367	0.24	0.654	0.788	0.505	0.641	0.746	0.466	0.625
MDK-AGB-27	Dipterocarpus tuberculatus	0.845	0.566	0.670	0.546	0.367	0.672	0.653	0.426	0.652	0.441	0.286	0.649
MDK-AGB-28	Dipterocarpus tuberculatus	0.985	0.654	0.664	0.785	0.517	0.659	0.579	0.379	0.655	0.565	0.368	0.651
MDK-AGB-29	Dipterocarpus tuberculatus	0.164	0.1	0.610	0.061	0.037	0.607	0.035	0.02	0.571	0.021	0.017	0.810
MDK-AGB-30	Dipterocarpus tuberculatus	0.924	0.611	0.661	0.733	0.478	0.652	0.652	0.436	0.669	0.584	0.389	0.666
MDK-AGB-31	Dipterocarpus tuberculatus	1.05	0.678	0.646	0.979	0.606	0.619	0.714	0.423	0.592	0.378	0.253	0.669
MDK-AGB-32	Dipterocarpus tuberculatus	0.142	0.086	0.606	0.031	0.018	0.581	0	0	0	0.016	0.008	0.500
MDK-AGB-33	Dipterocarpus tuberculatus	0.095	0.058	0.611	0.048	0.027	0.563	0	0	0	0	0	0
MDK-AGB-34	Dipterocarpus tuberculatus	0.096	0.055	0.573	0	0	0	0	0	0	0	0	0
MDK-AGB-35	Dipterocarpus tuberculatus	0.428	0.275	0.643	0.577	0.357	0.619	0.414	0.274	0.662	0.325	0.196	0.603
MDK-AGB-36	Dipterocarpus tuberculatus	0.409	0.252	0.616	0.502	0.333	0.663	0.519	0.366	0.705	0.443	0.289	0.652
MDK-AGB-37	Dipterocarpus tuberculatus	0.882	0.522	0.592	0.397	0.232	0.584	0.474	0.288	0.608	0.474	0.283	0.597
MDK-AGB-38	Dipterocarpus tuberculatus	1.021	0.644	0.631	1.038	0.668	0.644	0.945	0.601	0.636	0.771	0.51	0.661
MDK-AGB-39	Dipterocarpus tuberculatus	0.324	0.209	0.645	0.407	0.262	0.644	0.701	0.449	0.641	0.485	0.323	0.666
MDK-AGB-40	Dipterocarpus tuberculatus	0.937	0.614	0.655	1.104	0.714	0.647	0.628	0.407	0.648	0.69	0.452	0.655
MDK-AGB-41	Xylia dolabriformis	0.591	0.445	0.753	0.903	0.667	0.739	0.556	0.417	0.750	0.362	0.259	0.715
MDK-AGB-42	Xylia dolabriformis	0.824	0.627	0.761	0.48	0.364	0.758	0.508	0.388	0.764	0.175	0.128	0.731
MDK-AGB-43	Xylia dolabriformis	0.113	0.097	0.858	0.131	0.087	0.664	0.075	0.053	0.707	0.109	0.074	0.679
MDK-AGB-44	Xylia dolabriformis	0.803	0.592	0.737	0.553	0.368	0.665	0.382	0.249	0.652	0.187	0.119	0.636
MDK-AGB-45	Xylia dolabriformis	0.283	0.206	0.728	0.324	0.221	0.682	0.479	0.325	0.678	0.132	0.086	0.652
MDK-AGB-46	Xylia dolabriformis	0.38	0.277	0.729	0.601	0.438	0.729	0.779	0.553	0.710	0.232	0.154	0.664
MDK-AGB-47	Xylia dolabriformis	0.11	0.083	0.755	0.452	0.324	0.717	0.13	0.087	0.669	0.06	0.04	0.667
MDK-AGB-48	Xylia dolabriformis	1.371	1.017	0.742	0.49	0.378	0.771	0.501	0.391	0.780	0.3	0.225	0.750
MDK-AGB-49	Xylia dolabriformis	0.448	0.323	0.721	0.498	0.334	0.671	0.286	0.191	0.668	0.125	0.081	0.648
MDK-AGB-50	Xylia dolabriformis	0.2	0.139	0.695	0.082	0.052	0.634	0.058	0.036	0.621	0	0	0
MDK-AGB-51	Xylia dolabriformis	0.3	0.219	0.730	0.101	0.065	0.644	0.066	0.042	0.636	0	0	0
MDK-AGB-52	Xylia dolabriformis	0.461	0.324	0.703	0.223	0.141	0.632	0.109	0.07	0.642	0.052	0.033	0.635
MDK-AGB-53	Xylia dolabriformis	0.299	0.212	0.709	0.118	0.08	0.678	0.08	0.052	0.650	0	0	0
MDK-AGB-54	Xylia dolabriformis	0.368	0.264	0.717	0.15	0.093	0.620	0.067	0.04	0.597	0.038	0.023	0.605
MDK-AGB-55	Xylia dolabriformis	0.523	0.377	0.721	0.23	0.153	0.665	0.096	0.062	0.646	0	0	0
MDK-AGB-56	Xylia dolabriformis	0.223	0.152	0.682	0.077	0.05	0.649	0.043	0.026	0.605	0.03	0.019	0.633
MDK-AGB-57	Xylia dolabriformis	0.077	0.052	0.675	0.011	0.007	0.636	0.026	0.015	0.577	0	0	0.000
MDK-AGB-58	Xylia dolabriformis	0.575	0.423	0.736	0.592	0.453	0.765	0.483	0.315	0.652	0.204	0.141	0.691
MDK-AGB-59	Xylia dolabriformis	0.158	0.106	0.671	0.08	0.048	0.600	0.06	0.035	0.583	0	0	0.000
MDK-AGB-60	Xylia dolabriformis	0.394	0.27	0.685	0.703	0.423	0.602	0.292	0.173	0.592	0.063	0.037	0.587
MDK-AGB-61	Xylia dolabriformis	0.263	0.193	0.734	0.282	0.183	0.649	0.325	0.214	0.658	0.124	0.082	0.661
MDK-AGB-62	Xylia dolabriformis	0.874	0.677	0.775	0.604	0.431	0.714	0.589	0.418	0.710	0.377	0.277	0.735
MDK-AGB-63	Xylia dolabriformis	0.699	0.539	0.771	0.475	0.322	0.678	0.618	0.442	0.715	0.196	0.136	0.694
MDK-AGB-64	Xylia dolabriformis	0.642	0.486	0.757	0.228	0.157	0.689	0.45	0.331	0.736	0	0	0.000
MDK-AGB-65	Xylia dolabriformis	0.738	0.557	0.755	0.654	0.449	0.687	0.491	0.349	0.711	0.264	0.189	0.716
MDK-AGB-66	Xylia dolabriformis	0.827	0.613	0.741	0.516	0.355	0.688	0.292	0.208	0.712	0.146	0.097	0.664
MDK-AGB-67	Xylia dolabriformis	0.748	0.537	0.718	0.56	0.36	0.643	0.257	0.161	0.626	0.048	0.029	0.604
MDK-AGB-68	Xylia dolabriformis	0.67	0.505	0.754	0.769	0.555	0.722	0.274	0.191	0.697	0.129	0.087	0.674
MDK-AGB-69	Xylia dolabriformis	0.344	0.257	0.747	0.272	0.176	0.647	0.2	0.129	0.645	0.02	0.012	0.600
MDK-AGB-70	Xylia dolabriformis	0.615	0.479	0.779	0.77	0.545	0.708	0.512	0.354	0.691	0.238	0.173	0.727
MDK-AGB-71	Xylia dolabriformis	1.127	0.835	0.741	0.584	0.412	0.705	0.789	0.519	0.658	0.234	0.165	0.705
MDK-AGB-72</td													

