Pleione 1: 11 - 14. 2007.

Diversity and Distribution of Bamboos in Sikkim

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Abstract

The present paper deals with bamboo species occurring in Sikkim along with their vernacular names, habit and range of altitudinal distribution.
Keywords: Bamboos, Sikkim

INTRODUCTION

"Bamboo" an English term used for the members of subfamily *Bambusoideae* of the family Poaceae is the most familiar group of fascinating plants valued equally by the artists, craftsman and the scientists. Since ages it has been a cultural feature of Southeast Asia and integral to the life and culture of all ethnic groups of Northeastern India.

The bambusoid grasses comprising the woody and herbaceous bamboos are represented by 75 genera and 1250 species in the World (Soderstrom & Ellis 1987) and cover about 18 million hectares of the land surface (Anonymous 1991). There are approximately 900 species belonging to 65 genera in Asia, of which 128 species under 23 genera are recorded in India (Seethalakshmi & Kumar 1998).They are naturally distributed in all the states except Jammu and Kashmir and attain their maximum growth in the monsoon forest of northeastern region forming a rich belt of variety and density.

Sikkim has its unique geographical position, varied topography, high annual precipitation, maximum humidity and varied elevation aspects make one of the richest botanical areas of the country. Nearly 46% of the total geographical area of the state is forest-covered (Forest survey of India 2003). These forests posses a very wide range of biological diversity not only in a variety of trees and annuals but also the species of Non-Timber Forest Produces (NTFP) including bamboos and canes.

Although several botanical expeditions have been made to Sikkim since 1843, but adequate attention has not been paid to the bamboos due to their complexity and non-availability of flowers. Moreover, many areas still remain poorly explored or unexplored for bamboos. Considering the socio-economic importance of bamboos, their correct taxonomic identification is of paramount importance. The present attempt is the first step in this direction, to workout currently accepted names, vernacular names, habit and altitudinal range of distribution of bamboos occurring in Sikkim.

MATERIALS AND METHODS

During 2004 – 06, extensive field surveys were undertaken for taxonomical study of bamboos in Sikkim. In the field, while collecting plant materials, elaborate notes were made on the habit, and character of different parts. Collection, pressing and preparation of specimens for the herbarium and xylarium the procedure recommended by Jain & Rao (1977) were followed. Provisional identification of the specimens were made with the help of available literature and were latter determined in various herbaria viz., CAL, BSHC, DD, and Herbarium of State Forest Research Institute, Itanagar, Arunachal Pradesh. The herbarium materials of the present study have been deposited in the Herbarium of Botany Department, Gauhati University.

RESULTS AND DISCUSSION

Based on field study, collection, studies of herbarium specimens and consultation of literature, a total of twenty eight species, one variety and one forma of bamboo belonging to nine genera viz.,. *Arundinaria, Bambusa, Dendrocalamus, Melocana, Phyllostachys, Pseudosasa, Schizostachyum, Sinarundinaria, Thamnocalamus* have been recorded to be occurring in Sikkim. It is also recorded that the genus

Sinarundinaria is the largest one with 7 species, this is followed by *Bambusa* with 5 species and one forma, *Dendrocalamus* with 5 species and one variety, *Schizostachyum* with 4 species, *Phyllostachy*s with 3 species. And, the remaining genera *Arundinaria, Melocanna, Pseudosasa*, and *Thamnocalamus* are represented by one species each.

The studies on the distribution patterns of bamboos in Sikkim reveals that in the lower elevation (tropical belt) different species of *Bambusa* and *Dendrocalamus* are common genera, whereas in middle elevation (sub-tropical*)* species belonging to *Melocana, Sinarundinaria, Phyllostachys, Schizostachyum* are dominating, and at higher elevation (temperate belt) *Arundinaria, Sinarundinaria* and *Thamnocalamus* are principal genera. It is also recorded that *Phyllostachys nigra, Sinarundinaria microphylla, Sinarundinaria polystachyum, Sinarundinaria pantilingii* are rare in Sikkim. *Bambusa multiplex, Bambusa vulgaris, Bambusa vulgaris* f. *wamini*, *Phyllostachys assamica* and *Pseudosasa japonica* are exotic species. The Botanical and vernacular names, habit and altitudinal distribution of bamboos in Sikkim is given in Table 1.

The studies of detail distributional feature shows that bamboo resources in the state are depleting on an alarming rate due to unscientific harvest, forest fire (man made), over exploitation, gregarious flowering etc. So, *in situ* conservation by declaring some bamboo rich areas as bamboo sanctuaries or by establishing bambusetum for e*x situ* conservation of this valuable green wealth of the state is the need of the hour.

