**Supplementary information**

**Paper title:** An overview on epiphytism as a direct mechanism of facilitation in tropical forests

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**Table S1.** List of articles used for this systematic review of direct facilitation of global tropical forest environments. The search was conducted by the database ISI Web of Science ® on November 4, 2015 using a combination of three groups of terms: (1) “*facilitation*” or “*positive interaction*\*” or “*commensalism\**” or “*commensal* *interaction*\*” and (2) “*plant*\*” or “*tree*\*” or “*shrub*\*” or “*herb*\*” or “*climb*\*” or “*epiphyte*\*” and (3) “*tropical rain forest*\*” or “*tropical rainforest*\*” or “*tropical forest*\*” or “*tropical dry forest*\*” or “*tropical wet forest*\*”.

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|  | **Reference** | **Description of facilitation** | **Country** | **Geographic coordinates** | **Habitat** | **Methodological Approach** | **Search area** |
| 1 | Anthelme, F., Lincango, F., Charlotte, G., Duarte, N., Montúfar, R. (2011). How anthropogenic disturbances affect the resilience of a keystone palm tree in the threatened Andean cloud forest? *Biological Conservation*, 144 : 1059–1067 | The shade provided by *Setaria sphacelata* considerably reduces the water stress above and below ground for *Ceroxylon echinulatum.* | Equador | 00°02'N, 78°43'W and 00°04'S, 78°44'S | Nebular forest (three habitats: ancient forest, disturbed forest by selective timber extraction and deforested area). | Experimental | Ecological |
| 2\* | Bueno, A., Llamb, L.D. (2015). Facilitation and edge effects influence vegetation regeneration in old-fields at the tropical Andean forest line. *Applied Vegetation Science*, 18: 613–623 | *Baccharis prunifolia* improves the microclimate conditions above ground (temperature) favoring the establishment of regenerating tree species. | Venezuela | 8°350–8°450 N, 70°520–70°570 W | Open areas abandoned near and distant from the edge of the forest. | Experimental | Regeneration |
| 3 | Campanello, P.I, Garibaldi, J.F, Gatti, M.G., Goldstein, G. (2007). Lianas in a subtropical Atlantic Forest: Host preference and tree growth. *Forest Ecology and Management,* 242: 250–259 | Lianas use other lianas as structural support to grow into the canopy. The diameter lianas was positively related to the abundance of lianas species climbers. Some species of phorophytes resguardaram several lianas | Argentina | 25°58'S, 54°13'W | Subtropical forest semidecidual | Observational | Ecological |
| 4 | Espinosa, C.I., Cabrera, O., Luzuriaga, A.L., Escudero, A. (2011). What Factors Affect Diversity and Species Composition of Endangered Tumbesian Dry Forests in Southern Ecuador? *Biotropica*, 43(1): 15–22 2011. | The composition of plant species in tropical dry forests may be at least partially explained by the hypothesis of stress gradient, with the highest species richness in drier conditions. | Equador | \_ | Dry forest | Observational | Ecological |
| 5 | Ewel, J.J., Bigelow, S.W. (2011). Tree species identity and interactions with neighbors determine nutrient leaching in model tropical forests. *Oecologia* 167:1127–1140 | The mixed planting of species *Hieronyma alchorneoides*, *Cedrela odorata*, *Cordia alliodora*, *Euterpe macrospadix* and *Euterpe oleracea* reduces the loss of nutrients in the soil. | Costa Rica | 10°26'N, 83°59'W | Panted forests homogeneous and mixed planted forests (plantations with 5 species) | Experimental | Ecological |
| 6 | Ewel, J.J., Celis, G., Schreeg, L. (2015). Steeply Increasing Growth Differential Between Mixture and Monocultures of Tropical Trees. *Biotropica*, 47: 162–171 | The increase in phosphorus under *Hieronyma* would be potentially available neighboring trees to facilitate the growth and survival. | Costa Rica | 10°26'N, 83°59'W | Panted forests homogeneous and mixed planted forests (plantations with 5 species) | Experimental | Ecological |
