There once was a grid at ol' Carkeek

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1 Keywords

2 Stuff, things, neat, cool, wow, instafun, tags4likes, etc

3 Abstract

4 This is the text of the abstract.

5 Introduction

6 For centuries, humankind has wondered: If I have two apples, and someone gives me another two

7 apples, how many apples do I have? Some people did this (**?**).

8 Methods

9 We use the general framework outlined by Shelton et al (CITE). That study outlined the structure

10 for estimation of the proportional biomass of a taxon (B_i) given the proportional counts of sequences

11 recovered from a parallel sequencing run (Z_i).

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12   We modeled the counts of DNA sequences (Z) from each of a given taxon i, in each replicate

13 PCR j, from each replicate of a given location k (hence, Z_{ijk}), as though they are ?(proportional

14 to/drawn from)? a Poisson distribution. A Poisson distribution is described by one and only one

15 parameter, λ, which is equal to both the mean and variance. Because in this case our modeled

16 values are discrete counts, we use the natural exponent, e^{λ}. Thus,

$$Z_{ijk} \sim Poisson(e^{\lambda_{ijk}}) \tag{1}$$

17   In turn, we further assume this parameter λ is linearly proportional to a suite of taxon-, pcr-,

18 and site- specific parameters describing the variance associated with each sub-process linking the

19 amount of DNA (Y) of a given taxon i at a given location k in a DNA extract (hence Y_{ik}):

$$\lambda_{ijk} = \beta_0 + \beta_i + \eta_{ijk} + \epsilon_{ijk} \tag{2}$$

20   Where β_0 is a general intercept across all taxa, β_i is a fixed effect accounting for the variance

21 associated with taxon i, and η_{ijk} and ϵ_{ijk} are random effects of variance resulting from the processes

22 associated with PCR and spatial location, respectively.

Results

24 We found that if you have two apples, and someone gives you another two apples, you have four

25 apples.

Discussion

27 Boy those results sure are neat. Now, the pressing question becomes: How do you like them apples?

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Author Contributions

Conceived and designed the experiments: James L. O'Donnell, Ryan P. Kelly, A. Ole Shelton.
Collected the data: James L. O'Donnell, Greg Williams, Natalie C. Lowell, Ryan P. Kelly, A. Ole
Shelton, . Conducted the analyses: . Wrote the first draft: . Edited the manuscript: .

Data Availablity

The data and code used to generate our results can be found at the following url:

References

Figures