Supplementary Materials: Using Google Earth Surface Metrics to Predict Plant Species Richness in a Complex Landscape

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Table S1. Image metrics calculated for each red band or vegetation index of the SPOT and Google Earth images. Abbreviations: *i* and *j* stand for pixel values, *P* is the probability of finding an *i* pixel value (occurrence metrics) or both *i* and *j* (co-occurrence metrics) inside the window of analysis. Description of the co-occurrence metrics was taken from Gallardo-Cruz et al. (2012) [1].

Image Metrics	Formula	Description
Co-occurrence metrics		
Mean	$cc.mean = \sum_{i,j=0}^{N-1} iP_{i,j}$	Mean of the probability values from the GLCM. It is directly related to the image spectral heterogeneity.
Variance	$cc.var = \sum_{i,j=0}^{N-1} P_{i,j}(i - cc.mean)^2$	Measure of the global variation in the image. Large values denote high levels of spectral heterogeneity.
Correlation	$cc.corr = \sum_{i,j=0}^{N-1} P_{i,j} \frac{(i - cc.mean)(j - cc.mean)}{cc.var}$	Measure of the linear dependency between neighbouring pixels.
Contrast	$cc.cont = \sum_{i,j=0}^{N-1} P_{i,j} (i - j)^2$	Quadratic measure of the local variation in the image. High values indicate large differences between neighbouring pixels.
Dissimiliarity	$cc.diss = \sum_{i,j=0}^{N-1} P_{i,j} \lvert i - j \rvert$	Linear measure of the local variation in the image.
Homogeneity	$cc.hom = \sum_{i,j=0}^{N-1} \frac{P_{i,j}}{1+(i-j)^2}$	Measure of the uniformity of tones in the image. A concentration of high values along the GLCM diagonal denotes to a high homogeneity.
Angular second moment	$cc.asm = \sum_{i,j=0}^{N-1} P_{i,j}^2$	Measure of the order in the image. It is related to the energy required for arranging the elements in the system.
Entropy	$cc.entro = -\sum_{i,j=0}^{N-1} P_{i,j} \ln(P_{i,j})$	Measure of the disorder in the image. It is inversely related to ASM.
Occurrence metrics		
Mean	$st.mean = \sum_{i=0}^{N-1} iP_i$	Statistic mean of the pixel values.
Variance	$st.var = \sum_{i=0}^{N-1} (i - st.mean)^2 P_i$	Variability measure of the pixel values.
Skewness	$st.skew = \frac{1}{(var^2)^3} \sum_{i=0}^{N-1} (i - st.mean)^3 P_i$	Asymmetry measure of the pixel values distribution from a normal distribution.
Data range	$st.dr = i_{max} - i_{min}$	Measure of the difference between the extreme values of pixels.
Entropy	$st.entro = -\sum_{i=0}^{N-1} P_i \ln(P_i)$	Measure of repetitiveness of pixel values.

Reference

1. Gallardo-Cruz, J.A.; Meave, J.A.; González, E.J.; Lebrija-Trejos, E.E.; Romero-Romero, M.A.; Pérez-García, E.A.; Gallardo-Cruz, R.; Hernández-Stefanoni, J.L.; Martorell, C. Predicting tropical dry forest successional attributes from space: Is the key hidden in image texture? *PLoS ONE* **2012**, 7, e30506.