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Errata

In Eitzel et al. (2013), we presented methods for estimating models of tree growth and results for white fir (*Aibes concolor*) at a site in the Sierra Nevada mountains, California, USA. One important explanatory variable was basal area of each plot, which was smoothed over time to provide annual values. We discovered an error during an early stage of processing basal area values that led to incorrect basal area time-series being associated with some trees. We have repaired the error and re-run all of the models and analyses in the paper. There were no other changes to the methods: the models, estimation procedures, and other variables are exactly as depicted in the version of the paper published in 2013. We summarize the changes in the results below and make brief comments on the implications of these changes. Corrected parameter values and figures follow. If a result from the original paper is not mentioned, it is unchanged.

The largest change is the effect of basal area itself. The main effect of basal area on annual growth rate (the intercept) is now estimated to be smaller but still significant, and the interaction between basal area and size went from significant to not significant (Appendix E). The effect of size on annual growth increment remains significant for two soils (Cohasset and Holland-Bighill) but the average over different soil types went from significant to not significant. The main effect of topographic slope on annual growth rate went from non-significant to borderline significant, overlapping zero on the standardized scale but still appearing in corrected Table E1 as having an upper credible band of zero based on rounding. The effects of different soils on annual growth rate have shifted, with Jocal having a larger intercept than previously, Cohasset no longer having the largest growth overall, and several of the other soils becoming more similar to each other. The variance components for the annual growth rate are all

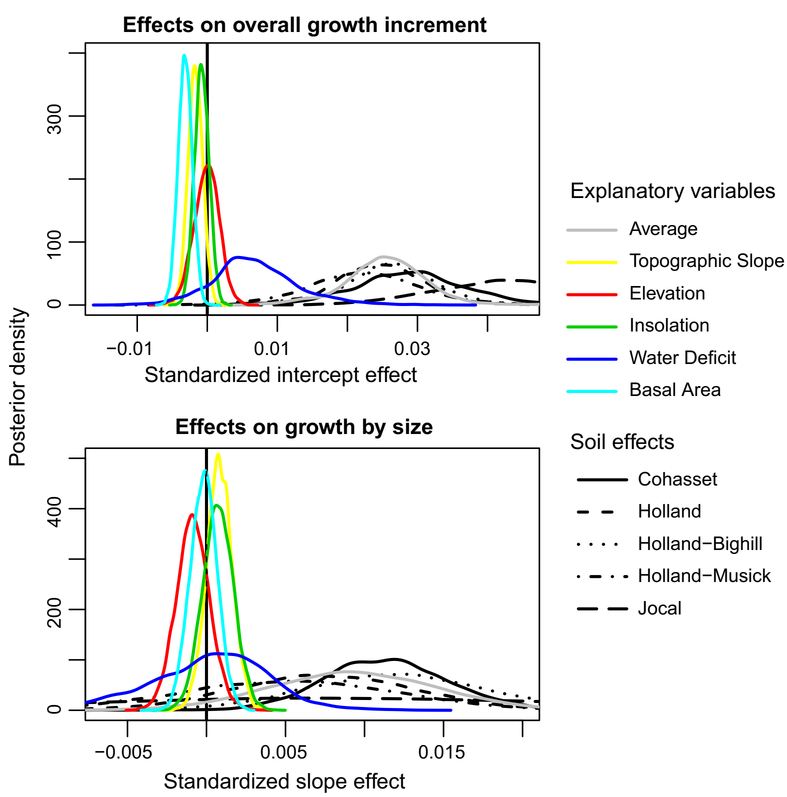

Fig. 1. Parameter posterior densities for main effects of explanatory variables on overall growth increment (γ) and interaction with tree size (κ). In addition to these continuous explanatory variables, the effects due to different categorical soil types are shown in black. The gray line indicates the average growth increment (upper figure, $\bar{a}$) and effect of tree size on growth increment (lower figure, $\bar{b} - 1$). (Top) Effects of continuous explanatory variables and soil types on the overall growth increment ($\bar{a}$ and γ's). (Bottom) Effects of explanatory variables on the slope of future size with respect to current size ($\bar{b} - 1$ and κ's).

now significant (by the criteria established in the paper), with compartment and year intercept random effects increasing in magnitude, and plot intercept random effects decreasing in magnitude. Most of the updated results continue to be robust to the addition or removal of other variables (Appendix G), with the exception that the year intercept random effect no longer trades off with the annual water deficit main effect.

