



**Forestry Department**

Food and Agriculture Organization of the United Nations



**International Network for Bamboo and Rattan (INBAR)**

**GLOBAL FOREST RESOURCES  
ASSESSMENT 2005**

**BRAZIL**

**COUNTRY REPORT  
ON  
BAMBOO RESOURCES**

Brazil, May 2005

## Introductory Note:

Brazil area is 8.5 million km<sup>2</sup> of which approximately 5.3 km<sup>2</sup> are occupied by forests (Country Report FRA2005 – unpublished). However, information about bamboo resources at country scale are practically unavailable.

The Ministry of Environment (National Forest Programme) wishes to gather the necessary information to support the design of policies promoting the sustainable use of bamboo resources in Brazil. Taking the opportunity of FAO/INBAR inclusion of bamboo in FRA2005 as a Thematic Report, the Brazilian National Forest Programme has promoted a meeting inviting people from different institutions working on bamboo in Brazil.

The meeting has shown that the number of people working on bamboo in Brazil is timid compared to its vast territory and geography, although their interesting and diverse experiences on bamboo. The majority of these people works for institutions such as Universities, Research Institutes, NGO's, Government and private sector.

The main experiences presented were:

- Research on technological characterisation of bamboo species (*Guadua*) by IBAMA (Forestry Authority);
- Research on use of bamboo in architecture for building alternative houses (for indigenous people, for example) and research on Taxonomy and Systematic of bamboo species, both by University of Brasilia;
- Ecology of forests dominated with bamboo in south-eastern region of the Brazilian Amazon, by University of Acre State
- Research on bamboo as a promise non traditional raw material for civil construction;
- Research on silviculture and use of native and exotic species of bamboo by University of State of São Paulo – Bauru;
- Non Governmental Organisations working with bamboo on several focus, such as conservation, silviculture, use, environmental education, research, etc.
- A relevant Industrial use of bamboo for paper production using *Bambusa vulgaris* (introduced species) as a raw material, with 30,000 ha of plantation in south-eastern Brazil;
- An informal electronic discussion group on bamboo, with 530 registered members, used by most of the people interested in bamboo in Brazil and different parts of the world.

At the end of the meeting a discussion was held to point out priorities and actions by the Government towards policies to promote the sustainable use of bamboo in Brazil.

Despite the rich experiences presented during the meeting, we concluded that virtually there is no available information on bamboo resources at country scale.

Therefore, the objective of this report is rather to provide some initial information or comments on bamboo resources in Brazil than to complete all tables in this first Global Forest Resources Assessment update 2005 on Bamboo Resources.

However, We believe this initial effort was an important step to promote bamboo and its sustainable use in Brazil in the near future.

## Table of contents

<b>1</b>	<b>TABLE T1 – EXTENT OF BAMBOO FOREST .....</b>	<b>2</b>
1.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	2
1.2	NATIONAL DATA ON BAMBOO RESOURCES .....	2
1.2.1	<i>Data sources.....</i>	2
1.2.2	<i>Classification and definitions.....</i>	2
1.2.3	<i>Original data.....</i>	2
1.3	DATA FOR NATIONAL REPORTING TABLE T1 .....	2
1.4	COMMENTS TO NATIONAL REPORTING TABLE T1.....	2
<b>2</b>	<b>TABLE T2 – OWNERSHIP OF BAMBOO FOREST .....</b>	<b>4</b>
2.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	4
2.2	NATIONAL DATA ON BAMBOO RESOURCES .....	4
2.2.1	<i>Data sources.....</i>	4
2.2.2	<i>Classification and definitions.....</i>	4
2.2.3	<i>Original data.....</i>	4
2.3	DATA FOR NATIONAL REPORTING TABLE T2.....	4
2.4	COMMENTS TO NATIONAL REPORTING TABLE T2.....	4
<b>3</b>	<b>TABLE T3 – CHARACTERISTICS OF BAMBOO FOREST .....</b>	<b>5</b>
3.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	5
3.2	NATIONAL DATA ON BAMBOO IN FOREST .....	5
3.2.1	<i>Data sources.....</i>	5
3.2.2	<i>Classification and definitions.....</i>	5
3.2.3	<i>Original data.....</i>	5
3.3	DATA FOR NATIONAL REPORTING TABLE T3.....	5
3.4	COMMENTS TO NATIONAL REPORTING TABLE T3.....	5
<b>4</b>	<b>TABLE T4 – BAMBOO GROWING STOCK.....</b>	<b>7</b>
4.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	7
4.2	NATIONAL DATA ON BAMBOO RESOURCES .....	7
4.2.1	<i>Data sources.....</i>	7
4.2.2	<i>Classification and definitions.....</i>	7
4.2.3	<i>Original data.....</i>	7
4.3	DATA FOR NATIONAL REPORTING TABLE T4.....	7
4.4	COMMENTS TO NATIONAL REPORTING TABLE T4.....	7
<b>5</b>	<b>TABLE T5 – BAMBOO BIOMASS STOCK.....</b>	<b>8</b>
5.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	8
5.2	NATIONAL DATA ON BAMBOO RESOURCES .....	8
5.2.1	<i>Data sources.....</i>	8
5.2.2	<i>Classification and definitions.....</i>	8
5.2.3	<i>Original data.....</i>	8
5.3	DATA FOR NATIONAL REPORTING TABLE T5.....	8