Sample Information		Leaves and Branches (kg)						Wood density per tree D=M/V	
Tree ID	Species	Leaves (kg)			Branches (kg)				
		Fresh mass	Dry mass	Dry_Fresh ratio	Fresh mass	Dry mass	Dry_Fresh ratio		
MDK-AGB-01	Dipterocarpus tuberculatus	0.373	0.142	0.3806971	0.438	0.247	0.5639269	0.705	
MDK-AGB-02	Dipterocarpus tuberculatus	0.415	0.14	0.3373494	0.501	0.299	0.5968064	0.724	
MDK-AGB-03	Dipterocarpus tuberculatus	0.358	0.125	0.349162	0.405	0.232	0.5728395	0.688	
MDK-AGB-04	Dipterocarpus tuberculatus	0.429	0.157	0.3659674	0.485	0.276	0.5690722	0.668	
MDK-AGB-05	Dipterocarpus tuberculatus	0.37	0.137	0.3702703	0.747	0.442	0.5917001	0.766	
MDK-AGB-06	Dipterocarpus tuberculatus	0.364	0.124	0.3406593	0.619	0.343	0.5541195	0.749	
MDK-AGB-07	Dipterocarpus tuberculatus	0.357	0.121	0.3389356	0.308	0.159	0.5162338	0.688	
MDK-AGB-08	Dipterocarpus tuberculatus	0.388	0.149	0.3840206	0.308	0.161	0.5227273	0.753	
MDK-AGB-09	Dipterocarpus tuberculatus	0.313	0.122	0.3897764	0.356	0.209	0.5870787	0.776	
MDK-AGB-10	Dipterocarpus tuberculatus	0.305	0.117	0.3836066	0.385	0.206	0.5350649	0.661	
MDK-AGB-11	Dipterocarpus tuberculatus	0.328	0.108	0.3292683	0.332	0.166	0.5	0.754	
MDK-AGB-12	Dipterocarpus tuberculatus	0.234	0.089	0.3803419	0.304	0.171	0.5625	0.703	
MDK-AGB-13	Dipterocarpus tuberculatus	0.445	0.155	0.3483146	0.222	0.113	0.509009	0.708	
MDK-AGB-14	Dipterocarpus tuberculatus	0.265	0.096	0.3622642	0.332	0.18	0.5421687	0.595	
MDK-AGB-15	Dipterocarpus tuberculatus	0.337	0.108	0.3204748	0.391	0.239	0.6112532	0.638	
MDK-AGB-16	Dipterocarpus tuberculatus	0.295	0.096	0.3254237	0.463	0.259	0.5593952	0.685	
MDK-AGB-17	Dipterocarpus tuberculatus	0.292	0.104	0.3561644	0.341	0.181	0.5307918	0.652	
MDK-AGB-18	Dipterocarpus tuberculatus	0.387	0.128	0.3307494	0.365	0.179	0.490411	0.582	
MDK-AGB-19	Dipterocarpus tuberculatus	0.354	0.111	0.3135593	0.3	0.154	0.5133333	0.623	
MDK-AGB-20	Dipterocarpus tuberculatus	0.285	0.086	0.3017544	0.176	0.085	0.4829545	0.598	
MDK-AGB-21	Dipterocarpus tuberculatus	0.228	0.069	0.3026316	0.182	0.092	0.5054945	0.655	
MDK-AGB-22	Dipterocarpus tuberculatus	0.233	0.087	0.3733906	0.455	0.252	0.5538462	0.647	
MDK-AGB-23	Dipterocarpus tuberculatus	0.199	0.069	0.3467337	0.114	0.055	0.4824561	0.568	
MDK-AGB-24	Dipterocarpus tuberculatus	0.358	0.126	0.3519553	0.313	0.168	0.5367412	0.627	
MDK-AGB-25	Dipterocarpus tuberculatus	0.346	0.13	0.3757225	0.304	0.167	0.5493421	0.771	
MDK-AGB-26	Dipterocarpus tuberculatus	0.382	0.144	0.3769634	0.398	0.225	0.5653266	0.728	
MDK-AGB-27	Dipterocarpus tuberculatus	0.302	0.106	0.3509934	0.38	0.217	0.5710526	0.740	
MDK-AGB-28	Dipterocarpus tuberculatus	0.46	0.163	0.3543478	0.24	0.135	0.5625	0.789	
MDK-AGB-29	Dipterocarpus tuberculatus	0.329	0.126	0.3829787	0.108	0.058	0.537037	0.626	
MDK-AGB-30	Dipterocarpus tuberculatus	0.408	0.146	0.3578431	0.227	0.141	0.6211454	0.733	
MDK-AGB-31	Dipterocarpus tuberculatus	0.433	0.155	0.3579677	0.224	0.114	0.5089286	0.741	
MDK-AGB-32	Dipterocarpus tuberculatus	0.258	0.091	0.3527132	0.102	0.05	0.4901961	0.618	
MDK-AGB-33	Dipterocarpus tuberculatus	0.373	0.131	0.3512064	0.156	0.074	0.474359	0.606	
MDK-AGB-34	Dipterocarpus tuberculatus	0.411	0.129	0.3138686	0.177	0.093	0.5254237	0.664	
MDK-AGB-35	Dipterocarpus tuberculatus	0.328	0.12	0.3658537	0.4	0.241	0.6025	0.652	
MDK-AGB-36	Dipterocarpus tuberculatus	0.384	0.133	0.3463542	0.225	0.115	0.5111111	0.787	
MDK-AGB-37	Dipterocarpus tuberculatus	0.37	0.135	0.3648649	0.216	0.119	0.5509259	0.681	
MDK-AGB-38	Dipterocarpus tuberculatus	0.349	0.127	0.3638968	0.133	0.063	0.4736842	0.785	
MDK-AGB-39	Dipterocarpus tuberculatus	0.435	0.162	0.3724138	0.401	0.22	0.5486284	0.729	
MDK-AGB-40	Dipterocarpus tuberculatus	0.427	0.164	0.3840749	0.179	0.091	0.5083799	0.746	
MDK-AGB-41	Xylia dolabriformis	0.263	0.109	0.4144487	0.2	0.118	0.59	0.952	
MDK-AGB-42	Xylia dolabriformis	0.263	0.127	0.4828897	0.142	0.08	0.5633803	0.851	
MDK-AGB-43	Xylia dolabriformis	0.172	0.07	0.4069767	0.132	0.073	0.5530303	0.823	
MDK-AGB-44	Xylia dolabriformis	0.254	0.105	0.4133858	0.168	0.084	0.5	0.821	
MDK-AGB-45	Xylia dolabriformis	0.306	0.107	0.3496732	0.179	0.098	0.547486	0.817	
MDK-AGB-46	Xylia dolabriformis	0.221	0.098	0.4434389	0.2	0.107	0.535	0.919	
MDK-AGB-47	Xylia dolabriformis	0.293	0.122	0.4163823	0.251	0.133	0.5298805	0.777	
MDK-AGB-48	Xylia dolabriformis	0.285	0.13	0.4561404	0.256	0.157	0.6132813	0.887	
MDK-AGB-49	Xylia dolabriformis	0.302	0.128	0.4238411	0.152	0.08	0.5263158	0.809	
MDK-AGB-50	Xylia dolabriformis	0.291	0.109	0.3745704	0.274	0.145	0.5291971	0.720	
MDK-AGB-51	Xylia dolabriformis	0.277	0.113	0.4079422	0.232	0.125	0.5387931	0.803	
MDK-AGB-52	Xylia dolabriformis	0.239	0.099	0.4142259	0.218	0.116	0.5321101	0.776	
MDK-AGB-53	Xylia dolabriformis	0.344	0.146	0.4244186	0.251	0.139	0.5537849	0.704	
MDK-AGB-54	Xylia dolabriformis	0.37	0.143	0.3864865	0.278	0.139	0.5	0.747	
MDK-AGB-55	Xylia dolabriformis	0.299	0.122	0.4080268	0.198	0.103	0.520202	0.732	
MDK-AGB-56	Xylia dolabriformis	0.315	0.126	0.4	0.219	0.109	0.4977169	0.715	
MDK-AGB-57	Xylia dolabriformis	0.459	0.18	0.3921569	0.066	0.03	0.4545455	0.687	
MDK-AGB-58	Xylia dolabriformis	0.428	0.191	0.4462617	0.313	0.185	0.5910543	0.858	
MDK-AGB-59	Xylia dolabriformis	0.207	0.078	0.3768116	0.153	0.078	0.5098039	0.663	
MDK-AGB-60	Xylia dolabriformis	0.314	0.132	0.4203822	0.345	0.18	0.5217391	0.723	
MDK-AGB-61	Xylia dolabriformis	0.44	0.194	0.4409091	0.396	0.23	0.5808081	0.794	
MDK-AGB-62	Xylia dolabriformis	0.344	0.153	0.4447674	0.168	0.093	0.5535714	0.903	
MDK-AGB-63	Xylia dolabriformis	0.412	0.192	0.4660194	0.507	0.294	0.5798817	0.869	
MDK-AGB-64	Xylia dolabriformis	0.368	0.166	0.451087	0.289	0.166	0.5743945	0.876	
MDK-AGB-65	Xylia dolabriformis	0.466	0.205	0.4399142	0.367	0.2	0.5449591	0.911	
MDK-AGB-66	Xylia dolabriformis	0.432	0.181	0.4189815	0.255	0.144	0.5647059	0.852	
MDK-AGB-67	Xylia dolabriformis	0.291	0.122	0.419244	0.211	0.113	0.535545	0.709	
MDK-AGB-68	Xylia dolabriformis	0.349	0.139	0.3982808	0.231	0.124	0.5367965	0.857	
MDK-AGB-69	Xylia dolabriformis	0.213	0.094	0.4413146	0.253	0.144	0.56917	0.781	
MDK-AGB-70	Xylia dolabriformis	0.252	0.128	0.5079365	0.278	0.166	0.5971223	0.795	
MDK-AGB-71	Xylia dolabriformis	0.387	0.175	0.4521964	0.227	0.133	0.5859031	0.858	
MDK-AGB-72	Xylia dolabriformis	0.398	0.181	0.4547739	0.222	0.121	0.545045	0.834	
MDK-AGB-73	Xylia dolabriformis	0.264	0.111	0.4204545	0.171	0.102	0.5964912	0.896	
MDK-AGB-74	Xylia dolabriformis	0.285	0.125	0.4385965	0.309	0.194	0.6278317	0.818	
MDK-AGB-75	Xylia dolabriformis	0.345	0.155	0.4492754	0.243	0.137	0.5637786	0.884	
MDK-AGB-76	Xylia dolabriformis	0.372	0.178	0.4784946	0.195	0.11	0.5641026	0.876	
MDK-AGB-77	Xylia dolabriformis	0.272	0.122	0.4485294	0.237	0.135	0.5696203	0.923	
MDK-AGB-78	Xylia dolabriformis	0.4	0.18	0.45	0.259	0.146	0.5637066	0.890	
MDK-AGB-79	Xylia dolabriformis	0.435	0.204	0.4689655	0.192	0.112	0.5833333	0.897	
MDK-AGB-80	Xylia dolabriformis	0.395	0.183	0.4632911	0.151	0.086	0.5695364	0.855	