| 7 | Fischer, L.K., von der Lippe, M., Kowarik, I. (2009). Tree invasion in managed tropical forests facilitates endemic species. *Journal of Biogeography*, 36: 2251–2263 | Species of *Cinchona* has a facilitative effect on native species in the three types of forests to improve the microclimate above and abiotic soil conditions, providing high proportion of endemic species under *Cinchona*. *Cinchona* facilitates endemic species in accordance with the "facilitating substitute model". | Havai | \_ | Pine forests, eucalyptus forests and mature natural forests (50 years). | Experimental | Biological invasions, ecological succession and regeneration |
| 8\* | Fontoura, T., Rocca, M.A., Schilling, A.C, Reinert, F. (2009). Epífitas da floresta seca da reserva ecológica estadual de jacarepiá, sudestedo Brasil: relações com a comunidade arbórea. Rodriguésia, 60: 171-185 | Phorophytes facilitate species epiphytes through structural support. The abundance of phorophytes was a good parameter to estimate the richness of epiphytes. | Brazil | 22º47’–22º 57’S; 42º20’–42º43’W | Dry forest restinga (not flooded) | Observational | Ecological |
| 9 | Gallegos, S.C., Hensena, I., Saavedra, F., Schleuning, M. (2015). Bracken fern facilitates tree seedling recruitment in tropical fire-degraded habitats. *Forest Ecology and Management*, 337: 135–143 | Removal of *Pteridium* spp. (introduced) resulted in higher temperature and low humidity compared to plots with species *Pteridium* spp., this pattern was more pronounced in degraded habitats. And increases the probability of seedling recruitment and survival of the species *Clusia.* | Bolivia | 16°24'S, 67°31'W | Montane forest (inside forest, degraded habitats near and far edge) | Experimental | Biological invasions |
| 10\* | Gómez-Ruiz, P.A., Lindig-Cisnerosa, R., Vargas-Ríos, O. (2013). Facilitation among plants: A strategy for the ecological restoration of the high-andean forest (Bogotá, D.C.—Colombia). *Ecological Engineering*, 57:267– 275 | The growth of tree species *Solanum oblongifolium* and *Viburnum tinoides* It was higher in the presence of facilitators *Lupinus bogotensis* and *Vicia benghalensis*, mainly with *L. bogotensis*. The presence of *Lupinus bogotensis* improves the microclimate conditions *Solanum oblongifolium.* | Colombia | 4°23'02.8" N; 74°09'58.7" W | Open area in regeneration | Experimental | Restoration |
| 11 | Gould, R.K., Mooney, H., Nelson, L., Shallenberger, R., Daily, G.C. (2013). Restoring Native Forest Understory: The Influence of Ferns and Light in a Hawaiian Experiment. *Sustainability*, 5: 1317-1339 | The presence of *Dryopteris wallichiana* facilitates germination *Pittosporum hawaiianse, Myrsine lessertiana, Alyxia stellata, Pipturus albidus, Myoporum sandwichense* and *Coprosma montana* providing shade and possibly increasing moisture. | Havai | \_ | Grassy introduced, native forest and forest of *Metrosideros polymorpha* | Experimental | Restoration |
| 12 | Hughes, R.F., Denslow, J.S. (2005). Invasion by a N2-fixing tree alters function and structure in wet lowland forests of Hawaii. *Ecological Applications*, 15: 1615–1628 | The presence of *Falcataria* changes the availability of conditions and resources facilitating the invasion of other exotic species. | Havai | 19°26'53" N, 154°51'40" W and 19°25'11" N, 154°57'14" W | Moist lowland forest | Experimental | Biological invasions |
| 13 | Jian, P-Y., Hu, F.S., Wang, C.P., Chiang, J.-m., Lin, T-C. (2013) Ecological Facilitation between Two Epiphytes through Drought Mitigation in a Subtropical Rainforest. *PLoS ONE,* 8(5): e64599 | The presence of *A. antiquum* benefits occurrence of *H. zosterifolia* through mitigation of water stress. Substrates *A. antiquum* increase the availability of water and provide nutrients for *H. zosterifolia*. | Taiwan | 24°34" N, 121°34"E | Rainforest | Experimental | Ecological |
