


Evaluation of Vegetation after Four Years in a Caatinga Fragment in the State of Sergipe, Brazil

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Abstract

The comparison of vegetation at two different moments allows for recognizing the stability of plant communities. The structure and floristic composition of a Caatinga fragment in the municipality of Poço Verde, state of Sergipe, were evaluated after four years (2011-2015). Sampling was performed through 30 plots of 20 m × 20 m, considering individuals with circumference at breast height ≥ 6 cm. Despite the increase in density (0.79%) and basal area (4.82%), changes in floristic composition, in Shannon-Wiener diversity (from 3.33 nats.ind⁻¹ to 3.30 nats.ind⁻¹) and in Pielou equability (from 0.78 to 0.80) were small. None of the structural parameters evaluated (richness, density, basal area, importance value and Shannon-Wiener diversity) significantly differed between evaluation periods. The vegetation remained stable over time, tolerating current anthropization levels and enabling the use of its natural resources through planned management.

Keywords: floristic survey, phytosociology, stability.

1. INTRODUCTION AND OBJECTIVES

Studies comparing vegetation at different times can detect floristic and structural variations in populations and plant communities, supporting the understanding of factors that affect changes in these communities (e.g., Carvalho et al., 2010; Cavalcanti et al., 2009; Mews, Marimon, Pinto et al., 2011). In addition, these studies allow for inferences about vegetation dynamics; short-term assessments are more sensitive in detecting changes in a community (Braga & Rezende, 2007).

Adopting a temporal scale in structural and floristic evaluations enables recognizing the stability of plant communities; changes in the community are inevitably continuous and time-dependent (Condit et al., 1992). Data obtained from these evaluations are fundamental to subsidize conservation actions and programs for the recovery of degraded areas, providing subsidies for the sustainable vegetation management (Cavalcanti et al., 2009; Mews, Marimon, Maracahipes et al. 2011; Rolim et al., 1999).

In Brazil, publications comparing vegetation composition and/or structure between two distinct periods were carried out in Cerrado areas (e.g., Mews, Marimon, Pinto et al., 2011; Silva Neto et al., 2017), gallery forests (e.g., Braga & Rezende, 2007; Guimarães et al., 2008), ombrophilous forests and/or montanes (e.g., Chagas et al., 2001; Gomes et al., 2003; Oliveira Filho et al., 2007; Schaaf et al., 2005) and seasonal and semideciduous forests (e.g., Mews, Marimon, Maracahipes et al., 2011; Nascimento et al., 1999; Paula et al., 2002; Silva & Araujo, 2009). Despite the existence of publications for Brazilian seasonally dry tropical forests (SDTF) (e.g., Werneck & Franceschinelli, 2004), studies of this type are scarce for the Caatinga biome (Cavalcanti et al., 2009), which contributes to the little knowledge about its dynamics (Pereira et al., 2001).

In Caatinga, anthropization and climatic variations are the main responsible for vegetation changes (Alves, 2009; Cavalcanti et al., 2009). In this biome, disturbed environments have shown declines in diversity (Kauffman et al., 1993), richness, basal area and plant distribution in diameter classes and an increase in

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