Isolated trees

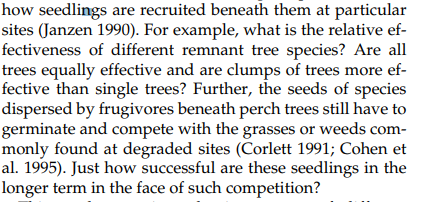
Ecophysiology

Dispersal

Treeline

Remnants vs. Colonizers

"A dense forest environment is a fundamentally different ecosystem from a sparse one and this influences a vast array of biotic and abiotic processes10–12." (Nature, tree world map)

Toh et al. 1999.

**Relevant literature**

Código:

En cursiva: hay que descargar

En negrita: referencia esencial

10.1111/1365-2664.12943

10.1016/j.agee.2017.08.002

10.1111/aec.12414

Aide et al. 2000. Forest Regeneration in a Chronosequence of Tropical Abandoned Pastures: Implications for Restoration Ecology. Restoration Ecology.

Antonovics, J, Levin, D. A. (2014). THE ECOLOGICAL AND GENETIC CONSEQUENCES OF DENSITY-DEPENDENT REGULATION IN PLANTS, *11*(1980), 411–452. [BIOTIC INTERACTIONS - COMPARATIVE]

**Athayde, E. a., Cancian, L. F., Verdade, L. M., & Morellato, L. P. C. (2015). Functional and phylogenetic diversity of scattered trees in an agricultural landscape: Implications for conservation. *Agriculture, Ecosystems & Environment*, *199*, 272–281. https://doi.org/10.1016/j.agee.2014.10.003**

Belsky, A., & Canham, C. (1994). Forest Gaps and Isolated Savanna Trees: An application of patch dynamics in two ecosystems. *BioScience*, *44*(2), 77–84. [EFFECT ON THE ABIOTIC ENVIRONMENT]

Belsky, A., Mwonga, S., Amundson, R., Duxbury, J., & Ali, A. (1993). Comparative effects of isolated trees on their undercanopy environments in high- and low-rainfall savannas. *Journal of Applied Ecology*, *30*(1), 143–155. [EFFECT ON THE ABIOTIC ENVIRONMENT]

#### Carvalho Vergner DC, Souza Almeida H, Furtado Campos CC, Martins NS, Nunes Ramos F. 2016. Isolated trees with high crown coverage and densities increase pasture seed rain. *Acta Bot. Bras.,* 30: 10.1590/0102-33062016abb0154

Charles-Edwards, D. A., & Thornley, J. H. (1973). Light Interception by an Isolated Plant A Simple Model. *Annals of Botany*, *37*(152), 919–928. <https://doi.org/10.1093/aob/mcpl72> [AUTOECOLOGY]

**Chazdon, R. L. (2003). Tropical forest recovery: legacies of human impact and natural disturbances. *Perspectives in Plant Ecology, Evolution and Systematics*, *6*(1–2), 51–71.** <https://doi.org/10.1078/1433-8319-00042> [FOREST RECOVERY]

*Coulson, C., Spooner, P.G., Lunt, I.D., Watson, S.J., 2013. From the matrix to roadsides and beyond: the role of isolated paddock trees as dispersal points for invasion. Diversity and Distribution. DOI: 10.1111/ddi.12135* [POP ECOLOGY - DISPERSAL - COLONIZATION]

Crowther et al. 2015. Mapping tree density at the global scale. Nature.

