

## GENERAL COMMENTS

The manuscript has been deeply revised since the first submission. It now focuses on flux indices (the authors chose to remove patch-based indices from the analyses), which makes it probably a bit less ambitious than the previous version but also clearer and well organized. The streamlining is clearer now.

The neutral metacommunity simulations are better explained even if some analyses remain unclear (Results Index scaling and species dispersal, see below). The analyses and discussions are more conceptually grounded in terms of ecology, with an interesting contribution to the relations between cell grain and dispersal distances. This is welcome. The manuscript is fairly methodological/user oriented, which should be useful for whoever wants to use structural connectivity indices (CI).

The text is fairly clear but seems to still include syntax errors (see below, but there may be some left). I would suggest to contact a native speaker to read it.

As a conclusion, I would say that this manuscript represents a valuable and interesting contribution to the proper use of CI. The use of simulated metacommunities in virtual landscapes allows getting conclusions that avoid observation bias that could appear in empirical studies, even if it comes with the formulation of strong ecological hypothesis which are well described and taken into account by the authors. The authors have endeavoured to take into account the comments made by the reviewers and make their work clear, even if there are still sentences that could be clarified (see below).

## DETAILED COMMENTS

L327-328: we expected the scale parameter (...) to increase

L 336-337: the sentence is not clear

L340-341: the choice to focus on Buffer index could be justified

L391-396: the way the authors determined the 'optimal scaling parameters' is not clearly explained and remains unclear. The following paragraph is also clumsy.

Figure 3 is hard to read

L471: a dot is missing -> "studies). This would (...)"

L487: indices (...) that needs

L525: **One** may therefore

L538: compatible **with** TIB

L556: a ~~n~~ decreasing exponential kernel