

This paper describes the effect of removing slash and litter in pre-commercial thinning of beech and oak, characterizing responses of tree height and diameter growth (I think but I'm not sure) and wood chemistry and nutrient concentrations.

The results are interesting and statistically significant. The biological significance of the effect sizes could be better interpreted in a budgetary context. I would like to see estimates, in units of kg/ha, of the amount of nutrients removed in the harvest residues, and then the changes in wood chemistry could be scaled to the stand level and compared to them. The same applies to the changes in sapwood and heartwood concentrations. This was one of the most interesting results of the study, that nutrient translocation from heartwood reflected the reduction in nutrient availability in the environment. But without quantifying the magnitude of this flux in units that can be compared to the treatment, we can't evaluate whether this process is of the right order of magnitude to compensate for the nutrient losses.

The plasticity of nutrient concentration in wood is a really interesting observation and I think more could be made of it. If the concentrations in the controls are higher than they need to be for trees to grow, what has been learned about how much lower they could go? The section of the discussion that listed concentrations reported at other sites seemed pointless to me (necessary in a student thesis but not helpful to a journal audience) but if this information could be used to shed light on the sensitivity of wood concentrations to environmental conditions, it would contribute to a more interesting story.

The statistical analysis is incompletely described. This is a common flaw. To my students, I have proposed a party game: Write your description of your statistical analysis. Pass to the right. From the description of the person on your left, write a statistical model in the language of your choice. If the person on your right didn't get your model right, your description was inadequate. The statistical analysis section of this paper has a very low chance of winning at this game. What are the response variables? Ring widths, wood densities, and nutrient concentrations. Check! What are the predictor variables? Treatment. What about heartwood and sapwood? What about the treatment plots? Judging from the graphs, it looks like they would not be included (you pass on the party game if the analysis described is incorrect, but completely described. This one is not). The model should include plots, and if they are blocked, they should be nested within block. Are pretreatment measurements included? What about tree diameter and height? Fail! Never mind the party game: if your journal audience can't tell whether your statistical analysis was correct, they can't have confidence in your results and conclusions.

So, in my case, I don't understand the results. What is "growth"? Is it really just a comparison on tree diameters, as shown in the figures and tables? That would be a shame. Why not use the ring widths to calculate growth? This is not described. Better yet, how about a comparison of growth rates before and after treatment, maybe as a function of tree size (and competitive status?) Since ring width decreased significantly, I suspect that growth was reduced and could be reported if analyzed correctly. It is (remotely) possible that they analysis was correctly done and just not adequately described.

There is a statement in the results that “ring width significantly explained the wood density” but this analysis was not described. Was plot included in that model? Ditto for the relationship of diameter to concentration. This analysis needs to be described in the Methods.

170 ff. When you say that concentrations “decreased,” is that a comparison of the wood laid down before and after the treatment? (a model description would help!) If not, say “concentrations were lower in the treatment than in the control”.

Minor comments

I have never read a paper that described tree size with the circumference, even though it's what we always measure. Because every other scientific report, and every model, uses tree diameter, I think you should, too, or you're asking us to mentally divide by π to understand your figures in units we are used to. This is super interesting and I'm struggling to imagine why all foresters and ecologists (in the English-speaking world, maybe I don't read French) use diameter, even though it less accurately represents what we measure. Tree volume depends on the cross-sectional area (and the height, of course), as does biomass and nutrient content. So diameter is not that much closer than circumference to what we want to know. It doesn't matter why we conventionally report diameters; for your paper to communicate efficiently, you need to follow conventions!

Does the test for diameter and height differences involve change since treatment? Because a glance at Figure 1 suggests that the plots probably differed quite a bit before the treatments were applied.

Avoid asking your readers to learn new acronyms. I never heard of RHRL. It doesn't come up in a google search, even after adding “forest” to the search. Using unfamiliar acronyms means that people who don't read the definition at the first use will not understand you. Don't you often open a paper to start reading at the Results or Discussion?

115 It's important to know how long the cores were.

127 Normally dpi refers to the resolution of an image. What's important here is the resolution relative to the core. Can you clarify which is meant here, and if the former, what the magnification was? Maybe if I knew what “e-scanned” meant, I would understand.

142 This is important, so you should give a brief description in addition to a citation.

275 I find this difficult to believe. Is this evidence from your particular site? What is the evidence? There can't be a big difference in foliar resorption, so if one is taken up from the forest floor and the other from the mineral soil, it means that one is leaching from the forest floor to the mineral soil and the other is not. Maybe this wouldn't strike other readers as odd,

but if, like me, they think that Ca and Mg have similar nutrient cycles, it might require more explanation.

276 I hope you know the answer to this! Surely monitoring the nutrient removals is part of the ongoing experiment?

Figure 1. Half of the space is devoted to headings (is this a default in R?) that could instead be labels for columns and rows of panels.

Figure 2. The alignment of the box plots to allow the comparison of means is very clever and should be used to compare relevant means. We don't want to compare beech to oak, we want to compare the treatment to the control.

More importantly, this figure is very misleading, as it treats the trees as independent samples of a population (pseudoreplication) when they are in fact from three plots. The fact that the treatment differences were not significant would be immediately apparent from the relevant graph (showing each of the three plots of each treatment type).

Figures 3 and 4: Same comments, with the addition of the heartwood-sapwood distinction. We don't want to compare oak and beech, so put those in separate panels. Which is more important, the comparison of heartwood to sapwood, or the treatment effect? Arrange the observations so that the things most important to compare are closest together. If the replicates are paired, you could pair them. Oh, how about an x-y plot of the treatment vs. control, with the 1:1 line labeled? Separately for oak and beech, but with symbols for heartwood and sapwood. That would be a good design for Figure 2, too. You can show error bars on the x and y for each plot. Do not show means and SE for all the trees, this is incorrect

Table 1. How many digits are warranted? I'm sure 5 is too many for stem density, I don't think you have that many trees.

Even if the journal doesn't ask for it, please put the table captions with the tables, this is really hard to follow.

I don't understand the value of the appendix figures, they seem to repeat information in Figure 3.

Even more minor comments (don't bother replying about these, like my scribble on the ms.)

58 Do you want to cast doubt on this assumption? If not, you could just say that it decreases dependence on fossil fuel.

66 "premature" in English means that something was too early. Oh, how about "immature"?

87 this is confusing, maybe we don't need it here. It's more clear on 104

145 "mineralized" should be "digested" (I think I am learning French!)

196 isn't this "diameter growth"?

233 This is a nice introduction, and the paragraph that follows doesn't seem to have anything to do with it.

247-252 appears to belong to the previous paragraph. I didn't think this material added anything to your paper.

252-263 This is more relevant. It could be used to set up the justification for your study (in the Introduction).

270 ff. Use past tense for your results

The figure and table captions need editing. Don't you go first to the figures and tables when you read a paper? "Boxplot representing" is not necessary but some indication of what the treatments were would be helpful (and not just "RHRL").

I noted places in the ms. that could use attention but I lost steam on the captions. You can handle it!