

# AN OVERVIEW OF PLANT PHENOLOGY STUDIES THROUGHOUT THREE BRAZILIAN BIOMES

**Theme:** Biodiversity conservation indicators

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The effects of global climate change on species and ecosystems have become increasingly apparent and have been recently documented. Phenology is perhaps the simplest process to track changes in the ecology of species in response to climate change. Climate change might alter the phenology of plant species and the timing of their interactions with other species. The potential impacts of changes in phenological patterns on species interactions and ecosystem functioning, e.g. carbon and nitrogen cycling, remain unclear. In this context, we started an extensive literature survey to build a database of phenology studies for three Brazilian biomes: Cerrado, Caatinga and Atlantic forest. This database will be correlated with another ongoing effort to survey data on biogeochemical functioning and calibration of satellite image data. Our objective is to define baselines for phenological patterns and nutrient cycling through the analysis of the different datasets in order to improved scenarios that involve climate change and impacts on the structure and functioning of the Brazilian biomes. Studies containing data on vegetative (periods of leaf flush and abscission) and reproductive (periods of flowering and fruiting) phenology were included. Most of the studies focused on data at community level while a few studies worked at species level. Currently, a total of 46 datasets were selected from 24 peer-review articles, two book chapters, 16 thesis and four expanded abstracts. The studies were performed between 1978 and 2009, but most of them were carried out in the last 10 years. For the Atlantic Forest Biome 30 datasets were found in ombrophilous and seasonal forests formations covering eight federal states in South, Southeast and Northwest region but with a concentration in Minas Gerais, Paraná, São Paulo and Rio Grande do Sul states. In the case of the Cerrado 11 datasets were included mainly for the central and southern part of the biome. The surveys were carried out in forests, woodlands and grasslands formations. The phenology of Caatinga plants is less studied and presently only five datasets were included. They range from open shrubby formations in Pernambuco state and “carrasco” vegetation in Ceará state to tall forest formations in Paraíba and Minas Gerais states. The preliminary analyses indicate a heterogeneous geographical distribution of the phenology studies, especially for the Cerrado and Caatinga. Such field studies are important for the understanding of ecological triggers of phenological changes and calibration of satellite data used for assessment of phenology at coarse scale.

Key-Words: Climate Change, phenology, Atlantic Rain Forest, Cerrado, Caatinga,