**Dick, C. W. (2001). Genetic rescue of remnant tropical trees by an alien pollinator. *Proceedings. Biological Sciences / The Royal Society*, *268*(1483), 2391–6.** [**https://doi.org/10.1098/rspb.2001.1781**](https://doi.org/10.1098/rspb.2001.1781) **[BIOTIC INTERACTIONS]**

*DUNN, R. R. 2000. Bromeliad communities in isolated trees and three successional stages of an Andean cloud forest in Ecuador. Selbyana 21:137–143.* [EFFECT ON FLORA- COMPARATIVE]

Duursma, R. a., Mäkelä, A., Reid, D. E. B., Jokela, E. J., Porté, A. J., & Roberts, S. D. (2010). Self-shading affects allometric scaling in trees. *Functional Ecology*, *24*(4), 723–730. <https://doi.org/10.1111/j.1365-2435.2010.01690.x> [AUTOECOLOGY]

Duursma, R. A., Falster, D. S., Valladares, F., Sterck, F. J., Pearcy, R. W., Lusk, C. H., … Ellsworth, D. S. (2012). Light interception efficiency explained by two simple variables : a test using a diversity of small- to medium-sized woody plants. *New Phytologist*, 397–408. [AUTOECOLOGY]

Escribano-Rocafort, A. G., Ventre-Lespiaucq, A. B., Granado-Yela, C., Rubio De Casas, R., Delgado, J. A., & Balaguer, L. (2016). The expression of light-related leaf functional traits depends on the location of individual leaves within the crown of isolated Olea europaea trees. *Annals of Botany*, *117*(4), 643–651. <https://doi.org/10.1093/aob/mcw004> [AUTOECOLOGY]

Escudero, A., Fernández, J., Cordero, A., & Mediavilla, S. (2013). Distribution of leaf characteristics in relation to orientation within the canopy of woody species. *Acta Oecologica*, *48*, 13–20. <https://doi.org/10.1016/j.actao.2013.01.014> [AUTOECOLOGY]

Galindo-gonzález, J., Guevara, S., & Sosa, V. J. (2000). Bat- and Bird-Generated Seed Rains at Isolated Trees in Pastures in a Tropical Rainforest, *14*(6), 1693–1703. [EFFECTS ON FAUNA]

Gardner, T. a., Barlow, J., Chazdon, R., Ewers, R. M., Harvey, C. a., Peres, C. a., & Sodhi, N. S. (2009). Prospects for tropical forest biodiversity in a human-modified world. *Ecology Letters*, *12*(6), 561–582. <https://doi.org/10.1111/j.1461-0248.2009.01294.x> [SECUNDARIO - HUMAN DISTURBANCE]

Granado-Yela, C., García-Verdugo, C., Carrillo, K., Rubio de Casas, R., Kleczkowski, L. A., & Balaguer, L. (2011). Temporal matching among diurnal photosynthetic patterns within the crown of the evergreen sclerophyll Olea europaea L . *Plant Cell and Environment*, *34*, 800–810. <https://doi.org/10.1111/j.1365-3040.2011.02283.x> [AUTOECOLOGY]

Grant, R. H. (1997). Biologically active radiation in the vicinity of a single tree. *Photochemistry and Photobiology*, *65*(6), 974–982. [EFFECTS ON THE ABIOTIC ENVIRONMENT]

Guevara, S., Meave, J., Moreno-Casasola, P., & Laborde, J. (1992). Floristic composition and structure of vegetation under isolated trees in neotropical pastures. *Journal of Vegetation Science*, (1), 655–664. [EFFECTS ON FLORA - COMPOSITION]

*Harvey, C.A., Medina, A., Sanchez, D.M., Vilchez, S., Hernandez, B., Saenz, J.C. et al. (2006). Patterns of animal diversity in dif- ferent forms of tree cover in agricultural landscapes. Ecol. Appl., 16, 1986–1999* [EFFECTS ON FAUNA]

Hylander, K., & Nemomissa, S. (2017). Waiving the extinction debt: Can shade from coffee prevent extinctions of epiphytic plants from isolated trees? *Diversity and Distributions*, 1–10. <https://doi.org/10.1111/ddi.12579> [EFFECTS ON FLORA - POP ECOL AND EVOLUTION]

**Janzen D. 2001. Latent Extinction-The LivingDead.**

KÖster, N., Friedrich, K., Nieder, J., & Barthlott, W. (2009). Conservation of epiphyte diversity in an andean landscape transformed by human land use. *Conservation Biology*, *23*(4), 911–919. <https://doi.org/10.1111/j.1523-1739.2008.01164.x> [EFFECTS ON FLORA - CONSERVATION]

