

**Author's response to the Interactive comment of Anonymous Referee #2, on "Full scale experiments to examine the role of deadwood on rockfall dynamics in forests"**

Dear Anonymous Referee #2,

Thank you for highlighting the relevance of the manuscript's topic and, in agreement with most of Referee#1's comments, for the overall positive assessment of the paper. In compliance with your report, we amended the manuscript to stress the small rock masses in both abstract and conclusion. Also, the assumptions about rock-log diameter ratios were elaborated in more detail.

We willingly incorporate the suggestion of *logging operation* instead of *logging job*. We noticed that no recommendation for improvement was given for *forest state*, also criticized at the beginning. Although not completely satisfied with the term initially, as hardly ever used in the forest community, we replace it with *the state of the forest*: *The state of the forest* implies a short, defined observation period of an existing forest. If solely simulations – without actual experiments - were carried out, we would use *scenario*. And the term *forest stage*, used in ecological vocabulary, describes per se longer periods during which natural processes are responsible for changes and therefore excludes it from further considerations. The closest to the used *the state of the forest* is *forest condition*. However, the literature with *forest condition* in the title deals also with relatively long-lasting changes and their monitoring (e.g., air pollution). Although *the state of the forest* may be a bit wordier than the initially used *forest state*, it is universal and sounds less pompous.

See below the other point-by-point responses to your remaining criticisms:

**1) Line 13. "rockfall energies": use magnitude or refer to kinetic energy of a single rock**

We replaced the ambiguous term "rockfall energies" with "rockfall magnitudes".

**2) Line 32. Use uprooted trees instead of overturned trees**

We substitute "uprooted" for "overturned" trees to use more common forestry terms.

**3) Line 36. You are not referring to protection "effect" here, but to protective function or role. In order to clarify the terms to be used all over the manuscript: protection forest are forest with a protective role/function, even if they are not providing protection (not protective)**

We agree, that we were referring to the protection "role" and not the protection effect in this context and changed the wording in the manuscript to: "In rockfall protection forests, it is decisive to know."

**4) Line 40-43. Delete the part of the sentence related to the wood decay since is not applying to this work**

We have deleted the part of the sentence at the respective position.

**5) Line51-54. The species should be written not with the first letter uppercase in vernacular (rowan, whitebeam, beech, mountain pine, silver fir) unless it is a Country name (Norway spruce, European larch). Furthermore, for the scientific name you have to provide the authority name to all the species, not only for Norway spruce and rowan.**

We integrated all the suggested adaptations, amended the taxonomic ranking with correct order names in the manuscript.

**6) Line 56. Logging operations**

We changed the term logging job at the given position into logging operation and specified it further as a regeneration cut.

**7) Line 65-67. This details are not needed as well as line 68-69**

The presence of this information was to give insights into experimental boundary conditions, which - we agree – are also a matter of taste if necessary in a manuscript. We approve deleting the passage, as the run numbers are also mentioned in Table 1. We restrained from deleting the horizontal accuracy of the GNSS device, since we refer to this matter in the results section: *“Even if the GNSS-uncertainty is taken into account still 71.4% and 73.2% of the released rocks within the ORG and CLR set-ups reached the forest below the deadwood section.”* and want to highlight that factory accuracies hardly ever apply in forested test sites as information for the general, open-land GNSS user.

**8) Line 67. Delete “in” after measured**

The mistranslated Germanism was corrected.

**9) Line 85-86. Please rephrase the sentence**

We clarified the statement and rephrased the sentence.

**10) Line 88-89. Not clear to me “we took for all deadwood-logs a maximal diameter of 40 cm”**

We enhanced the mentioned passage with a statement about the missing diameter- and height above ground information of each log end. With this in mind, and further clarifications the text is now clear:

*During fieldwork, all 26 trunk GNSS positions were recorded, but not the exact diameters nor the height above ground of every log end, which are required as input parameters for the generation of the individual deadwood cone in RAMMS::ROCKFALL. As a realistic but simplified approach, we assumed a uniform maximal diameter of 40 cm for all deadwood-logs. If logs were lying on top of each other, we considered the in the GNSS-file first mentioned as the lower log with ground contact, and the latter piling up.*

**11) Line 137. Slightly and considerably values are switched?**

The statement has been rephrased entirely for clarity:

*A less pronounced underestimation, 15.6% for DW, 30% for ORG, was detected for the average rotational velocities.*

**12) Line 144. Avoid using “tremendous”.....**

We replaced tremendous with substantial.

**13) Line 146-148. Please rephrase**

We have improved the incorrect expressions in the sentence

**14) Line 233. Rephrase the concept “natural disturbances with piled deadwood”**

We adjusted the sentence to indicate that piled deadwood results from the increasing natural disturbances.