

**PHENOLOGICAL ASPECTS OF FROND PRODUCTION IN  
*ALSOPHILA SETOSA* (CYATHEACEAE: PTERIDOPHYTA) IN  
SOUTHERN BRAZIL**

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Key words: phenology, frond production, growth rates, ecology, spore production.

**ABSTRACT**

Two populations of *Alsophila setosa* Kaulf. in secondary semi-deciduous subtropical forest remnants in the State of Rio Grande do Sul, Brazil were studied with attention to frond formation, expansion and senescence rates, as well as to phenology of sporangia formation and spore release, during a 15 month period. Plants of various sizes were marked at a site at Morro Reuter (45 plants) and another at Sapiranga (48 plants) municipalities. The average frond production rates were 5.51 fronds/year at Morro Reuter, and 4.14 fronds/year at Sapiranga. After frost occurrence in early winter, all the exposed young croziers were irreversibly damaged with necrosis of the tissues. A new set of croziers was formed in October (spring), with all the croziers uncoiling almost simultaneously, 84.4% of the specimens in Morro Reuter and 66.7% in Sapiranga presenting one or more croziers in the initial expansion stages. The senescence rates were 6.97 fronds/year at Morro Reuter, and 4.33 fronds/year at Sapiranga. Low temperatures (including the occurrence of frost) and low rainfall during winter coincide with the highest frond senescence, with some plants losing all the fronds. The species presents the capacity to compensate for the occasional loss of all the young fronds in a short period of time, keeping the number of fronds relatively stable at a given development stage. The data indicate ecological limits to the occurrence of this species in Southern Brazil. Spore production occurred only in a few plants, which were at least 2.5m tall. Spore formation is seasonal and maturation gradual to irregular even in a single frond.