| 14 | Lang, A.C., Hardtle, W., Baruffol, M., Bohnke, M., Bruelheide, H., Schmid, B., vonWehrden, H., von Oheimb, G. (2012). Mechanisms promoting tree species co-existence: Experimental evidence with saplings of subtropical forest ecosystems of China. *Journal of Vegetation Science*, 23: 837–846 | The composition and the identity of species on growth and variable rates of juvenile tree canopy architecture point to niche separation as a species coexistence mechanism. | China | 29°06′33′′N, 117°55′24′′E | Planted forests homogeneous and mixed planted forests (plantations with 2 and 4 species) | Experimental | Ecological |
| 15 | Lebrija-Trejosa, E. , Meaveb, J.A., Poortera, L., Pérez-García, E.A., Frans Bongers, F. (2010). Pathways, mechanisms and predictability of vegetation change during tropical dry forest succession *Perspectives in Plant Ecology, Evolution and Systematics*, 12: 267–275 | Positive interactions between plant-plant comprise the successional structure (succession by facilitation). Increased coverage of pioneer species reduces light and temperature on the forest floor. | Mexico | 16°39'30"N, 95°00'40"W | Dry forest (Local successional for abandonment of time ranging from <1 year to approximately 60 years and an area of mature forest) | Observational | Ecological succession |
| 16 | Li, Q., Liang, Y., Tong, B., Du, X., Ma, K.(2010). Compensatory effects between *Pinus massoniana* and broadleaved tree species. *Journal of Plant Ecology,* 3: 183-189 | The presence of *Rhus chinensis* and *Camellia oleifera* as neighboring species showed significantly facilitating effects on biomass *Pinus massoniana*. | China | 30°45” 31°22"N, 103°25” 103°47” E | Homogeneous plantations and mixed plantations (2 species) | Experimental | Regeneration |
| 17 | Maza-Villalobos, S., Lemus-Herrera, C., Martínez-Ramos, M. (2011). Successional trends in soil seed banks of abandoned pastures of a Neotropical dry region. *Journal of Tropical Ecology*, 27:35–49 | Herbaceous plants are substituted by woody plants during succession species substitution mechanism (succession) by facilitation. It was a progressive substitution of seeds observed herbaceous plants by those of woody plants on chronosequence. | Mexico | 19°30'N, 105°03'W | Dry forests at different ages | Observational | Ecological succession |
| 18 | Omeja, P.A., Chapmanb, C.A., Obuaa, J., Lwangab, J.S., Jacobe, A.L., Wanyamaf, F., Mugenyi. R. (2011). Intensive tree planting facilitates tropical forest biodiversity and biomass accumulation in Kibale National Park, Uganda. *Forest Ecology and Management*, 261:703–709. | The presence of *Acanthus pubescens* and *Lantana camara* (invasive) facilitates the establishment of tree species by decreasing the temperature and increase soil moisture. | Uganda | 0°13–0°41'N, 30°19–30°32'E | Rainforest | Observational | Regeneration and biological invasions |
| 19 | Peña, M.A., Duque A. (2013). Patterns of stocks of aboveground tree biomass, dynamics, and their determinants in secondary Andean forests. *Forest Ecology and Management* 302: 54–61 | Pioneer species positively affect soil fertility, accelerating the rate of growth of plant species, interfering directly in the accumulation of biomass rate. | Colombia | \_ | Secondary forest (15 and 28 years) | Observational | Ecological succession |
| 20 | Pérez-Salicrup, D.R., Sork, V.L. (1998). Lianas and Trees in a Liana Forest of Amazonian Bolivia. *Biotropica,* 33(1): 34–47 | Lianas facilitate other lianas to reach the canopy providing structural support through its trunk that is already established in a host tree. Some palm species also facilitated the presence of liana providing structural support. Larger phorophytes enshrine greater amount of lianas. | Bolivia | 14°45'S, 62°00'W | Secondary forest | Observational | Ecological |