5.4	COMMENTS TO NATIONAL REPORTING TABLE T5.....	8
<b>6</b>	<b>TABLE 6 – DIVERSITY OF BAMBOO TREE SPECIES.....</b>	<b>10</b>
6.1	GBRA 2005 CATEGORIES AND DEFINITIONS.....	10
6.2	NATIONAL DATA ON BAMBOO RESOURCES .....	10
6.2.1	<i>Data sources.....</i>	<i>10</i>
6.2.2	<i>Classification and definitions.....</i>	<i>10</i>
6.3	DATA FOR NATIONAL REPORTING TABLE T6.....	10
6.4	COMMENTS TO NATIONAL REPORTING TABLE T6.....	11
<b>7</b>	<b>TABLE T7 – BAMBOO REMOVAL .....</b>	<b>12</b>
7.1	GBRA 2005 CATEGORIES AND DEFINITIONS .....	12
7.2	NATIONAL DATA ON BAMBOO RESOURCES .....	12
7.2.1	<i>Data sources.....</i>	<i>12</i>
7.2.2	<i>Classification and definitions.....</i>	<i>12</i>
7.2.3	<i>Original data.....</i>	<i>12</i>
7.3	DATA FOR NATIONAL REPORTING TABLE T7.....	12
7.4	COMMENTS TO NATIONAL REPORTING TABLE T7.....	12
<b>8</b>	<b>TABLE 8 – VALUE OF WOOD REMOVAL.....</b>	<b>13</b>
8.1	GBRA 2005 CATEGORIES AND DEFINITIONS .....	13
8.2	NATIONAL DATA.....	13
8.2.1	<i>Data sources.....</i>	<i>13</i>
8.2.2	<i>Classification and definitions.....</i>	<i>13</i>
8.2.3	<i>Original data.....</i>	<i>13</i>
8.3	DATA FOR NATIONAL REPORTING TABLE T8.....	13
8.4	COMMENTS TO NATIONAL REPORTING TABLE T8.....	13
<b>9</b>	<b>9 TABLE 9 – NON WOOD BAMBOO PRODUCT REMOVAL .....</b>	<b>14</b>
9.1	GBRA2005 CATEGORIES AND DEFINITIONS.....	14
9.2	NATIONAL DATA ON BAMBOO RESOURCES .....	14
9.2.1	<i>Data sources.....</i>	<i>14</i>
9.2.2	<i>Classification and definitions.....</i>	<i>14</i>
9.2.3	<i>Original data.....</i>	<i>14</i>
9.3	DATA FOR NATIONAL REPORTING TABLE T9.....	14
9.4	COMMENTS TO NATIONAL REPORTING TABLE T9.....	15
<b>10</b>	<b>TABLE T10– VALUE OF NON WOOD BAMBOO PRODUCT .....</b>	<b>16</b>
10.1	GBRA 2005 CATEGORIES AND DEFINITIONS .....	16
10.2	NATIONAL DATA ON BAMBOO RESOURCES .....	16
10.2.1	<i>Data sources.....</i>	<i>16</i>
10.2.2	<i>Classification and definitions.....</i>	<i>16</i>
10.2.3	<i>Original data.....</i>	<i>16</i>
10.3	DATA FOR NATIONAL REPORTING TABLE T10.....	16
10.4	COMMENTS TO NATIONAL REPORTING TABLE T10.....	16

<b>11</b>	<b>MAP OF COUNTRY'S BAMBOO RESOURCES DISTRIBUTION .....</b>	<b>17</b>
<b>12</b>	<b>LIST OF BAMBOO SPECIES IN THE COUNTRY .....</b>	<b>18</b>

## General Guidelines:

The main purpose of the Country Thematic Report on Bamboo Resources (CTRB) is to develop a Global Bamboo Resources Assessment (GBRA) and to integrate it in the global UN FAO FRA. The approach is to create sub-category on Bamboo in the framework of FRA 2005 ([www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)) to provide supplementary information on bamboo resources. This document provides format for compiling information on Bamboo resources and should be treated as a supplement to the basic documents of FRA 2005 including Specification of National Reporting tables, FRA Working Paper No. 81; Guidelines for Country Reporting, FRA Working Paper No. 82 and Terms and Definitions, FRA Working Paper No. 83.