**Laborde, J., Guevara, S., & Sánchez-Rios, G. (2008). Tree and shrub seed dispersal in pastures : The importance of rainforest trees outside forest fragments. *Ecoscience*, *15*(1), 6–16.**

Larrea, M. L., & Werner, F. a. (2010). Response of vascular epiphyte diversity to different land-use intensities in a neotropical montane wet forest. *Forest Ecology and Management*, *260*(11), 1950–1955. <https://doi.org/10.1016/j.foreco.2010.08.029> [EFFECTS ON FLORA]

LE ROUX, X., H. SINOQUET & M. VANDAME (1998). Spatial distribution of leaf dry weight per area and leaf nitrogen content in relation to local radiation regime within an isolated tree crown. Tree Physiol. [AUTOECOLOGY]

Lloyd AH. 2005. Ecological histories from Alaskan tree lines provide insight into future change. *Ecology*, **86:** 1687-95.

Loik, M. E., & Holl, K. D. (1999). Photosynthetic Responses to Light for Rainforest Seedlings Planted in Abandoned Pasture, Costa Rica. *Restoration Ecology*, *7*(4), 382–391. [AUTOECOLOGY]

Makela, A., & Sievanen, R. (1992). Height growth strategies in open-grown trees. *Journal of Theoretical Biology*, *159*(4), 443–467. <https://doi.org/10.1016/S0022-5193(05)80690-3> [AUTOECOLOGY]

Malhi, Y., Gardner, T. a., Goldsmith, G. R., Silman, M. R., & Zelazowski, P. (2014). Tropical Forests in the Anthropocene. *Annual Review of Environment and Resources*, *39*(1), 125–159. <https://doi.org/10.1146/annurev-environ-030713-155141> [SECUNDARIO. Contiene algunos datos sobre deforestación]

**Manning, A. D., Fischer, J., & Lindenmayer, D. B. (2006). Scattered trees are keystone structures - Implications for conservation. *Biological Conservation*, *132*(3), 311–321.** [**https://doi.org/10.1016/j.biocon.2006.04.023**](https://doi.org/10.1016/j.biocon.2006.04.023)

**Manning, A. D., Gibbons, P., & Lindenmayer, D. B. (2009). Scattered trees : a complementary strategy for facilitating adaptive responses to climate change in modified landscapes ?, J. Appl. Ecol., 915–919.** [**https://doi.org/10.1111/j.1365-2664.2009.01657.x**](https://doi.org/10.1111/j.1365-2664.2009.01657.x)

Martens, S. N., Breshears, D. D., & Meyer, C. W. (2000). Spatial distributions of understory light along the grassland/forest continuum: Effects of cover, height, and spatial pattern of tree canopies. *Ecological Modelling*, *126*(1), 79–93. <https://doi.org/10.1016/S0304-3800(99)00188-X> [EFFECT ON THE ABIOTIC ENVIRONMENT]

Mellado, A., & Zamora, R. (2014). Linking safe sites for recruitment with host-canopy heterogeneity: The case of a parasitic plant, Viscum album subsp. austriacum (Viscaceae). *American Journal of Botany*, *101*(6), 957–964. <https://doi.org/10.3732/ajb.1400096> [SECUNDARIO]

Metzger, J. P. (2000). Tree functional group richness and landscape structure in a brazilian tropical fragmented landscape. *Ecological Applications*, *10*(4), 1147–1161. [https://doi.org/10.1890/1051-0761(2000)010[1147:TFGRAL]2.0.CO;2](https://doi.org/10.1890/1051-0761(2000)010%5b1147:TFGRAL%5d2.0.CO;2)

Myster, R. W. (2004). Post-Agricultural Invasion , Establishment , and Growth of Neotropical Trees, *70*(December), 381–402. [ECOSYSTEM - LANDSCAPE]