| 21 | Piazzon, M., Larrinaga, A.R., Santamaría, L. (2011) Are Nested Networks More Robust to Disturbance? A Test Using Epiphyte-Tree, Comensalistic Networks. *PLoS ONE* 6(5): e19637 | Phorophytes provide structural support for epiphytic orchids. | Chile | \_ | Forest | Observational | Ecological |
| 22 | Pinard, M.A., Putz, F.E (1994). Vine infestation of large remnant trees in logged forest in Sabah, Malaysia: Biomechanical facilitation in vine succession. *Journal of Tropical Forest Science,* 6(3): 302 - 309. | Species *Piper* spp. and *Ficus* spp. provided structural support for species of climbing vines that climb with the aid of tendrils *(e.g., Passiflora*) and are limited to small diameter supports, permitting those species to access larger phorophytes. Several species of Rubiaceae, Apocynaceae and Araceae also facilitate access to canopy species of climbing vines. | Malasia | \_ | Secondary forest | Observational | Ecological succession and ecological |
| 23\* | Rocha, F.S., Duarte, L.S., Waechter, J.L. (2015). Positive association between *Bromelia balansae* (Bromeliaceae) and tree seedlings on rocky outcrops of Atlantic forest. *Journal of Tropical Ecology*, 31: 195-198 | The presence of the species of bromeliad (*Bromelia balansae)* facilitates tree seedlings and saplings *Helietta apiculata*, *Erythroxylum cuneifolium* and *Eugenia uniflora* improving the microclimatic conditions above ground. Probably also improve soil nutrients. | Brazil | 27°–27°20'S, 53°40'–54°10'W | Forest and ecotone forest- rocky outcrop | Observational | Ecological |
| 24 | Rodrigues, R.R., Sebastião, V.M., Barros, L.C. (2004). Tropical Rain Forest regeneration in an area degraded by mining in Mato Grosso State, Brazil. *Forest Ecology and Management,* 190: 323–333 | The presence of *Trema micrantha* and *Schizolobium amazonicum* It showed the trend of a succession model for facilitation where these pioneers improve ecological conditions facilitating the regeneration of late species increasing the diversity of species. | Brazil | 10°10'02"S, 54°55'46"W | Rainforest | Observational | Regeneration |
| 25 | Sánchez-Velásquez, L.R., Quintero-Gradilla, S., Aragón-Cruz, F., Pineda-López, Ma.R. (2004). Nurses for *Brosimum alicastrum* reintroduction in secondary tropical dry forest. *Forest Ecology and Management*, 198: 401–404 | The presence of nurses plants *Acalypha cincta* and *Thouinia serrata* facilita a sobrevivência de plântulas de *B. alicastrum.* | Mexico | 19°42', 19°35'N and 104°10',104°02'W | Deciduous forest | Experimental | Restoration |
| 26 | Sáyago, R., Lopezaraiza-Mikel, M., Quesada, M., Álvarez-Anõrve, M.Y., Cascante- Marín, A., Bastida, J.M. (2013) Evaluating factors that predict the structure of a commensalistic epiphyte–phorophyte network. *Proceedings Biological sciences, 280: 20122821* | Phorophytes provide structural support for the epiphytic bromeliads. Epiphytes were more common in phorophytes with larger dimensions and with the presence of the rough bark. | Mexico | 19°22'–19°35' N, 104°56' –105°03' W | Dry forests | Observational | Ecological |
| 27 | Sfair, J.C., Rochelle, A.L.C., Rezende, A.A., Melis, J., Weiserd, V.L., Martins, F.R. (2010). Nested liana-tree network in three distinct neotropical vegetation formations. P*erspectives in Plant Ecology, Evolution and Systematics,* 12: 277–281 | Phorophytes provide structural support for the lianas. Larger phorophytes are responsible for protect high diversity of lianas. | Brazil | \_ | Seasonal forest | Observational | Ecological |
| 28 | Silva, I.A., Ferreira, A.W.C., Lima, M.I.S., Soares, J.J. (2010). Networks of epiphytic orchids and host trees in Brazilian gallery forests. *Journal of Tropical Ecology*, 26:127-137 | Phorophytes provide structural support for epiphytic orchids. | Brazil | \_ | Gallery forest | Observational | Ecological |
| 29 | Souza, F.M., Gandolfi, S., Rodrigues, R.R. (2014). Deciduousness Influences the Understory Community in a Semideciduous Tropical Forest. *Biotropica*, 46(5): 512–515 | Deciduous trees facilitated species of understory that require light for development. | Brazil | 22°41' S, 49°10' W | Semideciduous forest | Observational | Ecological |