The country Bamboo Resources Thematic Study Report should clearly and concisely document all data sources that have been selected and used for this reporting process and assign quality rating to the data sources. Comment on any problems encountered in finding relevant data sources. The Report should also indicate if no data sources have been found which meet the requirements. Similarly all the relevant national classification and definitions should be documented clearly and concisely. Comments on any problems or incompatibilities in classification and definitions should also be provided, if necessary. Please email the Bamboo Thematic Report directly to the focal point at INBAR ([mlobovikov@inbar.int](mailto:mlobovikov@inbar.int)) with the copy to FAO ([kailash.govil@fao.org](mailto:kailash.govil@fao.org)) as a part of GFRA.

## General information

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<b>Date of submission of 1<sup>st</sup> draft:</b>	May 5 <sup>th</sup> 2005
<b>Date of submission of 2<sup>nd</sup> draft</b>	-
<b>Date of submission of final report</b>	

## 1 Table T1 – Extent of Bamboo Forest

### 1.1 GBRA 2005 Categories and definitions

Category	Definition
Bamboo on forest land	Bamboo on lands defined as "Forest" in FRA 2005.

### 1.2 National Data on Bamboo Resources

#### 1.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 1.2.2 Classification and definitions

National class	Definition

#### 1.2.3 Original data

### 1.3 Data for National Reporting Table T1

GBRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Bamboo on forest land	N/A	N/A	N/A
Monopodial bamboo area	N/A	N/A	N/A
Sympodial bamboo area	N/A	N/A	N/A
<b>TOTAL</b>	N/A	N/A	N/A

### 1.4 Comments to National Reporting Table T1

**Including information on the minimum area on which information is collected**

No comprehensive information is available for bamboo on forest lands, at scale of the country, for any of the FRA reporting years (1990, 2000, 2005).

- Bamboo native species occur dispersed within different natural forest types of Brazilian biomas.
- The relevant available information is to south-eastern part of the Amazon region, mostly in the State of Acre, where there is a considerable area of natural forests dominated by bamboo (gen. *Guadua*). This forest type is referred as Open Natural Tropical Forest (with bamboo), and the regional name is “Tabocal”.
- The area of forests dominated with bamboo in the Brazilian south-eastern part of the Amazon region is 92.000 km<sup>2</sup>, estimated from Landsat TM images, air photography and field surveys (Nelson & Irmão, 1998). Usually this forest type occur in spots of 10 to 10<sup>4</sup> km<sup>2</sup>.

Nelson, B.W and Irmão, M.N.1998. Fire penetration in standing amazon forest. **IN:** *Anais IX Simpósio Brasileiro de Sensoriamento Remoto*. Santos, SP, Brasil, 11-18 Setembro. INPE, São José dos Campos, SP. CD-ROM 12 pp.



## 2 Table T2 – Ownership of Bamboo Forest

### 2.1 GBRA 2005 Categories and definitions

Category	Definition
Private ownership	Same as FRA: Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Same as FRA: Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Same as FRA: Land that is not classified either as “Public ownership” or as “Private ownership”.

### 2.2 National Data on Bamboo Resources

#### 2.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 2.2.2 Classification and definitions

National class (Bamboo)	Definition

#### 2.2.3 Original data

### 2.3 Data for National Reporting Table T2

GBRA 2005 Categories	Area (1000 ha)	
	1990	2000
Private ownership	N/A	N/A
Public ownership	N/A	N/A
Other ownership	N/A	N/A
Total	N/A	N/A

### 2.4 Comments to National Reporting Table T2

There is no available information on ownership of Bamboo forest.

### 3 Table T3 – Characteristics of Bamboo Forest

#### 3.1 GBRA 2005 Categories and definitions

Category	Definition
Natural bamboo forest	Bamboo area of naturally regenerated native bamboo species.
Plantation	Bamboo area of native or introduced species, established through planting, seeding or assisted natural regeneration.

#### 3.2 National data on Bamboo in Forest

##### 3.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

##### 3.2.2 Classification and definitions

National class	Definition

##### 3.2.3 Original data

#### 3.3 Data for National Reporting Table T3

GBRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Natural bamboo forest	N/A	N/A	N/A
Plantation	N/A	N/A	N/A
<b>TOTAL</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

#### 3.4 Comments to National Reporting Table T3

- No published or comprehensive unpublished information is available on natural forests and plantation of bamboo, at country scale.
- The only data available are for pontual areas or situations:
- **Natural bamboo forests:** Open Natural Forests dominated with bamboo (gen *Guadua*), the “Tabocais”, in south-eastern part of the Brazilian Amazon region (State of Acre): estimated area is 92.000 km<sup>2</sup>.

- **Plantation:** There is only one known enterprise dealing with bamboo plantations to be used as raw material to paper production in two factories. They own a total area of about 30,000 ha of *Bambusa vulgaris* (exotic species) in north-eastern region (States of Pernambuco, Paraíba, Piauí and Maranhão) .