In general, the conclusions of the paper are not changed. The methodology for estimating the models is still sound, and many known ecological features still emerge from having successfully estimated the model, though others have become less prominent. Soil type has a bigger role to play in the corrected model, while the average across soils masks the effect of size on growth. Basal area's interaction with size is now not statistically important, but we believe this to be a matter of poorly determined parameters (broad credible intervals due to collinearity or insufficient statistical power) rather than evidence against smaller trees suffering more in crowded stands. Overall, the modeling method still has promise for producing better ecological inference from forest inventories. Specific corrections follow.

In the text of Results: the parameter estimate for the average growth increment ($\bar{a}$) is 0.527 (0.247, 0.753), and the estimate for the change in growth increment with size ($\bar{b} - 1$) is 0.009 (−0.001, 0.020); note that though the posterior of this average overlaps zero, individual soils still have slopes significantly greater than one (e.g., Cohasset, Holland-Bighill). The parameter estimate for the observation error standard deviation is 0.115 (0.073, 0.178) with a uniform prior and 0.150 (0.085, 0.216) with a gamma prior. The parameter estimate for the residual error standard deviation is 0.387 (0.359, 0.416). For the

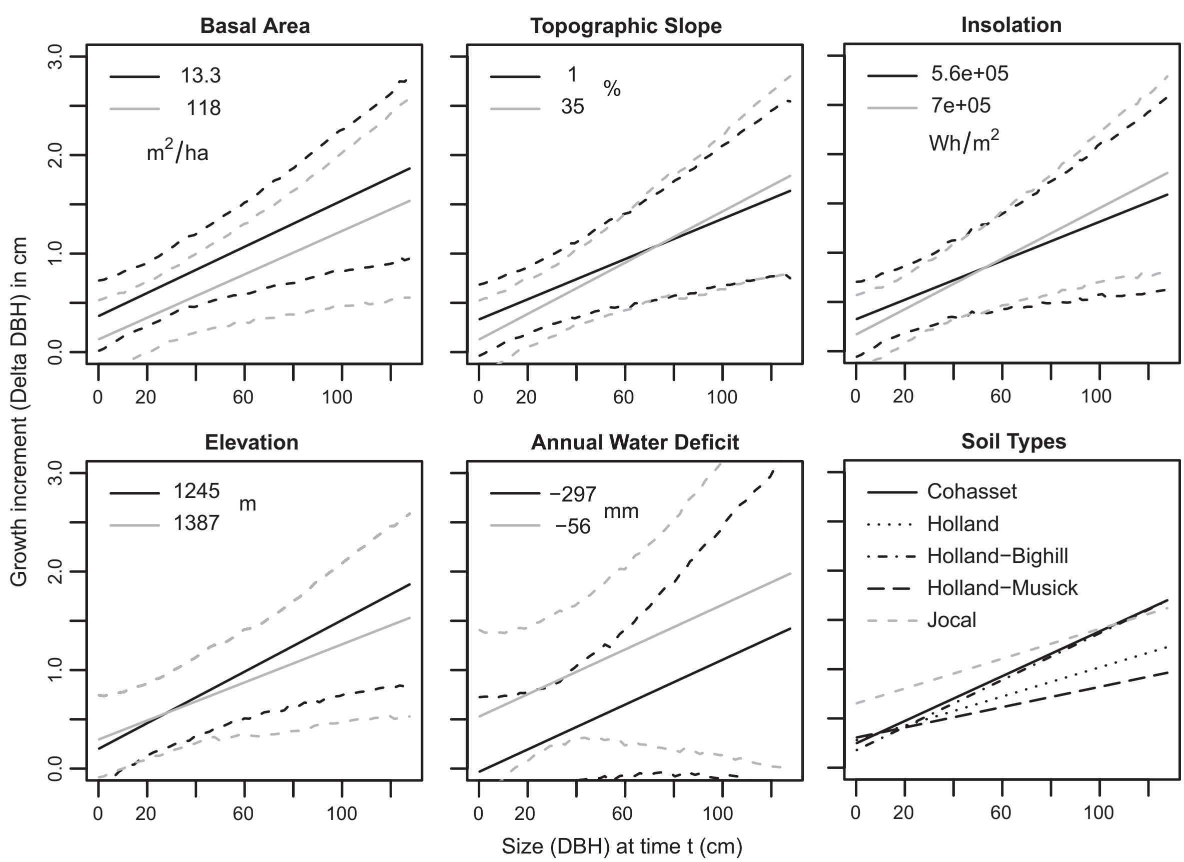

