

## ***Interactive comment on “The “neutral” community structure of planktonic herbivores, tintinnid ciliates of the microzooplankton, across the SE Tropical Pacific Ocean” by J. R. Dolan et al.***

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Review of “The “neutral” community structure of planktonic herbivores, tintinnid ciliates of the microzooplankton, across the SE Tropical Pacific Ocean.” By Dolan et al.

The authors analyse tintinnid diversity in a transect across the SE Pacific. The work makes two important contributions to marine ecology: 1) Providing an exceptional dataset (high taxonomic resolution data in a rather unexplored area, for a rather unknown trophic compartment and across a huge gradient of trophic conditions 0.07-1.7 mg m<sup>-3</sup> Chl a). 2) Rare in marine biodiversity studies, the authors do not stop at the species lists and diversity index, but go further and try to use the data to explore impor-

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tant questions and theoretical issues, such as the neutral theory of diversity, that are nowadays hotly debated in terrestrial ecology.

In our opinion the article is good and should be published with some modifications.

Main issues:

Our main point of criticism is that the data are so good that they allow for a more thorough test of the neutral theory of diversity.

The authors state that the log-series models fit the data best in 17 of 22 cases and they conclude this “strongly suggests that tintinnid communities are structured by dispersal limitation” (Page 573). If dispersal limitation acts on species, therefore, species similarity among census stations is expected to decrease (logarithmically) with increasing geographic distance (Hubbell 2001). However, the authors did not test this. Different approaches have been proposed to address this issue (see for instance Condit et al. 2002 *Science* 295:666-669, and Chust et al. 2006 *J. Veg. Sci.* 17: 83-92). A statistical test of this decay might be easy to implement and would contribute to increase the interest of the paper. At least, we think that the authors need to discuss this issue further.

Specific comments

The authors found that species richness was correlated with both the variety of mouth sizes as well as numbers of species per mouth size (page 575), and they conclude this is consistent with random colonization. This causal relation should be explained before in the introduction or in methods.

Page 565. According to the title and the conclusions of this paper, the Hubbell's neutral theory and resource partitioning versus dispersal limitation mechanisms are one of the main questions addressed in. However, we don't see that the questions posed in the introduction are sufficiently addressing this issue. The 2nd question (page 565, line 4) might be reformulated more directly according to this.

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Page 567. line 23-26. The sentence “A log-normal species ...” is grammatically unfinished.

Page 573. Line 19. “the log-series models fit the data best in 17 of 21 cases” should be “the log-series models fit the data best in 17 of 22 cases”

Page 573. The statement “contrary to this prediction, we found that, for communities with <30 species, the fit of the log-series distribution actually improved (AIC declined) as species richness increased” is not the consequence of the previous sentence “Magurran (2004) has argued that species abundance distributions are difficult to compare for samples with less than 30 species,...”.

Page 574. “The neutral model, due largely to its assumption of ecological equivalency among species within a community, has generated a great deal of controversy (for example see Holyoak and Loreau, 2006; McGill et al., 2006; Alonso et al., 2006).” This controversy actually started before (see for instance a review in Chave (2004) Ecol. Lett. 7: 241-253).

Page 576. we suggest removing “strong” from the following conclusion “Overall we found strong evidence that tintinnid communities in the SE Pacific can be described by Hubbell’s neutral theory.”

Page 582. Table 4. The correlation matrix is symmetric, therefore, we suggest removing all values from down-left hand of the matrix. There is also an error: the Rho between # species and  $H' = 0.597$  must be equal to the Rho between  $H'$  and # species = 0.527.

Fig. 7 and 8. The legends should include the p-value of the test since they are used to conclude the presence or lack of relation among variables.

This review was mainly carried out by Guillem Chust with some help from Xabier Irigoien,

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