

Review 622373

Title: **Deceptive combined effects of short allele dominance and stuttering: an example with *Ixodes scapularis*, the main vector of Lyme disease in the U.S.A.**

In this paper by de Meeûs et al. the authors use a microsatellite dataset of the tick *Ixodes scapularis* to test for distortion of population genetic parameters by marker typical problems, i.e. null alleles, short allele dominance and stuttering.

The paper is overall well written, interesting and relevant, but suffers a few structural shortcomings. I found that the methods section in part already includes discussion of the topic, and the results and discussion lacks a bit of discussion. I would also prefer to have the results and discussion sections separated. The approach how to address the common microsatellite problems should be provided in more detail in the methods rather than the discussion. Maybe a flowchart could be used to visualize the workflow how to improve microsatellite datasets. I cannot judge all the statistics in detail, but they appeared largely sound to me. However, I found the approach to pool alleles close in size a little questionable as one would think that this artificially further reduces heterozygosity. I was wondering if large allele dropout and short allele dominance refers to the same thing (I assume so). Maybe this could be clarified. Further I would like to see some comparison to other approaches addressing these problems (e.g. Wang et al. 2012 *Genetics* 192(2): 651–669). While the common Microchecker approach is compared, I would like to see some more details on the differences of the approaches as well. Maybe it would be possible to test the different approaches using an artificial dataset with known rates of the different problems. One other larger problem may be the sample sizes which are quite low for population genetic analyses. Maybe this could at least be mentioned. How many populations are included (in terms of population structure)? This again may make a difference for the analyses.

Besides I have a few smaller comments and suggestions which I provide in chronological order below.

Line 30: maybe refer to ascertainment bias here.

Line 77: I guess this would be more commonly referred to as Hardy-Weinberg proportions?

Line 103f: I do not understand this sentence. Maybe it could be clarified.

Line 155: Why and how was this subset chosen? Why were not all used? Here some more details would be useful.

Line 178: Here it says nine markers, later (line 284) you refer to 22 sets. The table also includes more. What was now actually used? Some more details are needed here and some more structure, which would make it more easy to follow.

Line 199f: This sentence is odd. Could this be reworded?

Line 258ff: This all reads like discussion. This needs to be described more in a “methods way” in order to be reproducible.

Line 284: See above. How many loci were actually used? What was the proportion of missing data?

Line 289: Which data?

The whole discussion is a bit confusing and would benefit from some clearer structure. Separating the results and the discussion may help here.

Line 308: What is meant by blanks?

Figure 4: It would be nice to label the scored peaks more clearly.

The discussion actually lacks discussion and barely includes any reference to other studies which had similar aims. The results need to be put in a broader context.

Line 380: I find it difficult to say that one estimate is more accurate than the other. In order to do that the real value would need to be known.

I hope my comments are of help.

kind regards,