

DEPARTMENT OF BOTANY  
THE UNIVERSITY  
OXFORD

TEL. 3557.

Nov. 13<sup>th</sup> 1935

Dear Fisher,

I have been reading Ashby's paper on "The Quantitative Analysis of Vegetation" in the latest part of the *Annals of Botany*. It is an interesting and useful contribution, but I cannot find distributions anything like Poisson in the great majority of species in stable <sup>or nearly stable</sup> vegetation. His *Silene*, established by seeding alone in a very uniform environment, must be highly exceptional in its mode of distribution. Most plants seem to be distributed at random only in the very earliest stages of migration into a community, thereafter becoming increasingly patchy. This patchiness may later diminish because of competition - as amongst trees for instance - so that there is a maximum patchiness. The diminution may extend

to actual under-dispersion. - That brings me to no reason for writing this letter. I am using "under-dispersion" a meaning having a measure of dispersion smaller than would be expected if individuals were distributed at random. Ashby uses it in the exactly opposite sense - under-dispersion = ~~less~~ <sup>less or more patchy</sup> even distribution than random. Will you please make an authoritative decision between these two uses of the term?

In a paper I have written for J. Ecology, analysing much American data & some of my own, I have used the 'relative variance' as a measure of dispersion, defining it as  $\frac{\sum (x-m)^2}{(n-1)m}$ , where  $n$  = no. of individuals in a sample square &  $m$  = mean number in  $n$  such squares. This is practically always greater than 1, and usually much greater, in all communities I have studied. Do you consider this a useful measure, & am I right in supposing it to increase linearly with area of sample square if nos. for square are distributed normally? (It is,

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(course, unity for all sample sizes  
with Poisson distribution?). And what is  
its variance?

I hope this letter will not waste  
too much time for a very busy man!

My kind regards to Mrs. Fisher.

Yours sincerely,

A.R. Clapham