
Abstract:

Vertebrate frugivory of fleshy-fruited plants may be very important for the recruitment of sexually derived seedlings if it represents the main mechanism of primary seed-dispersal. *Opuntia rastrera* produces fleshy fruits rich in water and sugars that are attractive to vertebrate frugivores. However, there is a very low rate of seedling recruitment in natural conditions. One of the causes that can influence this low recruitment is an insufficient seed dispersal due to a low fruit removal even under different resource (fruits) availability. To test this prediction, we studied the production and consumption of fruits in two consecutive years in two vegetation types: nopaleras (dense Opuntia-dominated scrublands) and grasslands with sparse populations of *O. rastrera*. Plant cover, fruit production and removal, and frugivore identity were recorded within each vegetation type in four randomly selected circular plots (7854 m²). Fruit production per area was higher in nopaleras in both years whereas per cladode production did not differ between vegetation types but differed between years in response to variation in precipitation. Fruit consumption by vertebrates was high (100%) and independent of spatial and temporal fruit availability. The intensity of fruit removal was inversely related to resource availability: it was faster in the less dense community (grassland) and in the driest year. Contrary to other studies with similar cacti, fruit removal by small mammals was insignificant whereas main consumers were birds and large mammals. Vertebrate frugivory represents the only mechanism of primary dispersal of seeds as all fruits are removed in about one month. Despite the high quantity of viable seeds (more than one million per ha in nopaleras and a tenth of that in grasslands) that are dispersed by frugivores after the consumption of about 300 kg of fruit per ha in nopaleras and a tenth of that in grasslands, the rare establishment of seedlings (about one seedling per three million of seeds produced) reported in the literature indicates that the interaction between *O. rastrera* and the disperser guild is indeed very asymmetrical. We speculate that the harsh conditions for cactus establishment found in this ecosystem demand a high investment in disperser rewards (fleshy fruits) to allow a very modest rate of sexually-derived seedling establishment.

Author Keywords: cactus establishment, endozoocory, Opuntia rastrera

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