

PHENOLOGICAL STUDY OF SOME TREE SPECIES OF SRI SURYA PAHAR OF GOALPARA DISTRICT, ASSAM

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ABSTRACT

The composition of tree species, their periodic stratification, life span all these are some important analytical aspects of a plant community. Plant phenological study has great significance because it not only provides knowledge about plant growth pattern but it also provides the idea on the effects of environment and selective pressure on flowering and fruiting behavior. So a study was carried out to analyse the phenological characters of some dominant tree species of famous Sri Surya Pahar of Goalpara district, Assam. From this study it is found that leaf initiation started in the month of February continued upto May with a peak in March –April. Most of the tree species show flowering in the month of March. The peak period of maturation of fruits was May –June.

Key Words: *Phenological, Sri Surya, Flowering, Dominant, Fruits*

INTRODUCTION

Phonology is the calendar of events in the life history of plant. It is the scientific study of seasonal change i.e. the periodic phenomena of plants in relation to changes in season and climate. Seasonal and climatic changes are some of the non living or abiotic components of the environment that impact the living or biotic components.

The Swedish Botanist Carolus Linnaeus (1707-1778) systematically recorded flowering times for 18 locations in Sweden over many years. His meticulous notes also recorded the exact climatic conditions when flowering occurred. Linnaeus is considered as the ‘father’ of modern plant phonology. Plant phonological study has great significance because it not only provides knowledge about plant growth. Plant phonological study has great significance because it not only provides knowledge about plant growth pattern but it also provides the idea on the effects of environment and selective pressure on following and fruiting behavior (Zhung *et. al* 2006). Phonological events are used variously for characterization of vegetation type (Opler *et al* 1980; Shimwell 1972). Singh & Kushwaha (2005) suggested that climatic change forced deviations in the length of growing period. The phenology of subtropical forest of North Eastern Indian Region was studied by several authors (Boojh & Ramakrishnan ⁽⁵⁾1981). Observing the significance of phenology of plant species of a locality the present work was carried out over a period of 3 years (Jan 2005-Dec 2007). This was carried out to understand the response of plant species to climatic factors and periodicity of seasons of the Sri Surya Pahar of Goalpara District, Assam.

MATERIALS AND METHODS

Study Area-Sri-Surya Pahar

Sri Surya Pahar is located in the district of Goalpara which is located in the extreme western part of Assam. This is a famous tourist spot from archeological point of view. It is located in the longitude of 89° 37' E and 26° 12' 32" N latitude and about 15 Km. from Goalpara town. This area is rich by its plant resources.

Methodology

The phenological study was done on 24 tree species of Sri Surya Pahar of Goalpara District, Assam. Observations were made on leaf fall, leaf flushing, flowering, fruiting of tree species at one

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month intervals from January 2007 to December 2009. In the study area for each species individual record of pheno-phases was taken into consideration. Phenological observations were made on 24 woods species of Sri Surya Pahar of Goalpara District. Observations were made on leaf initiation, leaf fall, flowering and fruiting of woody species at one month interval from January 2005- December 2007.

RESULTS AND DISCUSSION

Leaf fall and Leaf flushing activity

After data analysis it was found that Leaf initiation of the tree species started in February continued up to May with a peak in March-April before the onset of monsoon. Among the 24 species 87% showed brief leaf flushing activity whereas 23% exhibited extended activation (Table -1)

Leaf fall initiation was a periodic activity in all species. However, the onset of leaf fall initiation is different in various tree species. In most of the tree species leaf shedding begins in the month of first Part of February with peak in the last part of February to March (Table 1).

