

Interactive comment on “Modelling long-term impacts of mountain pine beetle outbreaks on merchantable biomass, ecosystem carbon, albedo, and radiative forcing” by Jean-Sébastien Landry et al.

Anonymous Referee #1

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General comments

This manuscript describes a modeling study on the impacts of mountain pine beetle (MPB), under various outbreak regimes and at three different sites, on biomass, carbon, and radiative forcing. This is an interesting topic and, as the authors note, one that has been little explored by high-caliber models such as the IBIS one used here. The ms is extremely well written, frequently insightful, and the technical approach used is solid.

There are a few weaknesses and unclear points. Most seriously, the authors need to

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specify availability of the model code and outputs (I'd strongly suggest archiving the latter in a repository, and providing a link in the text). In addition, the sources and assumptions for the climate data used are not at all clear—were current-day conditions held constant? Was a specific climatology used? Finally, I'd suggest changing the conclusions and Figure 1 (see specific comments below).

In summary, this is a strong and well-done ms that needs only minor revisions for clarity and concision in a number of places.

Specific comments

1. Page 1, line 3: “non-target vegetation” – I understand, but slightly confusing. Reword if possible
2. P. 1, l. 11: contrary to what?
3. P. 3, l. 29-30: this is confusing, as “PFT” in this sentence is different from “PFT” in the previous sentence (I think). Clarify
4. P. 5, l. 19: model was spun up for a specific length of time, not based on stability of C pools? A few more details here would be useful
5. P. 5, l. 28-29: clarify a bit about where these values come from
6. P. 6: code availability of IBIS and MIM? What's availability of simulation results?
7. P. 9, l. 17-: well written and a good point. Maybe adapt as last sentence in abstract?
8. P. 12-13: I'm not a fan of restating the entire study in the conclusion. Consider Condensing the first two paragraphs to a couple sentences, and focusing on the third paragraph, which actually does contain conclusions
9. Figure 1 is not effective; I don't think readers need help locating Canada. Better would be to zoom in on BC, showing e.g. climate of the province with study locations marked

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10. Table 1: where do these data come from?

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