

## ***Interactive comment on “Managing fire risk during drought: the influence of certification and El Niño on fire-driven forest conversion for oil palm in Southeast Asia” by Praveen Noojipady et al.***

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This is a strong paper which addresses an important question regarding the role of RSPO certification for improving management of fire and fire-driven deforestation in permits for oil palm cultivation. The methods are clear, the report is well written and clearly organized, and the graphics are informative. I have the following questions/comments for the authors:

1. Compliance benchmark date - The paper refers to 2009 as the year that RSPO began granting certification, and notes that forest loss and fire-driven deforestation declined after this date. However, the benchmark date used to determine compliance with RSPO criterion 7.3, after which new plantings should not replace primary forest or

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HCV areas, is November 2005. Why does the study use 2009 to assess compliance, given that RSPO uses an earlier year to assess compliance?

Due to the importance of being able to compare pre- and post- certification trends, I would find it useful to present the proportion of forest loss driven by fire each year in a table. It is difficult to see proportions in Figure 2 for years with low rates of forest loss, and Table 1 only provides this the aggregate proportion over the 2000 – 2014 period. Breakdown by year would help illustrate whether, and when, certification alters fire use for forest conversion.

2. Buffer areas - The authors should articulate the purpose of the 5 km buffer area, and in particular clarify why they combine the buffer areas of certified and non-certified plantations. Given that the study assesses roughly 12 Mha of non-certified plantations, versus 1.5 Mha of certified plantations, the trends in the combined buffer will largely reflect the characteristics of buffers around non-certified plantations and presumably more closely resemble the trends inside non-certified plantations. Combining the buffers masks potentially divergent trends in the buffer of the certified plantation management type, and obscures whether certification additionally impacts fire activity in areas surrounding the permit itself.

3. Underestimation of fire activity – The authors discuss limitations in satellite platforms which detect fires, and suggest that these limitations may result in underestimation of fire activity. Is there any reason to think that this underestimation would bias the results, either by differentially underestimating fire density in time (e.g., after certification date), or in space (e.g., in certified concessions)?

4. Covariates of certification – The study could elaborate on the factors which could cause different observed fire and fire driven forest loss trends between certified and non-certified plantations. The authors mention that companies preferentially certify older plantations that retain less forest cover. If this is the case, or if there are other characteristics which influence the placement of certified plantations or the outcomes

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with respect to forest loss and fire activity in certified plantations, then observed differences may not be the result of certification. The authors should clearly caveat the findings by acknowledging these covariates, and/or suggest what steps would be necessary to control for these in order to determine the causal impacts of certification.

5. Policy implications – The authors could further elaborate on the policy implications of their findings. They suggest that the benefits conferred by RSPO certification could be enhanced through expansion of certified plantations. How would this work? Given that certification is based on performance after the benchmark date, many plantations with poor past performance may not be eligible for certification (or would need to take advantage of a compensation mechanism). Would the expansion of the certified plantation portfolio therefore only apply to new plantations?

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