

Strong phenotypic variation in floral design and display traits of an annual tarweed in relation to small-scale topographic heterogeneity in semiarid Chile

Suárez, Lorena H.

Pérez, Fernanda

Armesto, Juan J.

Floral trait expression in wild populations varies in relation to environmental gradients. Variation can be observed among and within plant populations. We investigated the changes in floral phenotype within populations and the probability of plant pollinator visits in relation to small-scale variation in soil moisture and plant cover in a semiarid ecosystem. We measured the variability of floral phenotypes of three wild populations of *Madia chilensis* along a gradient constituted by three topographic positions (south-facing slope, north-facing slope, and ravine). Changes in soil moisture, plant density, leaf water content, and internode elongation were measured for one population over two study years. Pollinator visit probabilities were also estimated. Floral phenotypes were strongly segregated among topographic positions but less segregated among populations. Plants with the lowest water contents and the smallest or least-conspicuous flower heads grew in the drier north-facing slope,