| 30 | Vieira l.C.G., Uhl, C., Nepstad, D. (1994). The role of the shrub *Cordia multispicata* Cham. as a 'succession facilitator' in an abandoned pasture, Paragominas, Amazônia. *Vegetatio*, 115: 91-99 | *Cordia multispicata* facilitated juvenile juvenile woody species by improving the microclimate and soil fertility. | Brazil | 2 ° 55' S, 47 ° 35' W | Abandoned pasture | Experimental | Ecological succession |
| 31\* | Wan, S., C. Zhang, Y. Chen, J. Zhao, X. Wang, J. Wu, L. Zhou, Y. Lin, Z. Liu, and S. Fu. (2014). The understory fern *Dicranopteris dichotoma* facilitates the overstory Eucalyptus trees in subtropical plantations. Ecosphere 5(5):51. | The presence of fern *Dicranopteris dichotoma* facilitates trees *Eucalyptus urophylla* by adding nutrients in the soil. *D. dichotoma* facilitates the growth of tree species *E. urophylla.* | China | 112°50' E, 22°37' N | Forest | Experimental | Ecological |
| 32\* | Yang, L., Liu, N., Rena, H., Wang, J. (2009). Facilitation by two exotic Acacia: Acacia auriculiformis and Acacia mangium as nurse plants in South China. *Forest Ecology and Management,* 257:1786–1793 | *Acacia auriculiformis* and *Acacia mangium* (exotic) facilitate individuals juveniles of *Castanopsis hystrix*, *Michelia macclurei* and *Manglietia glauca* improving temperature (air and soil), conditions for photosynthesis and soil nutrients. The shading provided by species of *Acacia* (especially by *A. mangium)* reduces photoinhibition in plant understory, which is beneficial to accumulate more biomass carbon assimilation. | China | 22°40'N, 112°50'E | Homogeneous plantations of Acacia regeneration and open area | Experimental | Biological invasions |
| 33\* | Yang, L.,Ren, H., Liu, N., Wang, L. (2010). The shrub *Rhodomyrtus tomentosa* acts as a nurse plant for seedlings differing in shade tolerance in degraded land of South China. *Journal of Vegetation Science,* 21: 262–272 | The presence of *Rhodomyrtus tomentosa* facilitates the survival of juvenile arboreal *C. fissa* and *M. macclurei* and growth of *Schima superba* By improving the microclimatic conditions above ground. The effect *R. tomentosa* depends more on the shade canopy than soil improvement. | China | 22°34'N, 112°50'E | Regeneration in forest areas | Experimental | Ecological |
| 34 | Zanini, L., Ganade, G (2005). Restoration of Araucaria Forest: The Role of Perches, Pioneer Vegetation, and Soil Fertility. *Restoration Ecology*, 13: 507-514 | The pioneer vegetation facilitates seed germination and survival of regenerating species. | Brazil | 29°23'S, 50°23'W | Araucaria forest | Experimental | Restoration |
| 35 | Zotz, G., Laube, S. e Schmidt, G. (2005) Long-term population dynamics of the epiphytic bromeliad, *Werauhia sanguinolenta. Ecography,* 28: 80-814 | The juvenile grouping of *Werauhia sanguinolenta* facilitated the plants of this species in the center buffering against rapid loss of water by its neighbors increasing growth. The phorophyte *Annona glabra* provides structural support for epiphytic bromeliad *Werauhia sanguinolenta* allowing their survival. | Panama | \_ | Rainforest | Observational | Ecological |

\* represent the articles of the personal database.

Table S2. Experimental and observational studies that address facilitation between plants in tropical forests. The mechanisms that produce the facilitative interactions are classified as: 1) improving the microclimate above the ground (for example, temperature reduction or sunlight by shading, increased humidity, etc.); 2) modification of soil nutrients; 3) increasing the availability of water in the soil; 4) improved abiotic soil conditions (e.g., pH buffering, reduction of soil salinity, substrate stabilization, increased oxygen, etc.); and 5) structural support. Type of interaction: interspecific and intraspecific.