Appendix 6: Below Ground Biomass from field

BGB ID	AGB ID	Main roots										Secondary roots				Fine roots			Under Story	
		Field with bag	Verify without bag	Fresh mass (Clean) without bag	Wood=Fresh mass-Bark	Bark	Wood density	Volume (cm ³)			Remain	Field with bag	Verify without bag	Fresh mass (Clean) without bag	Field with bag	Verify without bag	Fresh mass (Clean) without bag	Field with bag	Verify without bag	
		V1	V2	V=V2-V1																
1	1	610	594	588	440	148	61	140	203	63	369	280	268	264	151	136	102	320	306	
2	6	880	860	856	723	133	76	140	210	70	635	190	175	169	117	125	88	275	250	
3	7	280	265	259	166	93	63	150	214	64	101	170	151	140	169	145	142	292	279	
4	12	578	561	552	420	132	71	220	301	81	334	230	218	214	135	117	112	209	195	
5	14	370	353	342	267	75	70	150	220	70	192	200	182	174	200	180	155	266	247	
6	22	520	508	507	390	117	99	240	336	96	290	265	253	251	157	142	118	205	192	
7	23	295	284	281	199	82	48	140	190	50	145	152	144	141	95	83	73	254	244	
8	36	310	300	296	222	74	69	140	200	60	148	190	183	180	180	161	114	285	277	
9	37	225	214	212	125	87	75	142	217	75	45	146	132	128	89	79	51	340	326	
10	40	330	323	322	214	108	45	140	196	56	155	149	137	132	100	89	72	285	275	

Appendix 7: Data from laboratory (BGB)

BGB ID	AGB code	Species	Main Roots																													
			Fresh Bark without bag (g)	Dry Bark with bag (g)	Dry bark without bag (g)	Envelope type	D1	D2	D3	D4	D5	D6	Wood density without bag (g)	Dry wood with bag (g)	Dry wood without bag (g)	Envelope type	D1	D2	D3	D4	D5	D6	D7									
1	1	Dipterocarpus tuberculatus	148	69	59	10 ^{a5}	75	73	71	70	69	69	61	43	33	10 ^{a5}	44	43	43			369	197	177	20 ^{a4}	242	221	212	202	198	197	197
2	6	Dipterocarpus tuberculatus	133	71	61	10 ^{a5}	72	74	73	71	71	76	52	42	10 ^{a5}	58	56	54	53	52	635	379	359	20 ^{a4}	471	433	406	388	387	379	379	
3	7	Dipterocarpus tuberculatus	93	53	43	10 ^{a5}	58	55	53	53		63	41	31	10 ^{a5}	42	41	41			101	59	49	10 ^{a5}	64	62	61	60	59	59		
4	12	Dipterocarpus tuberculatus	132	62	52	10 ^{a5}	65	63	62	62		71	48	38	10 ^{a5}	50	49	48	48		334	174	164	10 ^{a5}	208	191	181	177	174	174		
5	14	Dipterocarpus tuberculatus	75	35	25	10 ^{a5}	38	36	35	35		70	38	28	10 ^{a5}	43	38	38			192	91	81	10 ^{a5}	114	102	94	92	91	91		
6	22	Dipterocarpus tuberculatus	117	50	40	10 ^{a5}	57	53	52	51	50	50	99	54	44	10 ^{a5}	59	57	56	54	54	289	182	162	20 ^{a4}	215	203	193	187	182	182	
7	23	Dipterocarpus tuberculatus	82	46	36	10 ^{a5}	49	47	46	46		48	29	19	10 ^{a5}	38	33	30	29	29	145	66	56	10 ^{a5}	80	78	69	68	66	66		
8	36	Dipterocarpus tuberculatus	74	39	29	10 ^{a5}	45	41	39	39		69	50	40	10 ^{a5}	59	52	50	50		148	89	79	10 ^{a5}	110	96	93	91	89	89		
9	37	Dipterocarpus tuberculatus	87	48	38	10 ^{a5}	57	49	48	48		73	48	38	10 ^{a5}	62	53	50	49	48	48	45	31	21	10 ^{a5}	52	33	32	31	31		
10	40	Dipterocarpus tuberculatus	108	54	44	10 ^{a5}	75	59	56	54	54	45	39	29	10 ^{a5}	45	39	39			155	91	81	10 ^{a5}	123	103	96	94	91	91		

BGB ID	AGB code	Species	Secondary roots										
			Fresh mass	Dry mass	Dry mass	Envelop (g)	Envelop type	D1	D2	D3	D4	D5	
1	1	<i>Dipterocarpus tuberculatus</i>	264	136	116	20	a4	198	177	155	142	139	136
2	6	<i>Dipterocarpus tuberculatus</i>	169	74	64	10	a5	88	78	76	75	74	74
3	7	<i>Dipterocarpus tuberculatus</i>	140	62	52	10	a5	81	67	64	62	62	
4	12	<i>Dipterocarpus tuberculatus</i>	214	89	79	10	a5	135	111	98	91	89	89
5	14	<i>Dipterocarpus tuberculatus</i>	174	75	65	10	a5	106	87	79	76	75	75
6	22	<i>Dipterocarpus tuberculatus</i>	251	108	98	10	a5	168	140	119	110	108	108
7	23	<i>Dipterocarpus tuberculatus</i>	141	71	61	10	a5	91	83	75	72	71	71
8	36	<i>Dipterocarpus tuberculatus</i>	180	87	77	10	a5	139	104	90	88	87	87
9	37	<i>Dipterocarpus tuberculatus</i>	128	63	53	10	a5	99	80	70	66	65	63
10	40	<i>Dipterocarpus tuberculatus</i>	132	67	57	10	a5	107	87	75	69	68	67

BGB ID	AGB code	Species	Fine roots									
			Fresh mass	Dry mass	Dry mass	Envelop (g)	Envelop type	D1	D2	D3	D4	D5
1	1	<i>Dipterocarpus tuberculatus</i>	102	53	33	20	a4	58	55	54	53	53
2	6	<i>Dipterocarpus tuberculatus</i>	88	49	29	20	a4	52	50	49	49	
3	7	<i>Dipterocarpus tuberculatus</i>	142	72	52	20	a4	79	77	75	74	72
4	12	<i>Dipterocarpus tuberculatus</i>	112	56	36	20	a4	60	58	57	56	56
5	14	<i>Dipterocarpus tuberculatus</i>	155	72	52	20	a4	79	75	74	72	72
6	22	<i>Dipterocarpus tuberculatus</i>	118	56	36	20	a4	62	59	58	57	56
7	23	<i>Dipterocarpus tuberculatus</i>	73	50	30	20	a4	55	51	50	50	
8	36	<i>Dipterocarpus tuberculatus</i>	114	57	37	20	a4	65	59	58	57	57
9	37	<i>Dipterocarpus tuberculatus</i>	51	27	17	10	a5	27	27	27		
10	40	<i>Dipterocarpus tuberculatus</i>	72	38	28	10	a5	43	40	39	38	38