FIG. 2. Explanatory variable effects on growth increment (measured as change in dbh) as a function of size (dbh), rescaled to centimeters. All plots show that growth increases with tree size in the previous year, though for the average tree the size slope is only borderline significantly greater than one. Solid lines are the means from posteriors of parameter estimates; dashed lines are 95% credible intervals. For all explanatory variables other than soil type, black shows growth increment for a low value of the explanatory variable (−2 SD) and dark gray for a high value (+2 SD). Credible intervals for soil type overlap a great deal and are not shown for clarity.

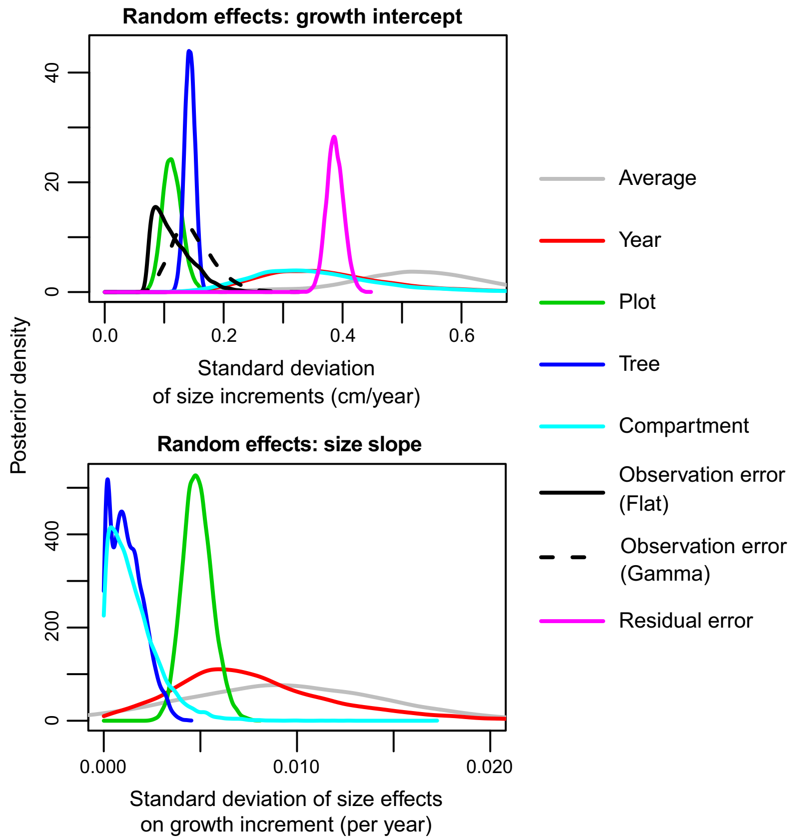

FIG. 3. Random-effect standard-deviation posteriors. (A) The intercept, α, standard deviations (compartment $\sigma_{\alpha,c}$, year $\sigma_{\alpha,w}$, tree $\sigma_{\alpha,q}$, and plot $\sigma_{\alpha,p}$), with the average growth increment a from Fig. 1 shown for scale in gray. Observation error standard deviation σ_{dbh} and residual error standard deviation σ_e are shown on the same plot for comparison. Only for observation error, we show posteriors for both the inverse gamma (dashed) and uniform (solid) prior models. (B) The slope, β, standard deviations ($\sigma_{\beta,c}$, $\sigma_{\beta,w}$, $\sigma_{\beta,q}$, and $\sigma_{\beta,p}$); again, the growth increment slope $\bar{b} - 1$ from Fig. 1 is shown for scale in gray.

variance components, the posteriors which were visually distinct from zero had ratios ranging from 0.38 to 3.70. In Table 1, The mean value of basal area is 61.48 m^2/ha and its standard deviation is 26.19.

Literature Cited

Eitzel, M. V., J. Battles, R. York, J. Knape, and P. de Valpine. 2013. Estimating tree growth from complex forest monitoring data. Ecological Applications 23:1288–1296.

Supporting Information

Additional Supporting Information may be found online at: http://onlinelibrary.wiley.com/doi/10.1002/eap.1424/suppinfo