## 4 Table T4 – Bamboo Growing Stock

### 4.1 GBRA 2005 Categories and definitions

Category	Definition
Bamboo Growing stock	Weight (tons) of all bamboo forest more than X cm in diameter at breast height.
Commercial growing stock of Bamboo	The part of the growing stock of bamboo species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.
Growing stock of Common bamboo species	Weight (tons) of the most common bamboo species.

### 4.2 National data on Bamboo Resources

#### 4.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 4.2.2 Classification and definitions

Category	Definition

#### 4.2.3 Original data

### 4.3 Data for National Reporting Table T4

GBRA 2005 Categories	Total weight (tons)		
	1990	2000	2005
Bamboo Growing stock	N/A	N/A	N/A
....	N/A	N/A	N/A
	N/A	N/A	N/A

Note: if possible, please (1) breakdown by species groups (2) include information on the minimum diameter used as thresholds and (3) provide coefficient of number of culms per a ton of weight

### 4.4 Comments to National Reporting Table T4

No information is available.

## 5 Table T5 – Bamboo Biomass stock

### 5.1 GBRA 2005 Categories and definitions

Category	Definition
Above-ground biomass of Bamboo	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass of Bamboo	All living biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.

### 5.2 National Data on Bamboo Resources

#### 5.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 5.2.2 Classification and definitions

Category	Definition

#### 5.2.3 Original data

### 5.3 Data for National Reporting Table T5

GBRA 2005 Categories	Bamboo Biomass (million metric ton dry weight)		
	1990	2000	2005
Above-ground biomass of Bamboo	N/A	N/A	N/A
Below-ground biomass of Bamboo	N/A	N/A	N/A
Total of living biomass	N/A	N/A	N/A
<b>TOTAL</b>	N/A	N/A	N/A

### 5.4 Comments to National Reporting Table T5

- No information is available to estimate bamboo biomass at country scale.
- As an additional information:
  - Biomass of Open Natural Forest dominated by bamboo (Tabocais), as those in South-eastern part of the Brazilian Amazon region: **122 t ha<sup>-1</sup>**.
  - This figure is from a study conducted by França (2002) on allometric equations adjusted for biomass estimation in Closed Natural Forests of Central Amazon, adapted to biomass estimation in Open Natural Forest with and without

bamboo in south-eastern Amazon region. The corresponding estimation to Open Natural Forest without bamboo is 216 t ha<sup>-1</sup>.

França, M.B. 2002. **Modelagem de Biomassa Florestal Através do Padrão Espectral no Sudoeste da Amazônia**. Manaus. Dissertação de Mestrado – INPA/FUA.105 p.

## 6 Table 6 – Diversity of bamboo tree species

### 6.1 GBRA 2005 Categories and definitions

Category	Definition
Number of native Bamboo species	The total number of native tree species that have been identified within the country.
Number of introduced Bamboo species	The total number of introduced tree species that have been identified within the country.
Number of critically endangered Bamboo species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered Bamboo species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable Bamboo species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

### 6.2 National Data on Bamboo Resources

#### 6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Filgueiras, T.S. 2004. A Checklist the Basal Grasses and Bamboos in Brazil (POACEAE). The Journal of the American Bamboo Society 18(1):7-18	H	Number of species	2003	See below

#### 6.2.2 Classification and definitions

Category	Definition

### 6.3 Data for National Reporting Table T6

GBRA 2005 Categories	Number of species (Year 2000)
Native Bamboo species	232
Introduced Bamboo species	20
Critically endangered Bamboo species	N/A
Endangered Bamboo species	N/A
Vulnerable Bamboo species	N/A

#### **6.4 Comments to National Reporting Table T6**

The data for native Bamboo species were gathered from the literature and herbarium and may be taken as very accurate for Brazil available information. The number of introduced Bamboo species considers only species recorded in herbarium.



## 7 Table T7 – Bamboo Removal

### 7.1 GBRA 2005 Categories and Definitions

Category	Definition
Bamboo Wood removal	The Bamboo wood removed (volume) for production of goods and services other than energy production (woodfuel).
Woodfuel Bamboo removal	The Bamboo wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

### 7.2 National Data on Bamboo Resources

#### 7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 7.2.2 Classification and definitions

National class	Definition

#### 7.2.3 Original data

### 7.3 Data for National Reporting Table T7

GBRA2005	Bamboo removal (million ton)		
	1990	2000	2005
Bamboo wood removal	N/A	N/A	N/A
Bamboo woodfuel removal	N/A	N/A	N/A
Total	N/A	N/A	N/A

### 7.4 Comments to National Reporting Table T7

No information is available.