BGB ID	AGB code	Species	Under Story										
			Fresh mass	Dry mass	Dry mass	Envelop (g)	Envelop type	D1	D2	D3	D4	D5	D6
1	1	<i>Dipterocarpus tuberculatus</i>	306	143	123	20	a4	155	149	151	144	143	143
2	6	<i>Dipterocarpus tuberculatus</i>	250	109	84	25	a3	230	225	205	120	109	109
3	7	<i>Dipterocarpus tuberculatus</i>	279	126	101	25	a3	207	158	126	126		
4	12	<i>Dipterocarpus tuberculatus</i>	195	99	74	25	a3	104	102	101	100	99	99
5	14	<i>Dipterocarpus tuberculatus</i>	247	126	101	25	a3	138	132	131	128	126	126
6	22	<i>Dipterocarpus tuberculatus</i>	192	85	65	20	a4	95	89	86	85	85	
7	23	<i>Dipterocarpus tuberculatus</i>	244	116	91	25	a3	126	118	116	116		
8	36	<i>Dipterocarpus tuberculatus</i>	277	128	103	25	a3	177	138	133	129	128	128
9	37	<i>Dipterocarpus tuberculatus</i>	326	133	108	25	a3	210	152	143	136	133	133
10	40	<i>Dipterocarpus tuberculatus</i>	275	108	83	25	a3	168	118	112	110	108	108
BGB ID	AGB code	Species	Ratio=dry mass/fresh mass (without bag)										
			Bark	wood density	Remain main roots	Secondary roots	Fine roots	Under story					
1	1	<i>Dipterocarpus tuberculatus</i>	0.40	0.54	0.48	0.44	0.32	0.40					
2	6	<i>Dipterocarpus tuberculatus</i>	0.46	0.55	0.57	0.38	0.33	0.34					
3	7	<i>Dipterocarpus tuberculatus</i>	0.46	0.49	0.49	0.37	0.37	0.36					
4	12	<i>Dipterocarpus tuberculatus</i>	0.39	0.54	0.49	0.37	0.32	0.38					
5	14	<i>Dipterocarpus tuberculatus</i>	0.33	0.40	0.42	0.37	0.34	0.41					
6	22	<i>Dipterocarpus tuberculatus</i>	0.34	0.44	0.56	0.39	0.31	0.34					
7	23	<i>Dipterocarpus tuberculatus</i>	0.44	0.40	0.39	0.43	0.41	0.37					
8	36	<i>Dipterocarpus tuberculatus</i>	0.39	0.58	0.53	0.43	0.32	0.37					
9	37	<i>Dipterocarpus tuberculatus</i>	0.44	0.51	0.47	0.41	0.33	0.33					
10	40	<i>Dipterocarpus tuberculatus</i>	0.41	0.64	0.52	0.43	0.39	0.30					
			WD=	0.51									

Appendix 8: List of tools and materials

No	Equipment	Note
1	Compass (in degree)	Direction, bearing
2	GPS	Location (x, y), waypoints, go to, track back
3	Clinometers	Height, slope
4	Diameter tape (1 mm precision)	Measure diameter
5	Calliper	Measure fallen dead wood
6	Measuring tape (30m, 50m)	Distance measurement
7	Long poles with red paint on top (*)	Mark the plot boundaries
8	1.3 m pole (*)	Height for measure DBH
9	Colour rope	boundaries marked
10	Paint (2-3 colours)	Mark (tree number, different parts of tree to be cut, measure...)
11	Field forms	Record data
12	Pen, pencil, eraser	Record data
13	Permanent marker	Labelled the sample bags
14	Chainsaws	Logged
15	Gasoline, oil, chainsaw accessories	For operation the chainsaw
16	Security equipment for the chainsaw operator	Helmet, glasses, apron, gloves, shoes
17	Cutters, machetes, axes, shears, saws	For remove small branches, twigs, and leaves
18	Nylon rope (diameter ≈ 1.5 cm, length ≈ 20 m x 2)	Help to pull trees to fall to the desire direction
19	Large tarpaulins	For crown, leaves, twigs
20	Big basket	For twigs and leaves weighing
21	Ruler (20 cm)	Bark thickness measurement
22	Measuring scale 100 - 150 kg, with 0.1kg precision (**)	Weigh fresh biomass
23	Weighing or hanging scale up to 10-20 kg, with 0.05kg precision (**)	Weigh fresh biomass sample
24	Poly bags, ropes/elastic bands	Store biomass samples
25	Metal wire	For bounding the small branches/twigs
26	Mesh bags	For hold samples together
27	Digital camera	Take documentary photo
29	Insect repelling	Insects, Ants
30	First Aid Kits	help when someone have injury

Appendix 9: Field Activities (AGB)





Appendix 9: Field Activities (BGB)







Appendix 1: List of Sample Tree Cutting

Plot ID	Tree Code	X	Y	Species	Khmer Name	DBH_cm	h_m	h_first_branch_m	fresh_mass_stem_kg	fresh_mass_branches_kg	fresh_mass_leaves_kg	fresh_agb_kg
KP03	in1	451034	1385954	Diospyros Cambodiana	ព្រោះល	48.9	18.1	3.2	735.5	622.7	47.63	1405.83
KP03	out1	451072	1385947	Diospyros Cambodiana	ព្រោះល	33.2	17.3	7.9	315.5	60.5	9.5	385.5
KP03	out2	451062	1385937	Diospyros Cambodiana	ព្រោះល	40.2	16.2	6	555.2	309.2	21.6	886
KP03	out3	451068	1385900	Diospyros Cambodiana	ព្រោះល	20.8	9.5	2.95	121	47.8	5.5	174.3
KP03	out4	451067	1385950	Diospyros Cambodiana	ព្រោះល	64.4	16.7	3	709.8	1183.5	53.3	1946.6
KP03	out5	451091	1386002	Diospyros Cambodiana	ព្រោះល	53.2	13.7	2.64	660.2	499.4	37.1	1196.7
KP03	out6	451085	1385995	Diospyros Cambodiana	ព្រោះល	20.4	10.2	3	104.5	38	5.7	148.2
KP03	out7	451096	1385998	Diospyros Cambodiana	ព្រោះល	55.6	16.6	4.2	758.9	913.7	52	1724.6
KP03	out8	451111	1386010	Diospyros Cambodiana	ព្រោះល	31	11.5	4.5	274.8	178.5	6.8	460.1
KP02	out9	450997	1386167	Diospyros Cambodiana	ព្រោះល	53.5	15.5	3.5	713.2	972.3	37	1722.5
KP02	out10	451008	1386166	Diospyros Cambodiana	ព្រោះល	46.9	16	5.5	671	548.4	34	1253.4
KP02	out11	451008	1386193	Diospyros Cambodiana	ព្រោះល	35.8	11.8	3.5	332	285.5	24.6	642.1
KP02	out12	451006	1386217	Diospyros Cambodiana	ព្រោះល	22.5	11.5	8.5	192	52.6	3.9	248.5
KP02	out13	451010	1386215	Diospyros Cambodiana	ព្រោះល	36	13.4	4.9	423.5	242.5	19.5	685.5
KP02	out14	450972	1386181	Diospyros Cambodiana	ព្រោះល	62	15.9	3.5	1033.5	961.7	65.6	2060.8
KP02	in2	450957	1386209	Diospyros Cambodiana	ព្រោះល	57	15	4	883.6	1149	64.2	2096.8
KP02	out15	450977	1386201	Diospyros Cambodiana	ព្រោះល	25.9	11.9	3	203	91	10	304
KP02	out16	450986	1386194	Diospyros Cambodiana	ព្រោះល	40.7	13.3	4.8	446	288	18	752
KP08	out17	445621	1384279	Diospyros Cambodiana	ព្រោះល	81	12.9	5.5	790	1159.6	33.4	1983
KP08	out18	445603	1384274	Diospyros Cambodiana	ព្រោះល	69	13.1	5	1080.5	1827.9	50.6	2959
KP08	out19	445615	1384293	Diospyros Cambodiana	ព្រោះល	86.5	16.8	4.5	1228.1	1831.8	93.8	3153.7
KP08	out20	445710	1384221	Diospyros Cambodiana	ព្រោះល	85	14	2.3	1706.6	2108.9	46.7	3862.2
KP08	out21	445686	1384218	Diospyros Cambodiana	ព្រោះល	75	13.2	2.15	1406.5	1976.8	77.2	3460.5
KP09	out22	444781	1384196	Diospyros Cambodiana	ព្រោះល	9.5	3.5	1.75	8.3	6.25	1	15.55
KP09	out23	444778	1384200	Diospyros Cambodiana	ព្រោះល	3.9	4.3	0.65	2.5	0.74	0.26	3.5
KP09	out24	444769	1384212	Diospyros Cambodiana	ព្រោះល	15.1	5.2	1.2	41	26.5	1.77	69.27
KP09	out25	444779	1384211	Diospyros Cambodiana	ព្រោះល	14.1	4.5	1.2	26.5	25	4.05	55.55
KP08	out26	445860	1384220	Diospyros Cambodiana	ព្រោះល	83.5	13.9	2.5	1740.3	2214.5	113.6	4068.4
KP08	out27	445788	1384204	Diospyros Cambodiana	ព្រោះល	64.9	14.3	2.25	971.4	1311.9	72.5	2355.8
KP08	out28	445871	1384269	Diospyros Cambodiana	ព្រោះល	80.8	14.5	2.9	2021.1	2095.4	108	4224.5
KP08	out29	445875	1384203	Diospyros Cambodiana	ព្រោះល	72.8	13	3.8	1066	1504.3	53.5	2623.8
BB08	out30	356150	1461491	Diospyros Cambodiana	ព្រោះល	94.2	11.5	3.5	1225.7	1045.4	74.5	2345.6
BB08	out31	354831	1462678	Diospyros Cambodiana	ព្រោះល	81.6	14	3.2	1423.3	1712.8	90	3226.1
BB08	out32	355624	1462280	Diospyros Cambodiana	ព្រោះល	121.8	11.3	2.7	1701.4	1112.3	84	2897.7
BB08	out33	354822	1462688	Diospyros Cambodiana	ព្រោះល	72.1	11	1.7	995	1373.4	76	2444.4
BB08	out34	354980	1462667	Diospyros Cambodiana	ព្រោះល	79	10	5	1460	560.5	50	2070.5
BB09	out35	354853	1464039	Diospyros Cambodiana	ព្រោះល	16.7	9.9	5.7	61.5	31	6.7	99.2
BB09	out36	354821	1464215	Diospyros Cambodiana	ព្រោះល	9.5	5.4	3.5	12.8	0.6	0.14	13.54
BB09	out37	354825	1464210	Diospyros Cambodiana	ព្រោះល	7	4.1	2.97	9	1.5	0.25	10.75
BB09	out38	354841	1464219	Diospyros Cambodiana	ព្រោះល	13.5	5.3	2.2	31.5	21.5	5.5	58.5

