



Leafing strategies of trees from Seasonally Dry Tropical Forests: the importance of rainfall variability

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The Caatinga constitutes the largest area of Seasonally Dry Tropical Forest (SDTF) in the New World, covering an area of ca. 850,000 km² located in North-eastern Brazil. The Caatinga climate is semi-arid with annual precipitation ranging from 250 to 1200 mm, and the dry season can range from five to nine months in duration. Harsh conditions constrain species' leafing patterns in the Caatinga and, consequently, most species are deciduous, losing their leaves during the dry season and flushing in the rainy season. Another important characteristic of the Caatinga is the interannual variability of rainfall seasonality and the annual total precipitation increases along a gradient of aridity from west-interior to east-coast (Petrolina – 387 mm; Serra Talhada – 574 mm and São João – 800 mm; see Souza et al., 2016). Considering the strong seasonality and aridity of Caatinga, the gradient of aridity and the expected phenological adaptations of tree species to drought, we aim to address the following questions: 1) What are the Caatinga dominant leafing patterns and their main climatic drivers? 2) Are leafing patterns and leaf exchange strategies influenced by rainfall variability in a gradient of aridity across sites? We use the near-surface remote phenology method from digital cameras (Alberton et al., 2017) to track the leaf flush and fall of Caatinga dry forest during one growing season from 2017 to 2018, and its relationships to climatic conditions (daily precipitation, temperature and photoperiod). We compare the species' promptness to flushing (i.e. the lag time for plant response after first rains) and deciduousness across the gradient of aridity. Supported by FAPESP-NERC (FAPESP #2015/50488-5), CNPq and FACEPE (Caatinga-FLUX, Grant number: 483223/2011-5 and Caatinga-FLUX Fase 2, Grant number: APQ 0062-1.07/15).

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