Are dispersal syndromes of plant species associated with their conservation status? A case study in the Canary Islands

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Introduction

- Species distributions may be conditioned by diaspore dispersal specializations.
- Recent studies have proven that species with diaspore syndromes of long distance dispersal (LDD) are more widely distributed across the Canary Islands than those without any diaspore syndromes (Arjona et al., 2017).
- Species with no diaspore dispersal specializations have narrow distributions across the Canary Islands and thus may have a higher degree of threat.

Aim

To study if there is any relationship between the diaspore specialization and the degree of threat in the endemic lowland flora of the Canary Islands.

Methods

- We selected the 272 species of the endemic lowland flora of the Canary Islands from the entire species list of Acebes Ginovés et al. (2010) and, for each species, we assigned an IUCN category from Muñoz-Rodríguez et al. (2016). When there were different IUCN categories for several subspecies we selected the most endangered category for the whole species.
- We grouped the IUCN categories in two groups: DD, LC & NT as Non-threatened and VU, EN & CR as Threatened.
- Related to the presence of diaspore LDD syndromes, we categorized the species in two groups: Non-LDD and LDD (Fig. 1).
- The relationship between species with and without LDD syndromes and the degree of threat was analyzed with a Chi-square test.
- For the threatened lowland flora, the relationship between LDD syndromes presence and the degree of threat was assessed with a Chi-square test.

Results

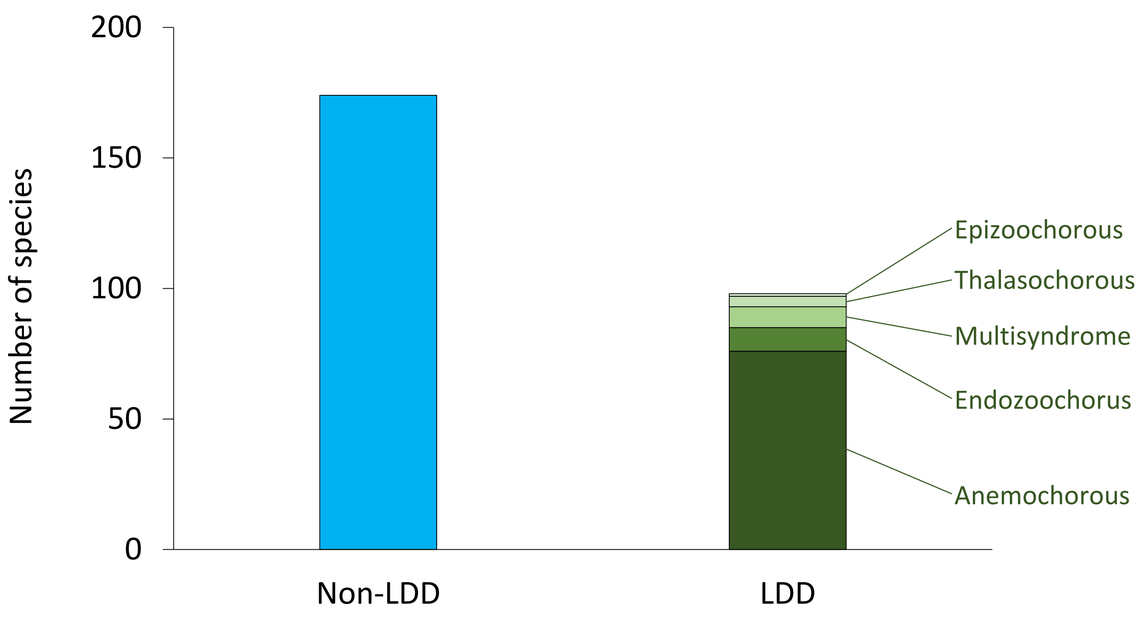

Figure 1: Number of species with LDD syndromes in the endemic Canarian lowland flora.