Table 1: Phenological Observation of The Tree species of Sri Surya Pahar

Sl. No.	Name of Species	Family	Leaf Fall	Leaf Flushing	Flowering	Fruiting
1	2	3	4	5	6	7
1.	<i>Aegle marmelos</i>	Rutaceae	Feb-Mar	Mar	Apr-June	Aug-Oct
2.	<i>Azadirachta indica</i>	Meliaceae	Feb-Mar	Apr-May	Mar-Apr	May-Jul
3.	<i>Bauhinia variegeta</i>	Caesalpinaceae	Dec-Jan	Jan-Feb	Nov-Dec	Feb-Apr
4.	<i>Bombax ceiba</i>	Bombacaceae	Feb-Mar	Mar-Apr	Jan-Mar	Feb-Apr
5.	<i>Cassia fistula</i>	Caesalpinaceae	Feb-Mar	Mar-Apr	Apr-Jun	Jul-Sep
6.	<i>Dalbergia Sissoo</i>	Papilionaceae	Jan-Feb	Feb-Mar	Mar-Apr	May-Jul
7.	<i>Dillenia indica</i>	Dilleniaceae	Jan-Feb	May-Jun	Mar-Apr	Jun-Sep
8.	<i>Dillenia Pentagyna</i>	Dilleniaceae	Apr-May	May-Jun	Mar-Apr	May-Jun
9.	<i>Erythrina indica</i>	Papilionaceae	Jan-Feb	Mar-Apr	Apr-May	Jun-July
10.	<i>Ficus benghalensis</i>	Moraceae	Feb-Mar	Apr-May	Apr-Jun	Sep-Nov
11.	<i>Ficus religiosa</i>	Moraceae	Feb-Mar	Mar-Apr	Mar-Apr	Apr-May
12.	<i>Gmelina arborea</i>	Verbenaceae	Jan-Feb	Mar-Apr	Apr-Jun	Jun-Aug
13.	<i>Lagerstroemia speciosa</i>	Lythraceae	Jan-Feb	Mar-Apr	May-Jun	Jun-Aug
14.	<i>Litsea monopetala</i>	Lauraceae	Feb-Mar	Apr-May	Jun-Jul	Jul-Aug
15.	<i>Mallotus phillippinensis</i>	Lauraceae	Aug-Nov	Mar-May	Oct-Nov	Nov-Dec
16.	<i>Agadirachta indica</i>	Meliaceae	Jan-Feb	Mar	Mar-Apr	May-Jul
17.	<i>Oroxylum indica</i>	Bignoniaceae	Mar-Apr	Apr	May-Jun	Jul-Aug
18.	<i>Pylanthium</i>	Euphorbiaceae	Jan-Feb	Mar-Apr	May-Jun	Jun-Jul
19.	<i>Papilionaceae</i>	Myrtaceae	Feb-Mar	Mar-Apr	May-July	Oct-Dec
20.	<i>Syzygium cumini</i>	Myrtaceae	Feb-Mar	Jun-Jul	Mar-Apr	May-Jul
21.	<i>Syzygium fruticosum</i>	Myrtaceae	Feb-Mar	May-Jun	Dec-Feb	May-Jun
22.	<i>Tectona grandis</i>	Verbenaceae	Feb-Mar	Feb-Apr	Aug-Oct	Nov-Jan
23.	<i>Terminalia arjuna</i>	Combretaceae	Jan-Feb	Feb-Apr	May-Jun	Jul-Aug
24.	<i>Zizyphus jujuba</i>	Rhamnaceae	May-Jun	Jun-Jul	Aug-Sep	Oct-Jan

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Flowering Activity

Flowering continued in different tree species throughout the year. However the peak period of flowering was distinguished in the month of March when plants like *Dalbergia sissoo*, *Cassia fistula*, *Gmelina arborea*, *Lagerstroemia speciosa* all these exhibited flower initiation in response to increasing length to photoperiod.

Fruiting Activity

The peak period of maturation of fruit was May – June in most of the tree species. In comparison to flowering activity 37.5% tree species exhibited brief fruiting activity showed whereas 62.5% tree species showed extended activity.

Conclusion

The tree species of Sri Surya Pahar of Goalpara district exhibited considerable diversity in leaf fall, leaf flushing flowering and fruiting behavior. It was found that the ripening of fruits begin and in peak stage during May-June and continued more or less throughout the year. Thus fruit maturation and post fruit maturation activities means dispersal and germination coincides with rainy season which allow optimum germination. This pattern and timing of dispersal and germination of fruits is very important which maintains the availability of fruits to herbivores throughout the year.

But it is unfortunate to say that this famous archeological spot of the state of Assam is facing many challenges due to anthropogenic causes. The forest flora of the area is decreasing at an alarming rate. So people should be conscious and the district as well as state administration should take all necessary steps to conserve the diversified flora of the surroundings of Sri Surya Pahar of the state.

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