

## ***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.***

### **Anonymous Referee #2**

Received and published: 10 February 2017

#### General Comments:

-I would like to see more information on how the area for the buffer analysis was selected. Why were the buffer areas around certified and non-certified plantations combined together? Or would it have made more sense to consider the plantation boundaries vs. plantations+buffers, while also keeping certified and non-certified separate? I'm not sure if you might expect differences in fire activity between buffers around each type of plantation. Please also see specific comments below on this topic.

-Could there be differences in characteristics besides certification that are influencing the results? It's not clear to me as written if the authors considered other potential variables such as the level of access to plantations, size, whether part of the concession

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was previously developed, differences in specific provinces, etc. This might also help to address the statistical significance of the results.

-Can the authors clarify in the text when they are discussing fires within a year of deforestation (fire-driven deforestation) vs. fires for plantation management/escaped fires? Sometimes it's not clear to me which fire type is being discussed and the description in the methods section does not make this aspect clear.

Specific Comments:

-Pg. 2, Line 24: What about the % certified within Southeast Asia?

-Pg. 3, Line 31: Do you have the date of certification for each plantation or is it only known to have occurred between 2009-2015?

-Pg. 4, Line 4: Was each individual plantation owned by a separate company, or was there overlap in ownership?

-Pg. 4, Line 10: Can you give more details on how planted oil palm was detected and if there were any differences between the three studies?

-Pg. 4, Line 29: How was the 5km buffer selected? Were any differences considered between small vs. large plantations?

-Pg. 5, Line 12: Could there be any effects of having a 5 year timestep for the oil palm datasets vs. the annual deforestation datasets?

-Pg. 5, Line 23: Can you clarify if the certification timing was similar for all of these plantations (2009?) or if it varied across the study area? Could some of the plantations in the certified category have only been certified towards the end of the study period? If the dates are not known, I would appreciate a discussion at some point in the paper on how this could impact results.

-Pg. 5, Lines 23-24: Can you comment here or in the discussion on why this could be higher? Were these plantations easier to access or were there other factors that lead

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to higher deforestation pre-certification? Are these results statistically significant?

-Pg 6, Line 1: What do you mean by management classes? Certified, non-certified, and buffers?

-Pg. 6, Line 1: Can you mark el nino years on the figure for reference? Any differences depending on the strength of the el nino?

-Pg. 6, Line 6: Were the number of dry years consistent between the two periods of comparison?

-Pg. 6, Line 15: Again, I'm wondering if you know about differences in certification timing among the three areas?

-Pg. 6: Line 28: Can you give a comparison of the strength of these different El Nino events?

-Pg. 6, Line 35: I'm not sure I understand exactly what you did here. For the annual fire detections, did you address the difference in temporal sampling between the different datasets? What detection differences might you expect between the different sensors and how could this influence comparisons?

-Pg. 7, Line 10: I thought that the Cattau study was focused on concessions that were previously cleared or planted, so wouldn't you expect differences between that study vs. fires used for deforestation as examined here? Or are you considering management fires (see general comment #3)? Not sure if I'm missing something here, so a clarification would be appreciated.

-Discussion: If you feel it's warranted, could you comment on whether your work relates to the findings by Gaveau et al. (2016) on the timing of deforestation for oil palm plantations?

Gaveau, D. L. A. et al. Rapid conversions and avoided deforestation: examining four decades of industrial plantation expansion in Borneo. *Sci. Rep.* 1–13 (2016).

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Technical Comments:

-Pg. 3, Line 25: Should it be section 2.1? (Also the rest of the subheadings in this section)

-Pg. 5, Line 1: The VIIRS definition just repeats the first part of the sentence?

-Pg. 5: Line 14: Can you add a supplementary figure show the distribution of peatlands? We only have the subsets from Figure 1.

-Pg. 5, Line 22: Missing %.

-Pg. 6, Line 29: What were the peak burning months?

-Figure 1: Is it possible to color code the zoomed in subsets by certified vs. non certified? Perhaps with some shading of the peatlands instead? This might make the figure too busy but it would be nice to see the spatial details.

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Interactive comment on Earth Syst. Dynam. Discuss., doi:10.5194/esd-2017-2, 2017.

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