Supplementary Information

Bird species richness and densities in relation to sulphur dioxide gradients and environmental variables

Luckson Muyemeki, Roelof Burger, Stuart J Piketh and Steven W Evans

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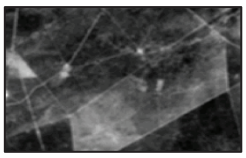
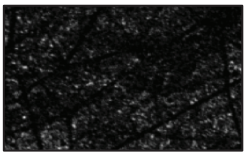
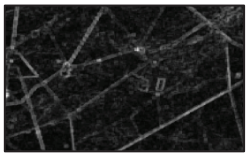
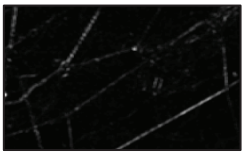
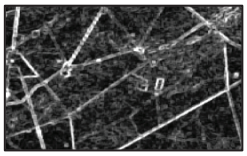
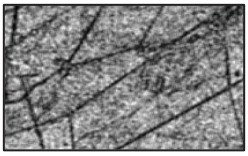
First-order measures				Second-order measures			
Texture measure	Statistical description	Formula	Example (3 × 3 window)	Texture measure	Statistical description	Formula	Example (3 × 3 window)
Mean	Average pixel value within a defined neighbourhood	$\frac{\sum x}{n}$		Angular Second Moment	A measure of how regular or orderly the pixel values are across an image	$\sum_i \sum_j \{p(i,j)\}^2$	
Range	A measure of the difference between the maximum and minimum pixel values within a defined neighbourhood	$\max\{X\} - \min\{X\}$		Contrast	A measure of the amount of local variation in pixel values within an image	$\sum_i \sum_j p_{ij(i-j)^2}$	
Standard deviation	A measure of variability of pixels within a defined neighbourhood	$\sqrt{\frac{\sum(x-\bar{x})^2}{n}}$		Correlation	A measure of the linear dependency in pixel values among neighbouring pixels	$\frac{\sum_i \sum_j (ij) p_{ij} - \mu_x \mu_y}{\sigma_x \sigma_y}$	
				Homogeneity	A measure of homogenous pixel values across an image	$\sum_i \sum_j \frac{1}{1+(i-j)^2} p(i,j)$	

Figure S1: Image texture description and formula (adapted from Haralick et al. 1973)

Reference

Haralick RM, Shanmugan K, Dinstein IH. 1973. Textural features for image classification. *IEEE Transactions on Systems, Man and Cybernetics* 3: 610–621.