Table 1: List of bamboo species, vernacular name, habit, and altitudinal range of bamboos in Sikkim [following abbreviations are used for vernacular name-Bhu: *Bhutia*; Nep: *Nepali*; Lep: *Lepcha*; Eng: *English*; Ass: *Assamese*]

Botanical Name	**Vernacular Name**	**Habit**	**Altitudinal Zone (in m)**
Arundinaria racemosa Munro	Nep: Sano Maling Lep: Pummon	Shrub	2700 – 3600
Bambusa multiplex (Lour.) Raeush ex Schult. et Schred	Eng: Chinese bamboo	Arborescent	600 – 1200
Bambusa nutans Wallich ex Munro	Nep: Mal bans Lep: wahlo	Arborescent	600 – 1500
Bambusa pallida Munro	Lep: Pushee	Arborescent	700 – 1250
Bambusa tulda Roxburgh	Nep: Sigaray; Lep: Paoshiding ying	Arborescent	600 – 1400
Bambusa vulgaris Schred. ex Wendel	Ass: Telai bans	Arborescent	600 – 1200
Bambusa vulgaris .f. *wamin (*Brandis) Wen	Nep: Lota bans Eng: Pitcher bamboo	Arborescent	600 – 1200
Dendrocalamus giganteus Munro	Eng: Giant bamboo	Arborescent	600 – 1200
Dendrocalamus hamiltonii Nees & Arnott ex Munro	Nep: choya bans\ Tama bans; Lep: Pao	Arborescent	600 – 1200
Dendrocalamus hamiltonii var. *edulis* Munro	Nep: Guliyo tama bans Lep:Rugvi	Arborescent	700 – 1400
Dendrocalamus hookeri Munro	Nep: Tili bans Lep: Patu	Arborescent	800 – 1500
Dendrocalamus patellaris Gamble	Nep: Neba Lep: Pagjiok	Semi-arborescent	800 – 1400
Dendrocalamus sikkimensis Gamble	Nep: Bhalu bans Lep: Pugriong	Arborescent	800 – 1800

Botanical Name	Vernacular Name	Habit	Altitudinal Zone (in m)
Melocanna baccifera (Roxb.) Kurz	Nep: Philim	Shrub	700 – 1200
Phyllostachys assamica Gamble ex Brandis	Nep:Chinese bamboo	Semi-arborescent	800 – 1400
Phyllostachys manii Gamble	Nep: Kata bans	Shrub	700 – 1200
Phyllostachys nigra Munro	Nep: Kalo nigilo	Shrub	900 – 1400
Pseudosasa japonica (Sieb.&Zucc. ex steud.) Makino	-———	Shrub	600 – 1000
Schizostachium capitatum (Munro) R.B. Majumdar	Nep; Gopa bans Lep: Payong	Semi-scandent	1000 – 2400
Schizostachyum dullooa (Gamble) R.B. Majumdar	Nep: Tokra bans Lep: Paksula	Semi-arborescent	900 – 1500
Schizostachyum latifolium (Munro) R.B. Majumdar	Nep: Dullo bans Lep: Palom	Semi-scandent	800 – 1400
Schizostachium polymorphum (Munro) R.B. Majumdar	Lep: Paphok	Shrub	600 – 1000
Sinarundinaria falconeri (Munro) Chao & Renv.	Nep: Sighane	Shrub	1000 – 1800
Sinarundinaria hookeriana (Munro) Chao & Renv.	Nep: Parang	Shrub	800 – 1500
Sinarundinaria intermedia (Munro) Chao & Renv.	Nep: Tite nigalo	Shrub	1000 – 1800
Sinarundinaria maling (Munro) Chao&Renv.	Nep: Malingo Lep: Phueum miknu	Shrub	1200 – 3600
Sinarundinaria microphylla (Griffith) Chao & Renv.	Nep: Deo Nigalo	Shrub	1800 – 3100
Sinarundinaria polystachyum (Kurz ex Gamble) Chao & Renv.	————	Shrub	1000 – 1500
Sinarundinaria pantilingii (Gamble) Chao & Renv.	————	Shrub	1800 – 2300
Thamnocalamus aristatus (Gamble) E.G.Camus	Nep: Rato nigalo Lep: Babain	Shrub	2200 – 3300

Acknowledgements

Authors are grateful to the officers and staff of Forest Department of Sikkim for necessary help in the field and to the authorities of CAL, DD, Herbarium of State Forest Research Institute, Itanagar and BSHC for extending herbarium and library facilities.

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