Appendix S5. Correction factors to adjust the sampled area and species density with respect to the three-dimensional surface of the tree bark, and tree bole curvature.

For quadrat samples collected from the tree bole, a correction factor was applied to the measure of species density (ρ), adjusting for the difference between the area which is theoretically defined by the two-dimensions of the quadrat, and the three-dimensional surface area of the tree bark within the quadrat boundary. This adjustment accounts for bark roughness, and was based on three measurements: 1. The mean horizontal linear distance across the surface of each vertically-aligned ridge within the bounds of the quadrat (rD). 2. The mean horizontal linear distance across the opening of each furrow within the bounds of the quadrat (fD), 3. The perpendicular depth to the furrow base (fB).

The linear cross-sectional distance occupied by a furrow (fxD) was approximated as twice the hypotenuse of a right-angled triangle, using Pythagorean theorem (see Ellis & Coppins 2007b):

$$fxD = 2 * [\sqrt{ \{(fD / 2)^2 + (fB)^2\} }] \qquad \text{[Eq. 1]}$$

This allowed the calculation of a correction factor, which incorporated the proportion of sampled habitat corresponding to the opening across furrows (fD), relative to the surface of ridges (rD):

$$pfD = \{fD / (fD + rD)\} \qquad \text{[Eq. 2]}$$

Taking X as the spatial area of a quadrat, the correction factor (pfD) was applied:

$$CorrQ = \{X * (1 - pfD)\} + [X * \{pfD * (fxD / fD)\}] \qquad \text{[Eq. 3]}$$

As an additional precaution, the spatial area of the quadrat (X) was also corrected, to include an effect of the curvature of the tree bole, which will modify the sampled area under a quadrat, especially as the ratio of tree girth and quadrat size becomes low; where R is the radius of the tree bole, and L is span of the quadrat.

$$CorrX = 2 * R * \{TAN(L / 2 * R)\} \qquad \text{[Eq. 4]}$$