## 8 Table 8 – Value of Wood Removal

### 8.1 GBRA 2005 Categories and Definitions

Category	Definition
Bamboo Wood removal	The Bamboo wood removed (volume ) for production of goods and services other than energy production (woodfuel).
Woodfuel Bamboo removal	The Bamboo wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

### 8.2 National Data

#### 8.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 8.2.2 Classification and definitions

National class	Definition

#### 8.2.3 Original data

### 8.3 Data for National Reporting Table T8

GBRA2005	Value (million USD)		
	1990	2000	2005
Bamboo wood removal	N/A	N/A	N/A
Bamboo woodfuel removal	N/A	N/A	N/A
Total	N/A	N/A	N/A

### 8.4 Comments to National Reporting Table T8

No information is available.

## 9 Table 9 – Non Wood Bamboo Product Removal

### 8.5 GBRA2005 Categories and Definitions

<b>Category</b>
<b><u>Plant products / raw material</u></b>
1. Food
2. Raw material for medicine and aromatic products
3. Raw material for utensils, handicrafts & construction
4. Ornamental plants
5. Other plant products
<b><u>Animal products / raw material</u></b>
1. Living animals
2. Other edible animal products
3. Other non-edible animal products

### 8.6 National Data on Bamboo Resources

#### 8.6.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 8.6.2 Classification and definitions

#### 8.6.3 Original data

### 8.7 Data for National Reporting Table T9

GBRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2005
<b><u>Plant products / raw material</u></b>			N/A	N/A	N/A
1. Food (bamboo shoots)			N/A	N/A	N/A
2. Raw material for medicine and aromatic products			N/A	N/A	N/A
3. Raw material for utensils, handicrafts & construction			N/A	N/A	N/A
4. Ornamental plants			N/A	N/A	N/A
5. Other plant products			N/A	N/A	N/A
<b><u>Animal products / raw material (if any)</u></b>					
1. Living animals			N/A	N/A	N/A
2. Other edible animal products			N/A	N/A	N/A

3. Other non-edible animal products			N/A	N/A	N/A
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## 8.8 Comments to National Reporting Table T9

## 9 Table T10– Value of Non Wood Bamboo Product

### 9.1 GBRA 2005 Categories and Definitions

### 9.2 National Data on Bamboo Resources

#### 9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 9.2.2 Classification and definitions

#### 9.2.3 Original data

### 9.3 Data for National Reporting Table T10

GBRA 2005 Categories	Value of the other than culms removal (Million USD)		
	1990	2000	2005
<b><u>Plant products / raw material</u></b>	N/A	N/A	N/A
1. Food (bamboo shoots)	N/A	N/A	N/A
2. Raw material for medicine and aromatic products	N/A	N/A	N/A
3. Raw material for utensils, handicrafts & construction	N/A	N/A	N/A
4. Ornamental plants	N/A	N/A	N/A
5. Other plant products	N/A	N/A	N/A
	N/A	N/A	N/A

### 9.4 Comments to National Reporting Table T10

## **10 Map of country's bamboo resources distribution**

Please attach a map of bamboo distribution in the country with explanatory notes

There is no map of country's bamboo distribution available. However, according to Filgueiras (2004) the total number of species (232) is distributed in different biomas as follow:

- Mata Atlântica 62%
- Amazônia 28%
- Cerrado 10%

## 11 List of bamboo species in the country

Please attach list of the main bamboo species in the country

### *12a) List of Herbaceous bamboo genera and species in Brazil (! = endemic genus; \* = not formally described)*

#### Genus

#### Species Obs.

*Agnesia* Zuloaga & Judz.

*A. lancifolia* (Mez) Zuloaga & Judz. –

*Arberella* Soderstr.

*A. bahiensis* Soderstr. & Zuloaga Endemic

*A. flaccida* (Döll) Soderstr. & C.E. Calderón Endemic

*Cryptochloa* Swallen

*C. capillata* (Trin.) Soderstr. –

*Diandrolyra* Stapf!

*D. bicolor* Stapf Endemic

*D. tatianae* Soderstr. & Zuloaga Endemic

*D. sp. nov.* (Oliveira 2001) Endemic

*Eremitis* Döll!

*E. parviflora* (Trin.) C.E. Calderón Endemic

*E. sp. nov. 1* \* (Hollowell, 1989, 1977; Oliveira 2001) Endemic

*E. sp. nov. 2* \* (Oliveira, 2001) Endemic

*E. sp. nov. 3* \* (Santos-Gonçalves 2000) Endemic

*Froesiochloa* G.A. Black

*F. boutelouoides* G. A Black –

*Lithachne* P. Beauv.

*L. horizontalis* Chase Endemic

*L. pauciflora* (Sw.) P. Beauv. –

*Olyra* L.