Appendix 2: The table of wood density analysis in the laboratory

Sample Information		Stem Sample							
		Whole Sample							
Plot Code	Tree Code	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)
KP03	1(in1)	1.94	1.9292	0.74	0.7292	0.72	0.7092	0.42	0.4092
KP03	2(out 1)	1.01	0.9992	1.29	1.2792	0.89	0.8792	0.24	0.2292
KP03	3(out2)	1.12	1.1092	1.35	1.3392	0.86	0.8492	0.27	0.2592
KP03	4(out3)	0.415	0.4042	0.75	0.7392	0.465	0.4542	0.27	0.2592
KP03	5(out4)	0.815	0.8042	0.96	0.9492	1.05	1.0392	0.39	0.3792
KP03	6(out5)	0.645	0.6342	2.075	2.0642	1.48	1.4692	0.455	0.4442
KP03	7(out6)	0.485	0.4742	0.5	0.4892	0.235	0.2242	0.115	0.1042
KP03	8(out7)	1.07	1.0592	2.38	2.3692	1.225	1.2142	0.395	0.3842
KP03	9(out8)	1.06	1.0492	0.95	0.9392	0.38	0.3692	0.24	0.2292
KP02	10(out9)	1.5	1.4892	1.43	1.4192	0.945	0.9342	0.355	0.3442
KP02	11(out10)	0.34	0.3292	1.36	1.3492	1	0.9892	0.385	0.3742
KP02	12(out11)	1.06	1.0492	1.9	1.8892	0.965	0.9542	0.4	0.3892
KP02	13(out12)	0.36	0.3492	1.01	0.9992	0.62	0.6092	0.19	0.1792
KP02	14(out13)	1.09	1.0792	2.38	2.3692	0.99	0.9792	0.36	0.3492
KP02	15(out14)	0.85	0.8392	0.96	0.9492	0.91	0.8992	0.39	0.3792
KP02	16(in2)	0.92	0.9092	1.54	1.5292	0.51	0.4992	0.18	0.1692
KP02	17(out15)	0.73	0.7192	1.24	1.2292	0.42	0.4092	0.22	0.2092
KP02	18(out16)	1.33	1.3192	1.395	1.3842	1.16	1.1492	0.38	0.3692
KP08	19(out17)	0.88	0.8692	1.595	1.5842	0.78	0.7692	0.255	0.2442
KP08	20(out18)	1.94	1.9292	1.57	1.5592	1.26	1.2492	0.48	0.4692
KP08	21(out19)	1.345	1.3342	0.9	0.8892	0.425	0.4142	0.31	0.2992
KP08	22(out20)	1.38	1.3692	1.99	1.9792	1.57	1.5592	0.17	0.1592
KP08	23(out21)	1.48	1.4692	1.87	1.8592	0.63	0.6192	0.41	0.3992
KP09	24(out22)	0.4	0.3892	0.26	0.2492	0.1	0.0892	0.05	0.0392
KP09	25(Out23)	0.15	0.1392	0.075	0.0642	0.065	0.0542	0.04	0.0292
KP09	26(out24)	0.53	0.5192	0.68	0.6692	0.35	0.3392	0.095	0.0842
KP09	27(out25)	0.53	0.5192	0.61	0.5992	0.15	0.1392	0.06	0.0492
KP08	28(out26)	2.28	2.2692	2.48	2.4692	1.48	1.4692	1.32	1.3092
KP08	29(out27)	1.64	1.6292	1.98	1.9692	0.15	0.1392	0.22	0.2092
KP08	30(out28)	1.315	1.3042	2.5	2.4892	1.27	1.2592	0.69	0.6792
KP08	31(out29)	1.51	1.4992	1.43	1.4192	1.13	1.1192	0.31	0.2992
BB08	32(out30)	0.455	0.4442	0.698	0.6872	0.203	0.1922	0.175	0.1642
BB08	33(out31)	0.692	0.6812	0.15	0.1392	0.79	0.7792	0.255	0.2442
BB08	34(out32)	0.62	0.6092	0.885	0.8742	0.785	0.7742	0.188	0.1772
BB08	35(out33)	0.705	0.6942	0.875	0.8642	1.15	1.1392	0.52	0.5092
BB08	36(out34)	0.81	0.7992	0.968	0.9572	0.602	0.5912	0.23	0.2192
BB09	37(out35)	0.408	0.3972	0.45	0.4392	0.29	0.2792	0.11	0.0992
BB09	38(out36)	0.2	0.1892	0.32	0.3092	0.06	0.0492	0.035	0.0242
BB09	39(out37)	0.192	0.1812	0.128	0.1172	0.095	0.0842	0.075	0.0642
BB09	40(out38)	0.47	0.4592	0.283	0.2722	0.32	0.3092	0.088	0.0772

