

## ***Interactive comment on “Are fire mediated feedbacks burning out of control?” by J. Lloyd and E. M. Veenendaal***

### **Anonymous Referee #1**

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#### General comments

There is a lot of very interesting information in this article concerning the control of savanna – forest boundaries and the relevance of Alternative Stable State theory. Unfortunately, however, it is written in a manner that detracts from these interesting perspectives: in essence it is a polemical rebuttal to a related article by Staal and Flores (2015, doi:10.5194/bg-12-5563-2015). These latter authors wrote a short paper that questioned the interpretation of a data-rich paper that previously appeared in Biogeosciences Discussions – based on vegetation data set collected from plots in tropical savanna and forest in Australia, Africa and South America – led by Lloyd and Veenendaal (Veenendaal et al. 2015 doi:10.5194/bg-12-2927-2015).

Because of the style of writing and the structure of the argument, Lloyd and Veenen-

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daal's paper should not be treated as a stand-alone scientific contribution, rather it should be considered as another instalment in correspondence stemming from the paper by Veenendaal et al. (2015) in Biogeosciences Discussions (doi:10.5194/bg-12-2927-2015).

### Specific comments

This paper is essentially an trenchant defence of two previous data papers (Veenendaal et al. 2015 doi:10.5194/bg-12-2927-2015 and Torello-Raventos et al. 2013 Plant Ecology Diversity, 6, 101–137, 2013). Lloyd and Veenendaal's modus operandi is to attack others workers, particularly Staal and Flores (2015, doi:10.5194/bg-12-5563-2015), who disagree with their conclusion that forest – savanna boundaries are controlled by edaphic factors, and that landscape fire merely sharpens such boundaries rather than creating them.

Lloyd and Veenendaal use a mix of rhetorical gestures, such as a reliance on philosophy, some quantitative modelling (the details of which are sketched being based on an unpublished paper Veenendaal et al. New Phytologist (submitted), reanalysis of existing soil data sets, and interrogation of the literature (which is far from comprehensive or even-handed).

All of these elements are framed around what the authors consider previous researcher's 'Fallacies'. There is some irony here as the current contribution by Lloyd and Veenendaal, the data paper by Veenendaal et al. (2015) and some others other from this group such as Lloyd et al. (2015, doi:10.5194/bg-12-6529-2015; Torello-Raventos et al. (2013) Plant Ecology Diversity 6, 101–137, 2013) suffer from similar methodological, logical and philosophical problems. These problems include reliance on simplistic computer models (Veenendaal et al. in a paper submitted New Phytologist so it is impossible to critically evaluate the logic), correlation being advanced as causation (Lloyd et al. 2015), very selective use of data and citations to promote a specific argument, poor experimental design relative to task in hand, omission of key data such

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as any measurements of landscape fire and past disturbance history, and so on. Lloyd and Veenendaal ignore great swathes of research into forest-savanna boundaries.

Some of these problems are understandable and excusable because the problem of understanding the controls of tropical savanna and rainforest is extraordinarily complicated defying simple analysis or resolution, the fieldwork is logistically and physically demanding, and the relevant literature diffuse. Clearly, no single approach can solve this problem, and progress demands leveraging of existing research, targeted collection of more field data, collaboration among different disciplines, critical thinking and synthetic thought.

Most problematically, Lloyd and Veenendaal's contribution suffers from a lack of humility, there is a disturbing tone that 'I am right and you are all wrong'. I therefore suggest the authors move past their emotional response with the 'AAS community', and Staal and Flores (2015) in particular, and rewrite their argument in a more balanced and accessible style.

To reiterate, these authors have some extremely important data, deep insights and have the potential to make a landmark contribution in understanding the control of forest and savanna boundaries. To effectively communicate these strengths they need to rewrite this paper.

Technical corrections

The style of writing is verbose with numerous awkward, extremely long and convoluted sentences that lack commas. I recommend a careful rewrite to simplify the writing with shorter, and crisper sentences.

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