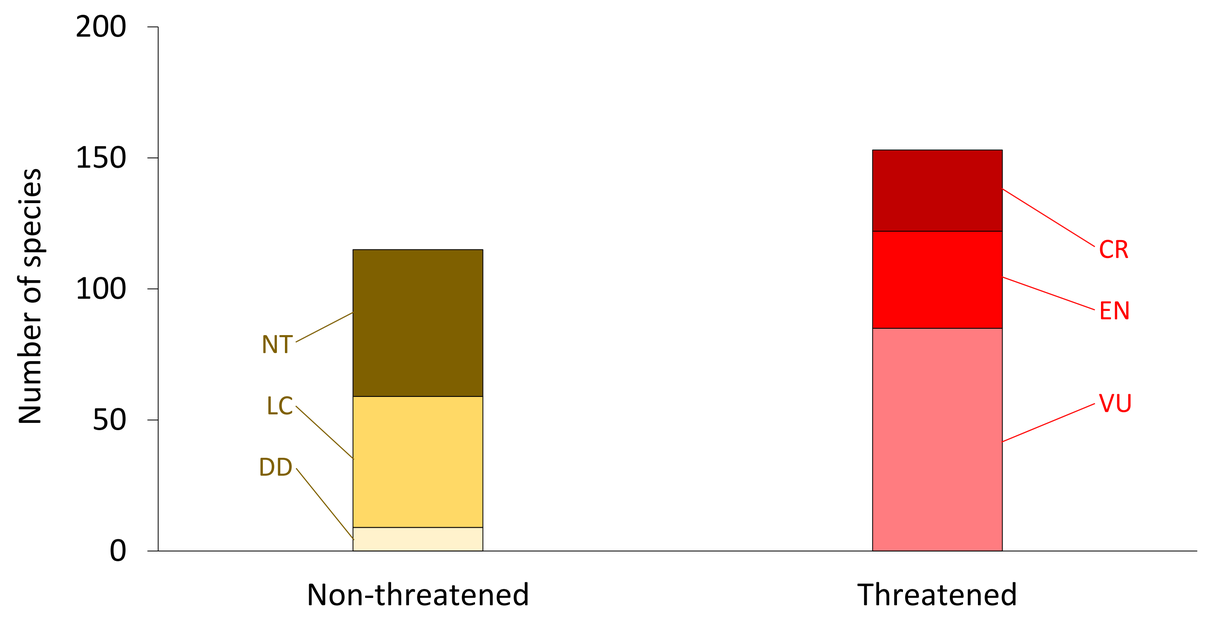

Figure 2: Number of species threatened and non-threatened in the endemic Canarian lowland flora. DD: Data deficient, LC: Least concern, NT: Near threatened, VU: Vulnerable, EN: Endangered and CR: Critically endangered.

