

Biogeosciences Discuss., referee comment RC1  
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## Comment on bg-2022-125

Anonymous Referee #1

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Referee comment on "Spruce bark beetles (*Ips typographus*) cause up to 700 times higher bark BVOC emission rates compared to healthy Norway spruce (*Picea abies*)" by Erica Jaakkola et al., *Biogeosciences Discuss.*, <https://doi.org/10.5194/bg-2022-125-RC1>, 2022

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This study investigates the effect of bark beetle attack on Norway spruce biogenic volatile organic compounds. While I think it is an interesting study subject, I found the manuscript difficult to evaluate because I could not follow the experimental design: what was the *n* for all the different treatments, plots, sites, etc.? when was sampling performed i.e. dates and time? I think it would be very helpful to make an experimental design figure.

My other major comment is about the statistics. I saw that there was a statistics paragraph in the methods, but I would like to have more details about how the statistics were performed. Also, no statistics were included in the results or figures.

Finally, in the first sentence of the last paragraph of the introduction it is stated "The defense mechanism of Norway spruce is poorly understood." I don't think this is a fair assessment of the field. We know quite a bit about the induction of terpenes, phenolics, and traumatic resin ducts (e.g. Krokene, 2015 *Conifer Defense and Resistance to Bark Beetles in Bark Beetles: Biology and Ecology of Native and Invasive Species*; Celedon and Bohlmann, 2019 *Oleoresin defenses in conifers: chemical diversity, terpene synthases and limitations of oleoresin defense under climate change, New Phytologist*). Although, I agree that we still have a lot to learn.