General comments

The manuscript has substantially improved since the last round of revision and the authors have thoroughly considered and incorporated the reviewers' comments. Especially the Introduction and the general structuring and streamlining have been thoroughly revised and improved, so that now the manuscript provides clearer messages. Moreover, the method section is now better organized, and I found it easier to follow the methodological steps.

The authors simplified the analyses of "landscape effects" compared to the previous version, and now focus on the effect of the coefficient of variation of patch connectivity in this section. In my opinion, this contributes to improved clarity compared to the previous version.

Overall, the authors assess the effects of three factors on the strength of the relationship between patch connectivity indices and local species richness: i) patch delineation, ii) scaling of patch connectivity indices, and iii) variability of patch connectivity among sampled sites. Their analyses make valuable contributions and the discussion section nicely outlines implications and considerations also for future analyses that can surely be helpful for many other researchers working with connectivity indices and explanation of biodiversity patterns. The limitations of their approach (e.g., transferring results from simplified simulated communities to real world systems, adding further connectivity indices, expanding the parameter range) are acknowledged and discussed.

There are still some minor syntax errors or things that could be expressed more clearly and/or consistently (see below), but my overall impression of this revised manuscript version is very positive.

Minor comments

L. 22: the absence of **an** effect

L. 29: local **communities**

L. 47.: rather tha~~nt~~

L. 47: **In a** meta-analysis

L. 83: a lack **of** statistical power

LL. 100-101: to yield ~~a~~ stronger patch connectivity effects

LL. 115 and 131: made **up** of

L. 119: (10%, 20% ~~of~~**, and** 40% of the landscapes)

L. 190: ~~in~~ **on** average

L. 206: we computed the ~~maximum~~ proportion

LL. 207-208: suggestion for better readability: *Below, we call this proportion "explanatory power" of the connectivity index, and we…*

L. 221: dataset**s**

LL. 223-224: suggestion for more clarity: *As, here, the aim was to compare the effect of patch delineation, we did not consider the variation of R2spec due to index scaling (which is analyzed separately …*

L. 228: dataset**s**

LL. 227-230: this was a bit confusing for me at first. I would suggest to rephrase this a bit to make it more clear. Maybe something like: *In the models based on coarse patch delineation, we additionally included a term for the area of the patch…*

L. 235: Here you say you used "**one** linear model", but if I am not mistaken then you describe **four** separate models below

L. 264: value**s**

L. 274: I think it would be good to provide a rationale for the transformation of values [logit(avR2spec) and log(avCV)]

L. 329: value**s**

LL. 333: **lay** ~~lied~~ at the ~~higher boarder~~ **upper limit**

LL. 335 and 362: **lay** instead of lied

L. 398: within patch**es**

L. 431: affect**s**

L. 452: rather tha**n**~~t~~ indices

In my opinion, it would be good to stay consistent with the use of a thousand-separator when writing numbers (e.g. LL. 47, 203, 205, and throughout the manuscript)

Regarding the wording for the signposts of the analyses, I would choose "hypotheses" over "predictions", but that can of course also be seen as a matter of taste.