

## ***Interactive comment on “Multi-scale assessment of a grassland productivity model” by Shawn D. Taylor and Dawn M. Browning***

**Anonymous Referee #2**

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Using the observed data at the sites of phenoCam network, the authors evaluated the performance of a productivity model, PhenoGrass at different ecosystem types. They identified the ‘optimal spatial extent’, in which the model performed the best. I have several major concerns on the manuscript, which I think are very important before the publication of this paper. 1. Apparently, this study just evaluated the performance of a model, identifying which ecosystem types the model perform best. However, this evaluation did not fill any knowledge gap on the way of improving our capability of forecasting. 2. The model results suggest that the model perform best in grassland ecosystems. I can guess that is within expectation, because it is likely that the model was originally developed for grassland ecosystems according to its name, PhenoGrass. No explanation was provided on how the model has been updated on simulating pro-

C1

ductivity in other ecosystem types. 3. Here the evaluation focus on primary productivity. Why not use the GPP data observed at fluxnet sites by eddy covariance towers, but the fcover at phenoCam sites? 4. More text is needed to elaborate the principle of the model. Key equations are needed as appendix. 5. How the parameters of the model were determined? How the parameters varied across ecosystem types? 6. How to use the image data (RBG) to estimate fcover? Is there some uncertainty at this step?

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C2