

Jesús Villellas, William F. Morris and María B. García. Variation in stochastic demography between and within central and peripheral regions in a widespread short-lived herb.

APPENDIX C. Description of calculation of percentage contribution of mean and standard deviation values of life cycle components.

The percentage contribution of mean values ($\% C_m$) of each life cycle component (in this case for fecundity) to differences in stochastic population growth rates was calculated as follows:

$$\% C_m^{Fe} = 100 \times \frac{C_m^{Fe}}{\sum_i |C_m^i| + \sum_i |C_{sd}^i|}, \quad (C.1)$$

where i corresponds to each life cycle component. Similarly, the percentage contribution of standard deviation values for fecundity vital rates ($\% C_{sd}^{Fe}$) was:

$$\% C_{sd}^{Fe} = 100 \times \frac{C_{sd}^{Fe}}{\sum_i |C_m^i| + \sum_i |C_{sd}^i|}. \quad (C.2)$$

Percentage contributions may be positive or negative, but the sum of absolute values of $\% C_m$ and $\% C_{sd}$ of all life cycle components must be 100 for each population.

Percentage contributions are an appropriate method to summarize and compare population dynamics in *Plantago coronopus* since they constitute a relative measure that can be compared across populations, and because within a given life cycle component there were few cases in which positive and negative contributions of vital rates cancelled one another.