Ecography

E6524
de la Peña, E., D'hondt, B. and Bonte, D. 2010. Landscape structure, dispersal and the evolution of antagonistic plant-herbivore interactions. – Ecography 33: xxx–xxx.

Supplementary material

For each simulation (i.e. landscape structure and type of community structure), as explained in the main text, we calculated the mean plant toxin level, mean level of resistance for both types of herbivores and we calculated the relative population size of plants (i.e. realized population size/maximal population size $P \times K$, where K is the carrying capacity of the landscape).

The coefficients of variation (i.e. standard deviation/mean) were calculated to have an estimation of the occurrence of allele polymorphisms for toxin production for each landscape/community structure. High mean CV values reflect of several alleles within a landscape were selected; and low CV values reflect the selection of few or a unique allele for that landscape and community structure.

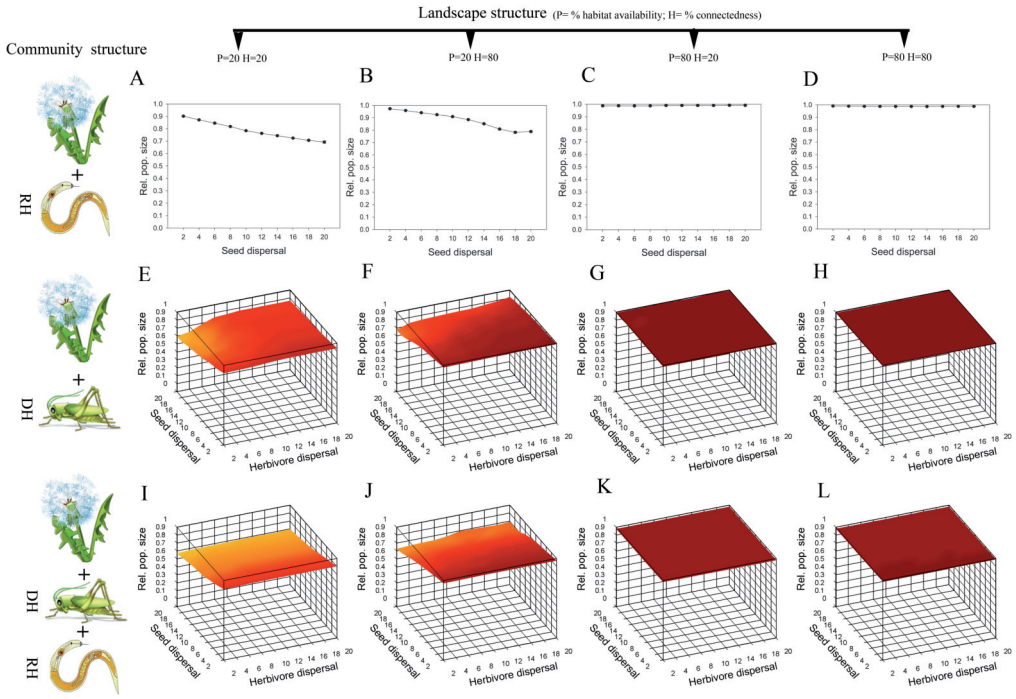

Figure 1. Mean plant final population size calculated as a function of types of species interaction, landscape structure and dispersal capacities of the species involved. Schematic representation of landscapes with different levels of habitat availability (*P*) and connectedness (*H)* are represented in black and white in the top part of the figure and black cells represent habitat available for plant establishment. Types of interactions are explained in the left margin of the figure where DH stands for a dispersive herbivore and RH stands for resident herbivore. For each type of interaction, left to right comparison are related to landscape structure, top-down comparisons are related to types of interaction for the same landscape structure.

