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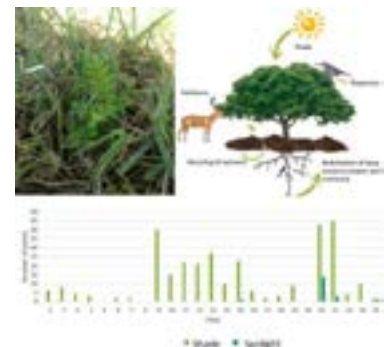
## Are nurse protege interactions associated with seed dispersal or phylogeny in thorn scrub?

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In nurse protege interactions, seedlings benefit from the micro-environment created by adult plants without effect for the latter. They are more common in harsh environments such as those found in arid and semi-arid ecosystem. In here we study *Zanthoxylum fagara* (L) Sarg. (Rutaceae), a vertebrate dispersed shrub that occurs from the United States (Texas and Florida) to Paraguay and the Caribbean. In Mexico, it is a common genus in semiarid environments. Seedlings are conspicuous and often seen under the canopy of shrubs and trees. Species with similar fruits (and perhaps dispersal agents) have been found to grow together. Because plants that grow together compete for resources, it has been suggested that they might be phylogenetically distant, as close relatives would have similar requirements and hence be stronger competitors. In this study we explored whether seedlings from this species (i) occur more often under the canopy of shrubs and trees (nurse plants) than in open spaces, and whether these nurse plants were more often (ii) vertebrate dispersed and (iii) phylogenetically distant. We measured the distribution of seedlings of *Zanthoxylum fagara* in Tamaulipan thorn scrub, under shrubs and trees and in cleared places. In a total of 50 plots, 308 seedlings were found under canopies, and 19 under direct sunlight. The number of seedlings found under the canopy of two species with unassisted seeds: *Vachellia farnesiana* and *Havardia pallens* and three species with vertebrate dispersed seeds: *Cordia boissieri*, *Prosopis laevigata*, and *Zanthoxylum fagara* was similar. Hence, *Zanthoxylum fagara* seedlings do occur more often under the canopy of nurse plants than under direct sunlight, but without relation to their dispersal syndrome or their phylogeny.

### Recent Publications

1. Pompa García M, Sigala Rodriguez J A, Jurado E and Flores J (2017) Tissue carbon concentration of 175 Mexican forest species. *iForest* 10:754-758.
2. Joel Flores, Reyes M Perez Sanchez and Enrique Jurado (2017) The combined effect of water stress and elevated temperatures on seed germination of Chihuahuan Desert species. *Journal of Arid Environments* 146:95-98.
3. Martinez Adriano C A, Jurado E, Flores J, Gonzalez Rodriguez H and Cuellar Rodriguez G (2016) Flower, fruit phenology and flower traits in *Cordia boissieri* (Boraginaceae) from northeastern Mexico. *PeerJ* 4:e2033.
4. Cuellar Rodriguez G, Jurado E and Flores J (2016) Beetle diversity in fragmented thornscrub and isolated trees. *Brazilian Journal of Biology*, 77(1).
5. Mariana Contreras Quiroz, Marisela Pando Moreno, Enrique Jurado, Joel Flores, Karen Bauk and Diego E Gurvich (2016) Is seed hydration memory dependent on climate? Testing this hypothesis with Mexican and Argentinian cacti species. *Journal of Arid Environments* 130:94-97.



**Figure 1:** Seedling of *Z. fagara* growing under the canopy of shrubs, possible causes of the benefit of growing under nurse plants and number of seedlings of *Z. fagara* found under direct sunlight and shade

### Biography

Enrique Jurado is a Mexican National Research Scientist with recognition of level 3. He is a Member of the National Academy Sciences and has a PhD since 1991 from Macquarie University in Australia. He has published over 100 papers on Ecology, mainly of plants and germination. His research has been cited over 2000 times. He has supervised many undergraduate and graduate students at the University of Nuevo Leon (the research institution where he works) and also as an Invited Professor elsewhere.

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