Sample Information		Separate wood from bark											
		Sample at stump			Sample at 1/4			Sample at 1/2			Sample at 3/4		
Plot Code	Tree Code	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh _Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh _Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh _Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh _Ratio
KP03	1(in1)	0.0352	0.0189	0.537	0.025	0.0145	0.580	0.0378	0.0155	0.410	0.0283	0.011	0.389
KP03	2(out 1)	0.0229	0.0079	0.345	0.0622	0.0282	0.453	0.0598	0.027	0.452	0.0339	0.0122	0.360
KP03	3(out2)	N/A	N/A	N/A	0.0758	0.0333	0.439	0.0666	0.029	0.435	0.0351	0.0131	0.373
KP03	4(out3)	N/A	N/A	N/A	0.0605	0.0254	0.420	0.0545	0.0235	0.431	0.0433	0.0179	0.413
KP03	5(out4)	N/A	N/A	N/A	0.0359	0.0147	0.409	0.075	0.035	0.467	0.0431	0.0179	0.415
KP03	6(out5)	0.0482	0.0201	0.417	0.0994	0.043	0.433	0.1152	0.053	0.460	0.0502	0.0211	0.420
KP03	7(out6)	N/A	N/A	N/A	0.0456	0.0178	0.390	0.0307	0.0114	0.371	0.0233	0.0072	0.309
KP03	8(out7)	N/A	N/A	N/A	0.0967	0.045	0.465	0.084	0.0395	0.470	0.0503	0.0213	0.423
KP03	9(out8)	0.0426	0.0214	0.502	0.0631	0.028	0.444	0.0443	0.017	0.384	0.0388	0.0159	0.410
KP02	10(out9)	0.0305	0.0151	0.495	0.0687	0.0314	0.457	0.0797	0.0364	0.457	0.0475	0.0198	0.417
KP02	11(out10)	0.0155	0.003	0.194	0.0768	0.0358	0.466	0.069	0.0328	0.475	0.0465	0.0193	0.415
KP02	12(out11)	N/A	N/A	N/A	0.0853	0.0385	0.451	0.0892	0.04	0.448	0.0565	0.022	0.389
KP02	13(out12)	0.0163	0.0034	0.209	0.0737	0.0339	0.460	0.0608	0.0279	0.459	0.0362	0.014	0.387
KP02	14(out13)	N/A	N/A	N/A	0.1162	0.056	0.482	0.0632	0.0322	0.509	0.0437	0.019	0.435
KP02	15(out14)	N/A	N/A	N/A	0.0711	0.0321	0.451	0.0446	0.0186	0.417	0.0583	0.0238	0.408
KP02	16(in2)	0.0276	0.01	0.362	0.0821	0.0415	0.505	0.057	0.0246	0.432	0.0345	0.0122	0.354
KP02	17(out15)	N/A	N/A	N/A	0.0679	0.0324	0.477	0.0467	0.0189	0.405	0.0297	0.0091	0.306
KP02	18(out16)	0.0584	0.026	0.445	0.0658	0.028	0.426	0.0807	0.0387	0.480	0.0549	0.0226	0.412
KP08	19(out17)	0.0175	0.0053	0.303	0.0899	0.0454	0.505	0.0793	0.039	0.492	0.0397	0.0171	0.431
KP08	20(out18)	0.0899	0.049	0.545	0.0715	0.04	0.559	0.0924	0.0525	0.568	0.0561	0.028	0.499
KP08	21(out19)	N/A	N/A	N/A	0.0457	0.022	0.481	0.0549	0.0277	0.505	0.0533	0.0267	0.501
KP08	22(out20)	0.1046	0.054	0.516	0.0355	0.0153	0.431	0.1218	0.07	0.575	0.0399	0.0167	0.419
KP08	23(out21)	0.0857	0.0456	0.532	N/A	N/A	N/A	0.0663	0.0363	0.548	0.049	0.0232	0.473
KP09	24(out22)	0.0302	0.011	0.364	0.0295	0.0096	0.325	0.0192	0.0043	0.224	0.0134	0.0016	0.119
KP09	25(out23)	0.021	0.0064	0.305	0.0167	0.0031	0.186	0.0158	0.0028	0.177	0.013	0.0014	0.108
KP09	26(out24)	0.0284	0.0083	0.292	0.0538	0.0207	0.385	0.0404	0.0139	0.344	0.0184	0.0042	0.228
KP09	27(out25)	0.0427	0.014	0.328	0.0557	0.0208	0.373	0.0232	0.0061	0.263	0.0147	0.0022	0.150
KP08	28(out26)	0.0729	0.0344	0.472	0.0893	0.0473	0.530	0.0647	0.031	0.479	0.0828	0.0468	0.565
KP08	29(out27)	0.0461	0.023	0.499	0.0641	0.031	0.484	0.059	0.0266	0.451	0.033	0.0121	0.367
KP08	30(out28)	0.0659	0.0305	0.463	0.0594	0.0322	0.542	0.0672	0.0359	0.534	0.0792	0.04	0.505
KP08	31(out29)	N/A	N/A	N/A	N/A	N/A	N/A	0.1021	0.053	0.519	0.0565	0.0269	0.476
BB08	32(out30)	0.04	0.016	0.400	0.039	0.016	0.410	0.024	0.008	0.333	0.031	0.012	0.387
BB08	33(out31)	0.046	0.019	0.413	0.089	0.041	0.461	0.074	0.039	0.527	0.046	0.02	0.435
BB08	34(out32)	0.058	0.026	0.448	0.051	0.021	0.412	0.049	0.024	0.490	0.036	0.015	0.417
BB08	35(out33)	0.055	0.023	0.418	0.05	0.023	0.460	0.061	0.029	0.475	0.066	0.035	0.530
BB08	36(out34)	0.067	0.028	0.418	0.062	0.027	0.435	0.028	0.01	0.357	0.035	0.014	0.400
BB09	37(out35)	0.042	0.016	0.381	0.039	0.014	0.359	0.037	0.015	0.405	0.027	0.009	0.333
BB09	38(out36)	0.024	0.006	0.250	0.038	0.012	0.316	0.017	0.003	0.176	0.014	0.001	0.071
BB09	39(out37)	0.024	0.006	0.250	0.02	0.004	0.200	0.019	0.004	0.211	0.017	0.003	0.176
BB09	40(out38)	0.038	0.012	0.316	0.033	0.01	0.303	0.042	0.017	0.405	0.022	0.006	0.273