Niinemets, Ü., & Anten, N. P. R. (2009). Packing the photosynthetic machinery: from leaf to canopy. *Photosynthesis in Silico*, 363–399. <https://doi.org/10.1007/978-1-4020-9237-4_16> [AUTOECOLOGY]

Pielou, E. C., Foster, R. E. 1962. A test to compare the incidence of disease in isolated and crowded trees. Can. J. Bot. 40:1176-79 [DISEASE INCIDENCE - COMPARATIVE]

*Raheem, D.C., Naggs, F., Preece, R.C., Mapatuna, Y., Kariyawa- sam, L. & Eggleton, P. (2008). Structure and conservation of Sri Lankan land-snail assemblages in fragmented lowland rainforest and village home gardens. J. Appl. Ecol., 45, 1019–1028. [EFFECTS ON FAUNA]*

Sack, L., Melcher, P. J., Liu, W. H., Middleton, E., & Pardee, T. P. (2006). How Strong Is Intracanopy Leaf Plasticity in Temperate Deciduous Trees?, *93*(6), 829–839. [AUTOECOLOGY]

Santiago-Freijanes JJ, Rigueiro-Rodriguez A, Aldrey JA, Moreno G, den Herder M, Burgess P, Mosquera-Losada MR. 2018. Understanding agroforestry practices in Europe through landscape features policy promotion. Agrofor. Syst., **4:** 1105-15.

*Sekercioglu, C.H., Loarie, S.R., Brenes, F.O., Ehrlich, P.R. & Daily, G.C. (2007). Persistence of forest birds in the Costa Rican agricultural countryside. Conserv. Biol., 21, 482–494. [EFFECTS ON FAUNA]*

Sinoquet, H., Stephan, J., Sonohat, G., Lauri, P. É., & Monney, P. (2007). Simple equations to estimate light interception by isolated trees from canopy structure features: Assessment with three-dimensional digitized apple trees. *New Phytologist*, *175*(1), 94–106. <https://doi.org/10.1111/j.1469-8137.2007.02088.x> [AUTOECOLOGY]

Smith, A. (1987). TROPICAL ALPINE PLANT ECOLOGY. *Annual Review of Ecology and Systematics*. [TREELINE]

**Toh, I., Gillespie, M., & Lamb, D. (1999). The Role of Isolated Trees in Facilitating Tree Seedling Recruitment at a Degraded Sub-Tropical Rainforest Site. *Restoration Ecology*, *7*(3), 288–297.** [EFFECTS ON FLORA - RECRUITMENT]

Trapnell, D. W., & Hamrick, J. L. (2004). Partitioning nuclear and chloroplast variation at multiple spatial scales in the neotropical epiphytic orchid, Laelia rubescens. *Molecular Ecology*, *13*(9), 2655–2666. <https://doi.org/10.1111/j.1365-294X.2004.02281.x> [EFFECTS ON FLORA - GENETICS]

Ventre-Lespiaucq, A. B., Escribano-Rocafort, A. G., Delgado, J. A., Jiménez, M. D., de Casas, R. R., Granado-Yela, C., & Balaguer, L. (2016). Field patterns of temporal variations in the light environment within the crowns of a Mediterranean evergreen tree (Olea europaea). *Trees - Structure and Function*, *30*(3), 995–1009. <https://doi.org/10.1007/s00468-015-1328-7> [AUTOECOLOGY - EFFECTS ON THE ABIOTIC ENVIRONMENT]

Werner, F. a., & Gradstein, S. R. (2008). Seedling establishment of vascular epiphytes on isolated and enclosed forest trees in an Andean landscape, Ecuador. *Biodiversity and Conservation*, *17*(13), 3195–3207. <https://doi.org/10.1007/s10531-008-9421-5> [EFFECTS ON FLORA]

*Yguel, B. et al. Phytophagy on phylogenetically isolated trees: why hosts should escape their relatives. Ecol. Lett. 14, 1117–1124 (2011)*. [NOT RELATED BUT INTERESTING IDEA: being isolated may pose an advantage (lower predation/parasitism) by escaping neighborhoods and the ancestral niche].