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Fire effects on tropical woody vegetation structure have been exaggerated?

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Since the beginning of the 20th century scientists, particularly those working in Africa, have proposed a major impact of fire frequency and intensity on woody vegetation leading to concepts such as “fire derived” savannas and “fire-mediated” feedbacks. Particularly in contact zones between forests and savannas the role of fire has been proposed as the driving agent of replacement of fire-sensitive forest-associated species with fire sensitive “fire resistant” savanna species and transition from closed forest vegetation to open savanna vegetation. In this presentation we will provide a global synthesis of the fire experiment literature with an aim to determine if general patterns can be established in terms of magnitude of fire effects on tropical vegetation structure in terms of (a) season and frequency of burning; (b) vegetation structure in the absence of fire and (c) climate. With this body of empirical data and a simple simulation model we examine if, the impact of fire on tropical woody cover as currently presented in the literature and the role of fire-mediated feedbacks in forest-savanna transitions can be justified by empirical data emanating from long term fire experiments