Sample Information		Measurement for wood density																							
		Sample at stump					Sample at 1/4					Sample at 1/2					Sample at 3/4								
Plot Code	Tree Code	Fresh mass(Kg)	Fresh volume(ml)	Dry mass without bag (kg)	Dry mass(g)	Dry_Fresh_Ratio	WOOD DENSITY (g/ml)	Fresh mass(Kg)	Fresh volume(ml)	Dry mass without bag (Kg)	Dry mass(g)	Dry_Fresh_Ratio	WOOD DENSITY (g/ml)	Fresh mass(Kg)	Fresh volume(ml)	Dry mass without bag (Kg)	Dry mass(g)	Dry_Fresh_Ratio	WOOD DENSITY (g/ml)	Fresh mass(Kg)	Fresh volume(ml)	Dry mass without bag (Kg)	Dry mass(g)	Dry_Fresh_Ratio	WOOD DENSITY (g/ml)
KP03	1(in1)	0.088	82	0.044	44.000	0.500	0.537	0.0512	46	0.0174	17.400	0.340	0.378	0.0568	48	0.024	24.000	0.423	0.500	0.0621	52	0.0307	30.700	0.494	0.590
KP03	2(out 1)	0.0664	60	0.032	32.000	0.482	0.533	0.0612	44	0.029	29.000	0.474	0.659	0.0691	56	0.034	34.000	0.492	0.607	0.0551	44	0.0279	27.900	0.50	0.634
KP03	3(out2)	0.0668	82	0.0344	34.400	0.515	0.420	0.0899	62	0.045	45.000	0.501	0.726	0.0783	68	0.039	39.000	0.498	0.574	0.0558	47	0.025	25.000	0.448	0.532
KP03	4(out3)	0.0549	60	0.0247	24.700	0.450	0.412	0.0681	64	0.032	32.000	0.470	0.500	0.0669	58	0.032	32.000	0.478	0.552	0.0589	50	0.0276	27.600	0.469	0.552
KP03	5(out4)	0.0798	82	0.04	40.000	0.501	0.488	0.057	50	0.029	29.000	0.509	0.580	0.0711	80	0.0387	38.700	0.544	0.484	0.066	60	0.0348	34.800	0.527	0.580
KP03	6(out5)	0.051	60	0.023	23.000	0.451	0.383	0.0696	64	0.032	32.000	0.460	0.500	0.0724	64	0.0419	41.900	0.579	0.655	0.0736	62	0.036	36.000	0.489	0.581
KP03	7(out6)	0.0527	60	0.022	22.000	0.417	0.367	0.0528	44	0.025	25.000	0.473	0.568	0.0479	30	0.0246	24.600	0.514	0.820	0.0492	42	0.0259	25.900	0.526	0.617
KP03	8(out7)	0.0588	62	0.027	27.000	0.459	0.435	0.0641	70	0.0336	33.600	0.524	0.480	0.0531	44	0.023	23.000	0.433	0.523	0.077	65.5	0.042	42.000	0.545	0.641
KP03	9(out8)	0.0612	66	0.0309	30.900	0.505	0.468	0.056	64	0.0319	31.900	0.483	0.498	0.0713	66	0.034	34.000	0.477	0.515	0.0798	66	0.041	41.000	0.514	0.621
KP02	10(out9)	0.0525	46	0.023	23.000	0.438	0.500	0.0603	50	0.029	29.000	0.481	0.580	0.0561	44	0.027	27.000	0.481	0.614	0.0706	68	0.034	34.000	0.482	0.500
KP02	11(out10)	0.0567	44	0.0151	15.100	0.411	0.343	0.0638	60	0.0313	31.300	0.491	0.522	0.045	37	0.039	19.300	0.429	0.522	0.0614	50	0.029	29.000	0.472	0.580
KP02	12(out11)	0.0565	62	0.0265	26.500	0.469	0.427	0.0715	66	0.033	33.000	0.462	0.500	0.0723	62	0.034	34.000	0.470	0.548	0.0695	60	0.033	33.000	0.475	0.550
KP02	13(out12)	0.0434	42	0.0195	19.500	0.449	0.464	0.0599	55	0.028	28.000	0.467	0.509	0.0776	66	0.038	38.000	0.490	0.576	0.0669	52	0.033	33.000	0.493	0.635
KP02	14(out13)	0.0687	60	0.033	33.000	0.480	0.550	0.0556	48	0.0305	30.500	0.549	0.635	0.0436	30	0.0229	22.900	0.525	0.763	0.051	40	0.0252	25.200	0.494	0.630
KP02	15(out14)	0.043	38	0.0186	18.600	0.433	0.489	0.0472	40	0.0208	20.800	0.441	0.520	0.0485	38	0.0219	21.900	0.452	0.576	0.0623	40	0.031	31.000	0.498	0.775
KP02	16(in2)	0.0824	79	0.041	41.000	0.498	0.519	0.0779	76	0.039	39.000	0.501	0.513	0.0479	38	0.0225	22.500	0.470	0.592	0.0406	20	0.017	17.000	0.419	0.850
KP02	17(out15)	0.0505	40	0.0234	23.400	0.463	0.585	0.0578	50	0.029	29.000	0.502	0.580	0.0551	36	0.025	25.000	0.454	0.694	0.0664	57	0.032	32.000	0.482	0.561
KP02	18(out16)	0.0659	68	0.031	31.000	0.470	0.456	0.0767	72	0.038	38.000	0.495	0.528	0.0576	45	0.029	29.000	0.503	0.644	0.0788	64	0.04	40.000	0.508	0.625
KP08	19(out17)	0.0437	38	0.019	19.000	0.435	0.500	0.0485	42	0.0246	24.600	0.507	0.586	0.0689	59	0.038	38.000	0.552	0.644	0.077	62	0.045	45.000	0.584	0.726
KP08	20(out18)	0.0527	96	0.05	50.000	0.539	0.521	0.0595	50	0.0308	30.800	0.518	0.616	0.0875	78	0.049	49.000	0.560	0.628	0.0558	46	0.0234	23.400	0.419	0.509
KP08	21(out19)	0.0525	52	0.0246	24.600	0.469	0.473	0.057	48	0.027	27.000	0.474	0.563	0.0592	52	0.03	30.000	0.507	0.577	0.0558	44	0.03	30.000	0.538	0.682
KP08	22(out20)	0.0612	54	0.031	31.000	0.507	0.574	0.0656	70	0.0386	38.600	0.588	0.551	0.0984	88	0.051	51.000	0.518	0.580	0.0749	66	0.043	43.000	0.574	0.652
KP08	23(out21)	0.0658	59	0.032	32.000	0.486	0.542	0.0511	46	0.0251	25.100	0.491	0.546	0.0663	58	0.036	36.000	0.543	0.621	0.0655	58	0.032	32.000	0.489	0.552
KP09	24(out22)	0.0417	42	0.0168	16.800	0.403	0.400	0.0471	48	0.0209	20.900	0.444	0.435	0.0506	53	0.0231	23.100	0.457	0.436	0.0298	25	0.0107	10.700	0.359	0.428
KP09	25(out23)	0.0483	53	0.0196	19.600	0.406	0.370	0.0163	9	0.0032	3.200	0.196	0.356	0.0277	22	0.0097	9.700	0.350	0.441	0.0237	18	0.007	7.000	0.295	0.389
KP09	26(out24)	0.0495	50	0.021	21.000	0.424	0.420	0.0571	62	0.027	27.000	0.473	0.435	0.0491	46	0.0235	23.500	0.479	0.511	0.0558	50	0.024	24.000	0.430	0.480
KP09	27(out25)	0.0401	42	0.0161	16.100	0.401	0.383	0.0405	39	0.013	13.000	0.321	0.333	0.0472	44	0.02	20.000	0.424	0.455	0.0345	28	0.013	13.000	0.377	0.464
KP08	28(out26)	0.0576	56	0.029	29.000	0.503	0.518	0.0608	42	0.03	30.000	0.493	0.714	0.0587	50	0.0367	36.700	0.625	0.734	0.058	48	0.031	31.000	0.534	0.646
KP08	29(out27)	0.0525	50	0.024	24.000	0.457	0.480	0.0591	54	0.03	30.000	0.508	0.556	0.0545	46	0.028	28.000	0.051	0.609	0.432	36	0.019	19.000	0.044	0.528
KP08	30(out28)	0.0498	50	0.0259	25.900	0.520	0.518	0.1123	104	0.056	56.000	0.499	0.538	0.0647	58	0.0277	27.700	0.428	0.478	0.0601	50	0.031	31.000	0.516	0.620
KP08	31(out29)	0.0576	64	0.027	27.000	0.469	0.422	0.0619	66	0.031	31.000	0.501	0.470	0.0496	40	0.025	25.000	0.504	0.625	0.0806	70	0.045	45.000	0.558	0.643
BB08	32(out30)	0.044	42	0.02	20.000	0.455	0.476	0.043	38	0.019	19.000	0.442	0.500	0.047	40	0.023	23.000	0.489	0.575	0.037	28	0.017	17.000	0.459	0.607
BB08	33(out31)	0.052	54	0.024	24.000	0.462	0.444	0.054	43	0.026	26.000	0.481	0.605	0.049	38	0.028	28.000	0.571	0.737	0.052	30	0.026	26.000	0.500	0.867
BB08	34(out32)	0.046	40	0.022	22.000	0.478	0.550	0.057	44	0.028	28.000	0.491	0.636	0.068	56	0.036	36.000	0.529	0.643	0.055	42	0.029	29.000	0.527	0.690
BB08	35(out33)	0.059	62	0.03	30.000	0.508	0.484	0.052	46	0.024	24.000	0.462	0.522	0.062	44	0.032	32.000	0.516	0.727	0.062	57	0.031	31.000	0.500	0.544
BB08	36(out34)	0.044	38	0.02	20.000	0.455	0.526	0.074	68	0.036	36.000	0.486	0.529	0.073	64	0.038	38.000	0.521	0.594	0.074	62	0.042	42.000	0.568	0.677
BB09	37(out35)	0.052	44	0.024	24.000	0.462	0.545	0.061	64	0.028	28.000	0.459	0.438	0.05	40	0.025	25.000	0.500	0.625	0.067	62	0.039	39.000	0.582	0.629
BB09	38(out36)	0.038	38	0.014	14.000	0.368	0.368	0.051	54	0.02	20.000	0.392	0.370	0.052	52	0.023	23.000	0.442	0.442	0.031	27	0.011	11.000	0.355	0.407
BB09	39(out37)	0.053	58	0.021	21.000	0.396	0.362	0.056	62	0.022	22.000	0.393	0.355	0.047	48	0.									

