**SUPPORTING INFORMATION**

**Table S1:** Construction of dispersal distributionsfrom mixtures of Gaussian or exponential power family kernels. All kernels yield the same variance () but different values of kurtosis γ. The probability density function of the Gaussian mixture is , with  and  with probabilities *ω* and 1-*ω*, respectively. With such a mixture, . The probability density function of the exponential power kernel is.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Gaussian mixture | Type | *σ*12 | *σ*22 | *ω* | *γ* |
|  | Gaussian | 400 | 0 | 1 | 0 |
|  | Light-tailed | 300 | 936.9 | 0.843 | 1 |
|  | Heavy-tailed | 200 | 1200 | 0.8 | 3 |
|  | Heavy-tailed | 100 | 2183 | 0.856 | 10 |
|  | Heavy-tailed | 50 | 4980 | 0.929 | 30 |
|  |  |  |  |  |  |
| Exponential power | Type | *β* | *Α* | *γ* |  |
|  | Light-tailed | 6 | 35.4 | -1 |  |
|  | Light-tailed | 2.8 | 32.2 | -0.5 |  |
|  | Gaussian | 2 | 28.3 | 0 |  |
|  | Heavy-tailed | 1.4 | 21.9 | 1 |  |
|  | Heavy-tailed (Laplace) | 1 | 14.1 | 3 |  |