*O. amapana* Soderstr. & Zuloaga Endemic

*O. caudata* Trin. Endemic

*O. davidseana* Judz. & Zuloaga –

*O. ecaudata* Döll Endemic

*O. fasciculata* Trin. –  
*O. filiformis* Trin. Endemic  
*O. glaberrima* Raddi –  
*O. humilis* Nees –  
*O. juruana* Mez Endemic  
*O. latifolia* L. –  
*O. latispicula* Soderstr. & Zuloaga Endemic

*Olyra* L.  
*O. longifolia* Kunth –  
*O. lorentensis* Mez –  
*O. obliquifolia* Steud. –  
*O. retrorsa* Soderstr. & Zuloaga Endemic  
*O. tamanquareana* Soderstr. & Zuloaga Endemic  
*O. taquara* Swallen Endemic  
*O. wurdackii* Swallen –

*Pariana* Aubl.  
*P. campestris* Aubl. –  
*P. concinna* Tutin Endemic  
*P. distans* Swallen Endemic  
*P. gracilis* Döll Endemic  
*P. lanceolata* Trin. Endemic  
*P. ligulata* Swallen Endemic

*Pariana* Aubl.  
*P. maynensis* Huber –  
*P. modesta* Swallen Endemic  
*P. nervata* Swallen Endemic  
*P. ovalifolia* Swallen Endemic  
*P. radiciflora* Döll –  
*P. simulans* Tutin –  
*P. sociata* Swallen Endemic  
*P. stenolemma* Tutin –  
*P. tenuis* Tutin –  
*P. trichosticha* Tutin –  
*P. ulei* Pilg. Endemic  
*P. sp. nov. 1* \* (Hollowell, 1989) Endemic  
*P. sp. nov. 2* \* (Hollowell, 1989) Endemic

*Parodiolyra*  
Soderstr. & Zuloaga  
*P. lateralis* (J. Presl ex Nees) Soderstr. & Zuloaga –  
*P. luetzelburgii* (Pilg.) Soderstr. & Zuloaga –



*P. micrantha* (Kunth) –  
*P. ramosissima* (Trin.) Soderstr. & Zuloaga Endemic

*Piresia* Swallen  
*P. goeldii* Swallen –  
*P. leptophylla* Soderstr. –  
*P. macrophylla* Soderstr. –  
*P. sympodica* (Döll) Swallen –

*Raddia* Bertol.  
*R. angustifolia* Soderstr. & Zuloaga Endemic  
*R. brasiliensis* Bertol. Endemic  
*R. distichophylla* (Nees) Chase Endemic  
*R. guianensis* (Brogn.) Hitchc. –  
*R. portoi* Kuhlm. Endemic

*Raddiella* Swallen  
*R. sp. nov. 1* \* (Oliveira, 2001) Endemic  
*R. sp. nov. 2* \* (Oliveira, 2001) Endemic  
*R. esenbeckii* (Steud.) C.E. Calderón & Soderstr. –  
*R. kaieteurana* Soderstr. –  
*R. lunata* Zuloaga & Judz. Endemic  
*R. malmeana* (Ekm.) Swallen Endemic  
*R. minima* Judz. & Zuloaga Endemic

*Rehia* Fijten  
*R. nervata* (Swallen) Fijten –

*Reitzia* Swallen!  
*R. smithii* Swallen Endemic

*Sucrea* Soderstr.!  
*S. maculata* Soderstr. Endemic  
*S. monophylla* Soderstr. Endemic  
*S. sampaiana* (Hitchc.) Soderstr. Endemic

***12b) Woody bamboo genera and species in Brazil (!=endemic genus; \* = not formally described)***

### **Genus**

#### **Species Obs.**

*Actinocladum* Soderstr.  
*A. verticillatum* (Nees) Soderstr. Bolivia, Brazil  
*Alvimia* Soderstr. & Londoño!  
*A. auriculata* Soderstr. & Londoño Endemic

*A. gracilis* Soderstr. & Londoño Endemic  
*A. lancifolia* Soderstr. & Londoño Endemic

*Apoclada* McClure!  
*A. simplex* McClure & L.B. Sm. Endemic

*Arthrostylidium* Rupr.  
*A. fimbriodum* Judz. & L.G.Clark Endemic  
*A. grandifolium* Judz. & L.G.Clark Endemic  
*A. simpliciusculum* (Pilg.)McClure –

*Athroostachys* Benth. !  
*A. capitata* (Hook. f.) Benth. Endemic

*Atractantha* McClure  
*A. amazonica* Judz. & L. G. Clark –  
*A. aureolanata* Judz. Endemic  
*A. cardinalis* Judz. Endemic  
*A. falcata* McClure Endemic  
*A. radiata* McClure Endemic

*Aulonemia* Goudot  
*A. amplissima* (Nees)McClure Endemic  
*A. aristulata* (Döll) McClure Endemic  
*A. effusa* (Hack.)McClure Endemic  
*A. fimbriatifolia* L.G. Clark Endemic  
*A. glaziovii* (Hack.) McClure Endemic  
*A. goyazensis* (Hack.) McClure Endemic  
*A. radiata* (Rupr.) McClure Endemic  
*A. ramosissima* (Hack.) McClure Endemic  
*A. setigera* (Hack.) McClure Endemic  
*A. ulei* (Hack.) McClure Endemic