Sample Information		Remaining wood											
		Sample at stump			Sample at 1/4			Sample at 1/2			Sample at 3/4		
Plot Code	Tree Code	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh_Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh_Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh_Ratio	Fresh mass(Kg)	Dry mass without bag (Kg)	Dry_Fresh_Ratio
KP03	1(in1)	1.645	0.986	0.599	0.72	0.392	0.544	0.63	0.335	0.532	0.345	0.187	0.542
KP03	2(out 1)	0.935	0.523	0.559	1.17	0.659	0.563	0.76	0.427	0.562	0.16	0.084	0.525
KP03	3(out2)	1.05	0.588	0.560	1.205	0.695	0.577	0.69	0.394	0.571	0.175	0.098	0.560
KP03	4(out3)	0.355	0.188	0.530	0.625	0.338	0.541	0.34	0.192	0.565	0.165	0.088	0.533
KP03	5(out4)	1.72	0.973	0.566	0.85	0.502	0.591	0.905	0.524	0.579	0.275	0.156	0.567
KP03	6(out5)	0.56	0.292	0.521	1.88	1.024	0.545	1.31	0.733	0.560	0.33	0.188	0.000
KP03	7(out6)	0.45	0.234	0.520	0.425	0.233	0.548	0.18	0.093	0.517	0.0452	0.023	0.509
KP03	8(out7)	1.055	0.562	0.533	2.215	1.282	0.579	1.075	0.628	0.584	0.265	0.154	0.581
KP03	9(out8)	0.98	0.551	0.562	0.855	0.463	0.542	0.295	0.163	0.553	0.125	0.081	0.648
KP02	10(out9)	1.405	0.843	0.600	1.3	0.747	0.575	0.79	0.461	0.584	0.235	0.133	0.566
KP02	11(out10)	0.295	0.178	0.603	1.205	0.681	0.565	0.865	0.497	0.575	0.28	0.155	0.554
KP02	12(out11)	0.98	0.54	0.551	1.73	0.947	0.547	0.805	0.449	0.558	0.27	0.141	0.522
KP02	13(out12)	0.295	0.136	0.461	0.89	0.493	0.554	0.49	0.282	0.576	0.09	0.051	0.567
KP02	14(out13)	1.02	0.881	0.864	2.2	1.311	0.596	0.87	0.55	0.632	0.2602	0.157	0.603
KP02	15(out14)	0.805	0.663	0.824	0.84	0.467	0.556	0.818	0.453	0.554	0.292	0.161	0.551
KP02	16(in2)	0.82	0.701	0.855	1.38	0.791	0.573	0.53	0.29	0.547	0.117	0.06	0.513
KP02	17(out15)	0.685	0.576	0.841	1.1	0.64	0.582	0.3169	0.185	0.584	0.1162	0.72	0.000
KP02	18(out16)	1.32	1.153	0.873	1.25	0.75	0.600	1.05	0.639	0.609	0.2511	0.138	0.550
KP08	19(out17)	0.822	0.691	0.841	1.47	0.86	0.585	0.645	0.404	0.626	0.1459	0.089	0.610
KP08	20(out18)	1.75	1.543	0.882	1.45	0.89	0.614	1.075	0.674	0.627	0.3722	0.219	0.588
KP08	21(out19)	1.3	1.123	0.864	0.81	0.474	0.585	0.3467	0.213	0.614	0.2095	0.131	0.625
KP08	22(out20)	1.82	1.593	0.875	1.25	0.712	0.570	1.32	0.761	0.577	0.0513	0.027	0.526
KP08	23(out21)	1.71	1.523	0.891	1.425	0.827	0.580	0.495	0.319	0.644	0.3093	0.185	0.598
KP09	24(out22)	0.356	0.2783	0.782	0.1944	0.101	0.520	0.0395	0.015	0.380	N/A	N/A	N/A
KP09	25(out23)	0.0865	0.0518	0.599	0.0436	0.017	0.390	0.0267	0.008	0.300	N/A	N/A	N/A
KP09	26(out24)	0.46	0.3609	0.785	0.559	0.285	0.510	0.2622	0.131	0.500	0.0262	0.009	0.000
KP09	27(out25)	0.469	0.3695	0.788	0.523	0.256	0.489	0.0846	0.039	0.461	N/A	N/A	N/A
KP08	28(out26)	2.133	1.932	0.906	2.3	1.395	0.607	1.352	0.809	0.598	1.152	0.734	0.637
KP08	29(out27)	1.512	1.323	0.875	1.8	1.053	0.585	0.73	0.425	0.582	0.1536	0.085	0.553
KP08	30(out28)	1.2	1.023	0.853	2.255	1.319	0.585	1.125	0.685	0.609	0.55	0.323	0.587
KP08	31(out29)	1.5	1.323	0.882	1.4	0.764	0.546	0.959	0.591	0.616	0.245	0.153	0.624
BB08	32(out30)	0.391	0.218	0.558	0.627	0.351	0.560	0.146	0.083	0.568	0.123	0.076	0.618
BB08	33(out31)	0.612	0.368	0.601	1.019	0.607	0.596	0.682	0.45	0.660	0.174	0.112	0.644
BB08	34(out32)	0.534	0.3	0.562	0.793	0.468	0.590	0.68	0.433	0.637	0.112	0.071	0.634
BB08	35(out33)	0.613	0.358	0.584	0.792	0.456	0.576	1.051	0.647	0.616	0.393	0.246	0.626
BB08	36(out34)	0.715	0.407	0.569	0.847	0.478	0.564	0.512	0.3	0.586	0.137	0.085	0.620
BB09	37(out35)	0.327	0.17	0.520	0.364	0.208	0.571	0.219	0.133	0.607	0.035	0.017	0.486
BB09	38(out36)	0.155	0.074	0.477	0.25	0.113	0.452	N/A	N/A	N/A	N/A	N/A	N/A
BB09	39(out37)	0.132	0.064	0.485	0.069	0.018	0.261	0.047	0.029	0.617	0.037	0.014	0.378
BB09	40(out38)	0.393	0.2	0.509	0.221	0.111	0.502	0.211	0.142	0.673	N/A	N/A	N/A

Sample Information		Branches and Leaves Sample								Wood Density per Tree
		Branches Sample				Leaves Sample				
Plot code	Tree code	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)	Dry mass without bag(Kg)	Dry_Fresh_Ratio without bag	Fresh mass with bag(Kg)	Fresh mass without bag(Kg)	Dry mass without bag(Kg)	Dry_Fresh_Ratio without bag	
KP03	1(in1)	0.345	0.3342	0.169	0.506	0.54	0.5292	0.222	0.420	0.509
KP03	2(out 1)	0.4	0.3892	0.220	0.565	0.55	0.5392	0.223	0.414	0.602
KP03	3(out2)	0.7	0.6892	0.384	0.557	0.53	0.5192	0.198	0.381	0.554
KP03	4(out3)	0.4	0.3892	0.218	0.560	0.56	0.5492	0.236	0.430	0.501
KP03	5(out4)	1.195	1.1842	0.672	0.567	0.73	0.7192	0.313	0.435	0.524
KP03	6(out5)	0.98	0.9692	0.528	0.545	0.51	0.4992	0.203	0.407	0.532
KP03	7(out6)	0.215	0.2042	0.115	0.563	0.445	0.4342	0.173	0.398	0.554
KP03	8(out7)	0.5	0.4892	0.298	0.609	0.66	0.6492	0.290	0.447	0.520
KP03	9(out8)	0.16	0.1492	0.081	0.543	0.465	0.4542	0.187	0.412	0.526
KP02	10(out9)	1.085	1.0742	0.597	0.556	0.64	0.6292	0.250	0.397	0.543
KP02	11(out10)	0.63	0.6192	0.336	0.543	0.59	0.5792	0.254	0.439	0.496
KP02	12(out11)	0.31	0.2992	0.165	0.551	0.655	0.6442	0.285	0.442	0.506
KP02	13(out12)	0.3	0.2892	0.150	0.519	0.61	0.5992	0.258	0.431	0.551
KP02	14(out13)	0.62	0.6092	0.379	0.622	0.52	0.5092	0.223	0.438	0.627
KP02	15(out14)	1.02	1.0092	0.523	0.518	0.55	0.5392	0.213	0.395	0.592
KP02	16(in2)	0.76	0.7492	0.418	0.558	0.64	0.6292	0.281	0.447	0.561
KP02	17(out15)	0.32	0.3092	0.171	0.553	0.49	0.4792	0.190	0.396	0.598
KP02	18(out16)	0.79	0.7792	0.445	0.571	0.46	0.4492	0.192	0.427	0.554
KP08	19(out17)	1.335	1.3242	0.814	0.615	0.47	0.4592	0.199	0.433	0.630
KP08	20(out18)	0.945	0.9342	0.572	0.612	0.665	0.6542	0.312	0.477	0.567
KP08	21(out19)	0.75	0.7392	0.482	0.652	0.46	0.4492	0.208	0.463	0.569
KP08	22(out20)	1.13	1.1192	0.625	0.558	0.48	0.4692	0.201	0.428	0.588
KP08	23(out21)	0.88	0.8692	0.520	0.598	0.46	0.4492	0.203	0.452	0.566
KP09	24(out22)	0.095	0.0842	0.040	0.475	0.55	0.5392	0.231	0.428	0.426
KP09	25(0ut23)	0.096	0.0852	0.036	0.423	0.26	0.2492	0.112	0.449	0.387
KP09	26(out24)	0.16	0.1492	0.072	0.483	0.51	0.4992	0.257	0.515	0.459
KP09	27(out25)	0.165	0.1542	0.061	0.396	0.51	0.4992	0.226	0.453	0.406
KP08	28(out26)	1.38	1.3692	0.884	0.646	0.6	0.5892	0.269	0.457	0.646
KP08	29(out27)	0.61	0.5992	0.311	0.519	0.53	0.5192	0.228	0.439	0.543
KP08	30(out28)	1.355	1.3442	0.768	0.571	0.445	0.4342	0.201	0.463	0.537
KP08	31(out29)	0.77	0.7592	0.513	0.676	0.445	0.4342	0.225	0.518	0.533
BB08	32(out30)	0.695	0.6842	0.445	0.650	0.378	0.3672	0.173	0.471	0.534
BB08	33(out31)	0.475	0.4642	0.280	0.603	0.36	0.3492	0.147	0.421	0.630
BB08	34(out32)	0.751	0.7402	0.475	0.642	0.362	0.252	0.173	0.687	0.632
BB08	35(out33)	0.59	0.5792	0.349	0.603	0.362	0.3512	0.091	0.259	0.560
BB08	36(out34)	0.625	0.6142	0.359	0.585	0.4	0.3892	0.191	0.491	0.586
BB09	37(out35)	0.155	0.1442	0.078	0.541	0.352	0.3412	0.154	0.451	0.552
BB09	38(out36)	0.04	0.0292	0.016	0.548	0.36	0.3492	0.151	0.432	0.398
BB09	39(out37)	0.045	0.0342	0.018	0.526	0.322	0.3112	0.120	0.386	0.362
BB09	40(out38)	0.22	0.2092	0.114	0.545	0.42	0.4092	0.211	0.516	0.557
									WD =	0.538

Appendix 3: Field activities



