Appendix S1. How to account for residuals in the estimation

It is important to take all these differences into account when performing estimations. For example, assuming we want to predict maximum dispersal distance for the arboreal squirrel *S. vulgaris* on the basis of its mean home range size (~0.05 km^2), we would apply the power law:

$$28.23 \cdot 0.05^{0.5} = 6.56 \text{ km}$$

However, we know that arboreal species tend to disperse less than terrestrial ones (mean residuals = -0.32; see Table S3), therefore, if we want to account for arboreality in the estimation we have to modify the intercept of the relation. The original intercept in this allometric equation is at 1.4 (Table 1), but when accounting for arboreality it becomes 1.08.

Transforming the intercept of the allometric relation in the power law, and accounting for the correction factor, we would have

$$10^{\wedge 1.08} * 1.17 = 14.06$$

When recalculating dispersal distance with the new intercept we have:

$$14.06 \cdot 0.05^{0.5} = 3.14 \text{ km}$$