*Chusquea* Kunth  
*C. acuminata* Döll Endemic  
*C. anelythra* Nees Endemic  
*C. anelythroides* Döll Endemic  
*C. attenuata* (Döll) L.G. Clark Endemic  
*C. baculifera* Silveira Endemic  
*C. bahiana* L.G. Clark Endemic  
*C. bambusoides* (Raddi) Hack. var. *bambusoides* Endemic  
*C. bambusoides* var. *minor* McClure & L.B. Sm. Endemic  
*C. bradei* L.G. Clark Endemic  
*C. caparaoensis* L.G. Clark Endemic

- C. capitata* Nees Endemic  
*C. capituliflora* Trin. var. *Capituliflora* Endemic  
*C. capituliflora* Trin. var. *pubescens* McClure & L.B. Sm. Endemic  
*C. erecta* L.G. Clark Endemic  
*C. fasciculata* Döll Endemic  
*C. gracilis* McClure & L.B. Sm. Endemic  
*C. heterophylla* Nees Endemic  
*C. ibiramae* McClure & L.B. Sm. Endemic  
*C. juergensii* Hack. –  
*C. leptophylla* Nees Endemic  
*C. linearis* N.E. Br. Endemic  
*C. longispiculata* L.G. Clark Endemic  
*C. meyeriana* Döll Endemic  
*C. microphylla* (Döll) L.G. Clark Endemic  
*C. mimosa* subsp. *australis* L.G. Clark Endemic  
*C. mimosa* McClure & L.B. Sm. subsp. *mimosa* Endemic  
*C. nudiramea* L.G. Clark Endemic  
*C. nutans* L.G. Clark Endemic  
*C. oligophylla* Rupr. Endemic  
*C. oxylepis* (Hack.) Ekman Endemic  
*C. pinifolia* (Nees) Nees Endemic  
*C. pulchella* L.G. Clark Endemic  
*C. ramosissima* Lindm. –  
*C. riosaltensis* L.G. Clark Endemic  
*C. sclerophylla* Döll Endemic  
*C. sellowii* Rupr. *C. tenella* Nees Endemic  
*C. tenella* Nees –  
*C. tenuiglumis* Döll Endemic  
*C. tenuis* E.G. Camus Endemic  
*C. urelythra* Hack. Endemic  
*C. wilkeskii* Munro Endemic  
*C. windischii* L.G. Clark Endemic  
*C. sp. nov. 1\** (Clark, pers. comm.) Endemic
- Colanthelia* McClure & E.W Sm.  
*C. burchellii* (Munro) McClure Endemic  
*C. cingulata* (McClure & L.B. Sm.) McClure –  
*C. distans* (Trin.) McClure Endemic  
*C. intermedia* (McClure & L.B. Sm.) McClure Endemic  
*C. lanciflora* (McClure & L.B. Sm.) McClure Endemic  
*C. macrostachya* (Nees) McClure Endemic  
*C. rhizantha* (Hack.) McClure Endemic  
*C. sp. nov. 1\** (nobis) Endemic  
*C. sp. nov. 2\** (nobis) Endemic

*Elytrostachys* McClure

*E. sp. nov.* \* (Judziewicz et al. 1999) –

*Eremocaulon* Soderstr. & Londoño !

*E. amazonicum* Londoño Endemic

*E. asymmetricum* (Soderstr. & Londoño) Londoño Endemic

*E. aureofimbriatum* Soderstr. & Londoño Endemic

*E. capitatum* (Trin.) Londoño Endemic

*E. setosum* Londoño & L.G. Clark Endemic

*Filgueirasia* Guala!

*F. arenicola* (McClure) Guala Endemic

*F. cannavieira* (Silveira) Guala Endemic

## Glaziophyton Franch.!

*G. mirabile* Franch. Endemic

*Guadua* Kunth

*G. calderoniana* Londoño & Judz. Endemic

*G. ciliata* Londoño & Davidse –

*G. glomerata* Munro –

*G. latifolia* (Humb. & Bonpl.) Kunth –

*G. macrostachya* Rupr. –

*G. maculosa* (Hack.) E.G. Camus Endemic

*Guadua* Kunth

*G. paniculata* Munro –

*G. paraguayana* Döll –

*G. refracta* Munro Endemic

*G. sarcocarpa* Londoño & Peterson subsp. *sarcocarpa* –

*G. sarcocarpa* subsp. *purpuracea* Londoño & Peterson –

*G. superba* Huber –

*G. tagoara* (Nees) Kunth –

*G. trinii* (Nees) Nees ex Rupr. –

*G. virgata* (Trin.) Rupr. Endemic

*G. sp. nov.* 1\* (Londoño, pers. comm.) ?

*G. sp. nov.* 2\* (Londoño, pers. comm.) ?