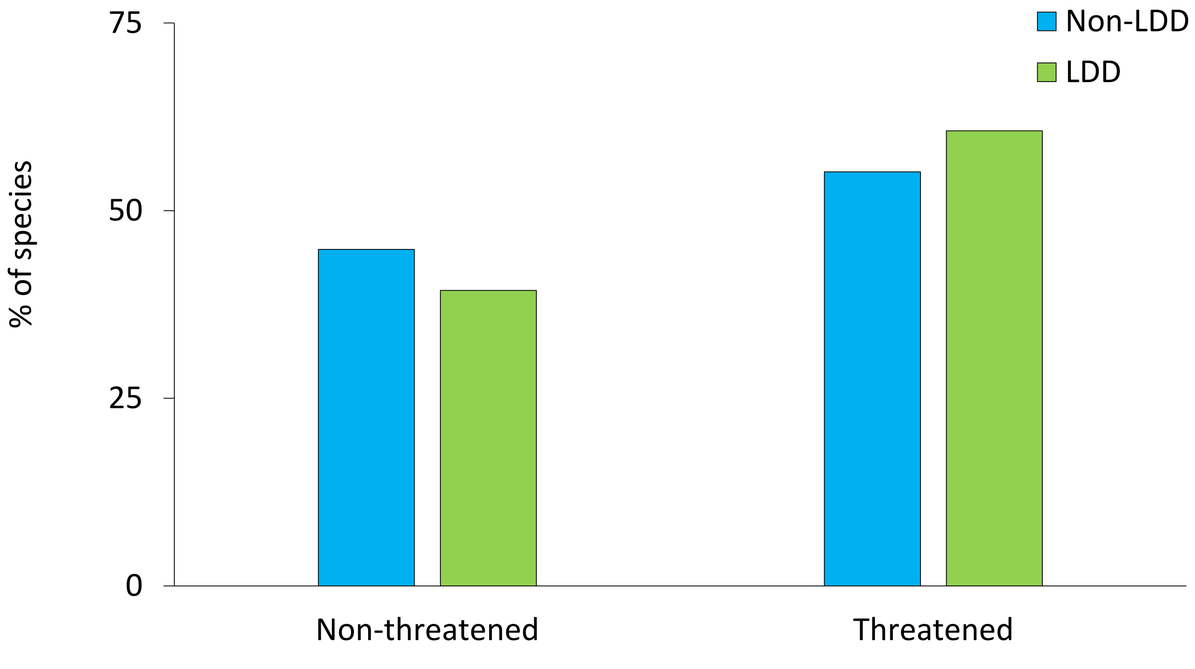

Figure 3: Species threatened and non-threatened with (green) and without (blue) LDD syndromes in the endemic lowland flora of the Canary Islands. $\chi^2_1 = 0.53789$, $p = 0.4633$.

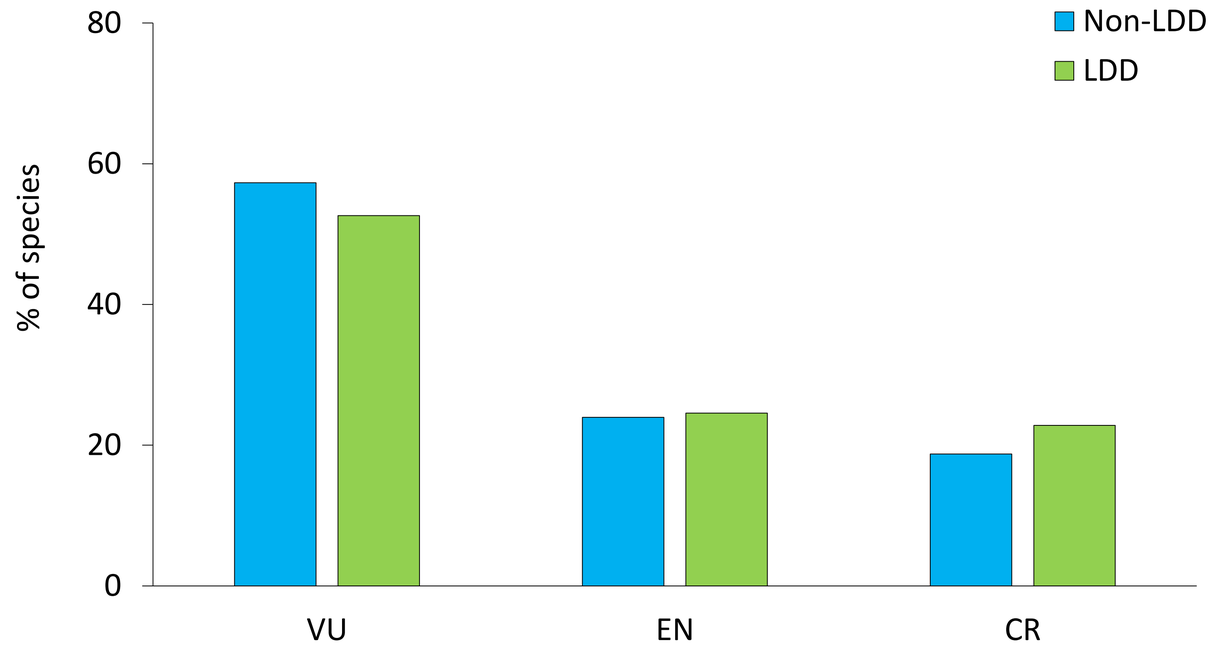

Figure 4: Species with (green) and without (blue) LDD syndromes in the endemic lowland flora of the Canary Islands included in the endangered IUCN categories. $\chi^2_2 = 0.43572$, $p = 0.8042$.

Conclusions

- There are more threatened species (57%) than non-threatened (43%) in the endemic lowland flora of the Canary Islands (Fig. 2).
- Species without LDD syndromes are not significantly more endangered that species with LDD syndromes (Fig. 3).
- Considering the threatened species, there are no significant differences between species with and without LDD syndromes (Fig. 4).

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