

Dear Referee,

Thank you very much for this third round of comments. I have carefully addressed all your feedback,  
and I hope that the manuscript is now progressing toward its final form.

Fig. 1 caption: “After 1 year the wood from a storm is not fresh enough for bark beetles to breed in, so *ihosts\_dead* goes to zero.” **added**

Table 1:

- o Alphabetize **added**
- o Inconsistent variable capitalization (here and in text) **solved**
- o Inconsistent use of underscores vs. spaces in subscripts (here and in text) **solved**
- o Add “susceptibility” to description **solved**

L273: “the max” should be “the maximum”. **solved**

L277–281 (Eq. 5b):

- o I’m afraid the added information about age classes just served to confuse me further. I think it should be reworked like this? **solved**  
where  $a$  is age class and  $y$  is the current year. (Similar changes should be made for Eq. 6b.) **added**

o L280: Also mention that PWS is 1 when plants aren’t stressed at all. **added**

L452: “index of weakened trees index”—delete second “index” Fig. 2 **solved**

o Caption: Refer the reader to Table 1 for variable name definitions. **added**

o Rounded rectangle whose left side comes between, e.g., PWS\_max and the “5” arrow should be deleted. It breaks the connection between the variables on the left and the arrows on the right, and it doesn’t seem to add anything useful to the figure. **removed**

Table 3 caption:

- o “spacity” should be “sparsity” or (preferably) “scarcity”. **solved**
- o “but see table s1”—why “but”? **removed**

Table 3: “A severe bark”—delete “bark”. **removed**

Sect. 3.4:

o Note that scores are either 0 or 1. **added**

o “is the sum of four scores” isn’t quite right, since that sum is multiplied by

score5. changed to “is the sum of four scores time the fifth score”

o Discussion of “four scores” in first paragraph and bulleted list neglects score5—why? bullet point added saying “No outbreak is triggered when  $DR_{windthrow} = 0.1\%$ . This characteristic is mandatory in order to avoid outbreak for no specific reason (score5).”

Sect. 4.2: Refer to Table S1, but note that it only contains the variables from Table 4 that were sensitivity-tested. added

L724: What is the “t” in this sentence? removed

Table 4: Please alphabetize. done

Sect. 5.3: Previously, I requested: “Discussion (and also Conclusion) should mention that this depends on spatial scale and model use. If one is looking at global-scale NBP, there might not be as much of an impact of including abrupt disturbances because they’re happening constantly somewhere.” The authors replied that a spatial analysis is the focus of their next paper, not this one. That’s fine, but the point I raised should still be mentioned here. It’s fine to say what the paper plans are as well, if the authors would like.

added at lines 836-338 : “However, it is important to note that the global-scale NBP might not be significantly impacted by abrupt disturbances compared to continuous ones. This is because the scale is so vast that abrupt mortality events are constantly occurring somewhere on the planet, which smooths out the effects illustrated in Figure 8.”

Line 804: “locations” should be “location” (or just deleted) deleted

Supplementary figures and tables: S in numbering should be capitalized. (E.g., S4, not s4.) solved

Figs. S2-4 have the same caption. They seem to differ only in the variable being plotted on the Y axis, so please add that information to the caption. Then the captions of Figs. S3 and S4 can be simplified by saying something like “As Fig. S2, but for total biomass.” solved

Throughout main text and supplement:

o “access” should be “assess” solved

o “developement” should be “development” solved

Table S1

Red/green is not colorblind-friendly. Other colors would be better, but avoiding color would be best. It's also confusing because some of the green values are also reference values, which should be black.

Here's one suggested setup that would be clearer and more accessible: Italics to indicate "reference values" (which would more clearly be referred to in the caption as "variables held constant for each sensitivity test"), underlines to indicate values of sets scoring 4, and bold to indicate the values ultimately chosen. See screenshot below. **solved**

Caption:

- "ips typographus" should be "Ips typographus" **solved**
- "The parameter set in green": "set" should be "sets".**solved**
- "32" should be "36" **solved**
- What does "selection" mean here? **Replace by "the 36 parameter sets used to ..."**