*Merostachys* Spreng

*M. abadiana* Send. Endemic

*M. annulifera* Send. Endemic

*M. argentea* Send. Endemic

*M. argyronema* Lindm. Endemic

*M. bifurcata* Send. Endemic

*M. bradei* Pilg. Endemic  
*M. brevigluma* Send. Endemic  
*M. burmanii* Send. Endemic  
*M. calderoniana* Send. Endemic  
*M. cauciana* Send. Endemic  
*M. ciliata* McClure & L.B. Sm. Endemic  
*M. clausenii* Munro var. *clausenii* –  
*M. clausenii* var. *mollior* Döll Endemic  
*M. exserta* E.G. Camus Endemic  
*M. filgueirasii* Send. Endemic  
*M. fimbriata* Send. Endemic  
*M. fisheriana* Döll Endemic  
*M. fistulosa* Döll Endemic  
*M. glauca* Send. Endemic  
*M. kleinii* Send. Endemic  
*M. lanata* Send. Endemic  
*M. latifolia* R. Pohl –  
*M. leptophylla* Send. Endemic  
*M. magellanica* Send. Endemic  
*M. magnispicula* Send. Endemic  
*M. medullosa* Send. Endemic  
*M. multiramea* Hack. Endemic  
*M. neesii* Rupr. Endemic

*Merostachys* Spreng

*M. petiolata* Döll Endemic  
*M. pilifera* Send. Endemic  
*M. pluriflora* E.G. Camus Endemic  
*M. polyantha* McClure Endemic  
*M. procerrima* Send. Endemic  
*M. ramosissima* Send. Endemic  
*M. riedelianana* Döll Endemic

*Merostachys* Spreng (cont'd)

*M. rondoniensis* Send. Endemic  
*M. scandens* Send. Endemic  
*M. sellovii* Munro Endemic  
*M. skvortzovii* Send. Endemic  
*M. sparsiflora* Rupr. Endemic  
*M. speciosa* Spreng. Endemic  
*M. ternata* Nees Endemic  
*M. vestita* McClure & L.B.Sm. Endemic  
*M. sp. nov. 1\** (Sendulsky, pers.comm.) Endemic  
*M. sp. nov. 2\** (idem) Endemic

*M. sp. nov.* 3\* (idem) Endemic  
*M. sp. nov.* 4\* (idem) Endemic  
*M. sp. nov.* 5\* (idem) Endemic  
*M. sp. nov.* 6\* (idem) Endemic  
*M. sp. nov.* 7\* (idem) Endemic  
*M. sp. nov.* 8\* (nobis) Endemic  
*M. sp. nov.* 9\* (nobis) Endemic

*Myriocladus* Swallen  
*M. neblinensis* Swallen –  
*M. paludicolus* Swallen –  
*M. virgatus* Swallen –

*Neurolepis* Meiss.  
*N. diversiglumis* Soderstr. –

*Rhipidocladum* McClure  
*R. parviflorum* (Trin.) McClure –

### ***12c) List of the most common bamboo species cultivated in Brazil***

#### **Binomial Common names (s) Obs.**

*Bambusa blumeana* Schult. & Schult. f. – Rare  
*B. disseminator* McClure – Rare  
*B. multiplex* (Lour.) Raeusch.  
 ex Schult. & Schult. f. Bambu-multiplex, bambu-folha-de-samambaia Common  
*B. tulda* Roxb. – Rare  
*B. tuldoidea* Munro – Rare  
*B. ventricosa* McClure Bambu barrigudo Rare  
*B. vulgaris* Schrad. ex J.C. Wendl. Bambu, bambu comum Widespread  
*Dendrocalamopsis beecheyana*  
 (Munro) Keng f. – Rare  
*Dendrocalamus asper* (Schult. & Bambu balde, bambu gigante Common  
 Schult. f.) Backer ex K. Heyne  
*D. latiflorus* Munro – Rare  
*D. strictus* Bambu balde, bambu gigante Rare  
*Gigantochloa apus* – Rare  
 (Schult. & Schult. f.) Kurz  
*Guadua angustifolia* Kunth Guadua Rare  
*Phyllostachys aurea* Rivière Bambu amarelo, bambu de jardim, bambu-&  
 C. Rivière vara-de-pescar, bambu dourado; cana-da-India Widespread  
*P. bambusoides* Siebold & Zucc. Bambu japonês Common  
*P. sp.* – Rare  
*P. nigra* (Lodd. ex Lindl.) Munro Bambu preto; bambu negro Rare

*Pseudosasa japonica* (Siebold & Zucc. Bambu metaque Common  
ex Steud.) Makino  
*Sasa fortunei* (Van Houtte) Fiori Bambu-miniatura Common  
*Sinoarundinaria falcata* (Nees) Bambu-de-jardim Widespread  
C.S.Chao & Renv.

List main uses, quantity, value of the bamboo removal

Add the table: list of the main pest species