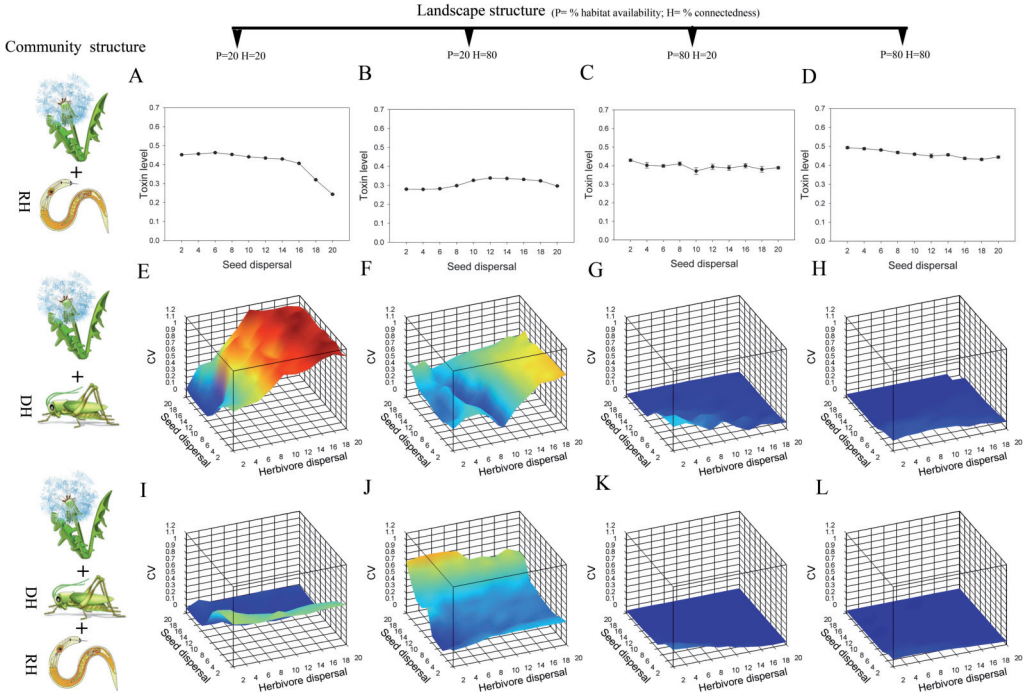

Figure 2. Mean coefficient of variation (i.e. standard deviation/mean) in allele values as a function of types of species interaction, landscape structure and dispersal capacities of the species involved. Schematic representation of landscapes with different levels of habitat availability (*P*) and connectedness (*H*) are represented in black and white in the top part of the figure and black cells represent habitat available for plant establishment. Types of interactions are explained in the left margin of the figure where DH stands for a dispersive herbivore and RH stands for resident herbivore. For each type of interaction, left to right comparison are related to landscape structure, top-down comparisons are related to types of interaction for the same landscape structure.

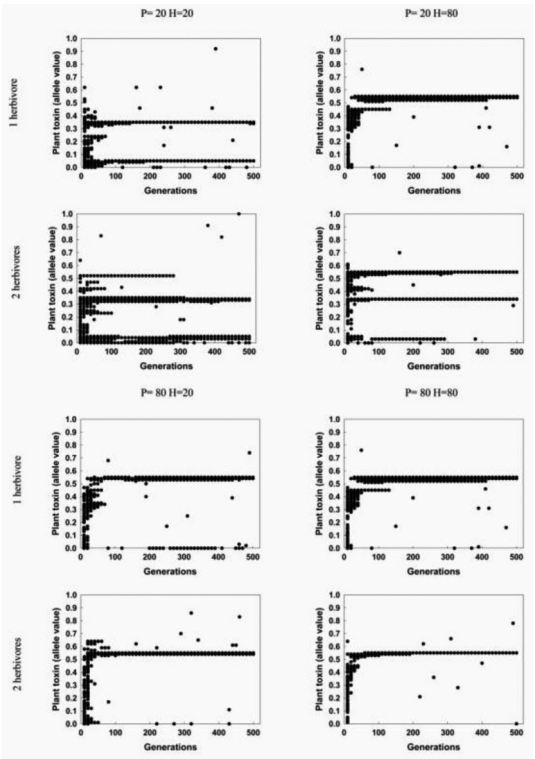

Figure 3. An example of the evolutionary trajectory of plant toxine production in a set of contrasting landscapes (σ_p=10, σ_r=2, σ_d=4). Remark the evolved polymorphism in the landscape with low habitat availability.