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|  | **Articles** | **Parameters** | **Organization level** | **Facilitator plant** | **Vegetative habits** | **Facilitated plant** | **Vegetative habits** | **Direct mechanisms** | **Type of interaction** |
| 1 | Anthelme *et al.* (2011) | density | pair of species | *Setaria sphacelata* | Herbs  terrestrial | juveniles of *Ceroxylon echinulatum* | tree | 1, 2 | inter |
| 2\* | Bueno e Llamb (2015) | abundance, richness and density | community level | *Baccharis prunifolia* | shrub | several regenerant species | trees and shrubs | 1 | inter |
| 3 | Campanello *et al.* (2007) | richness and abundance | community level | several | trees and e climbing plants woody (lianas) | several | climbing plants woody (lianas) | 5 | inter e intra |
| 4 | Espinosa *et al.* (2011) | richness and abundance | community level | several | trees and shrubs | several | trees and shrubs | 1,4 | inter |
| 5 | Ewel e Bigelow (2011) | richness | community level | *Hieronyma alchorneoides*, *Cedrela odorata, Cordia alliodora, Euterpe macrospadix, Euterpe oleracea* | trees | *Hieronyma alchorneoides*, *Cedrela odorata, Cordia alliodora, Euterpe macrospadix, Euterpe oleracea* | trees | 2,3 | inter e intra |
| 6 | Ewel *et al.* (2015) | density, growth and survival | community level | *Hieronyma alchorneoides* | tree | *Hieronyma alchorneoides*, *Cedrela odorata, Cordia alliodora, Euterpe macrospadix, E. oleracea* | trees | 2 | inter e intra |
| 7\* | Fontoura et al. (2009) | richness and abundance | community level | several | trees | several | vascular epiphytes herbs | 5 | inter |
| 8 | Fischer *et al.* (2009) | richness and species composition | community level | *Cinchona pubescens* and *Cinchona calisaya* | shrubs | several | Terrestrial herbs, shrubs, trees | 1, 4 | inter |
| 9 | Gallegos *et al.* (2015) | seedling recruitment, growth and survival | community level | *Pteridium* spp. | terrestrial herbs | *Clusia sphaerocarpa*, *Clusia lechleri*, *Clusia trochiformis* | shrubs | 1,2 | inter |
| 10\* | Gómez-Ruiz *et al.* (2013) | growth (height) and survival | pair of species | *Lupinus bogotensis* and *Vicia benghalensis* | shrub, terrestrial herbs | *Solanum oblongifolium* and *Viburnum tinoides* | trees | 1 | inter |
| 11 | Gould *et al.* (2013) | growth and survival | community level | *Dryopteris wallichiana* | terricola herbs | seedlings of *Pittosporum hawaiianse*, *Myrsine lessertiana, Alyxia stellata*, *Pipturus albidus, Myoporum sandwichense, Coprosma montana* | trees, climbing plants woody (liana), shrubs | 1 | inter |
| 12 | Hughes *et al.* (2005) | growth and survival | pair of species | *Falcataria moluccana* | tree | *Psidium cattleianum* | tree | 1,2 | inter |
| 13 | Jian *et al.* (2013) | growth | pair of species | *Asplenium antiquum* | epiphytic vascular herbs | *Haplopteris zosterifolia* | epiphytic avascular herbs | 1,2,3 | inter |
| 14 | Lang *et al.* (2012) | growth (height and biomass) and morphology of the canopy | community level | *Schima superba*, *Elaeocarpus decipiens*, *Quercus serrata*, *Castanea henryi* | trees | juveniles of *Schima superba*, *Elaeocarpus decipiens*, Quercus serrata, *Castanea henryi* | trees | 1 | inter e intra |
| 15 | Lebrija-Trejosa *et al.* (2010) | richness, abundance and species composition | community level | several | trees, shrubs | several | trees, shrubs | 1 | inter |
| 16 | Li *et al.* (2010) | growth (biomass) | pair of species | *Rhus chinensis* and *Camellia oleifera* | trees | *Pinus massoniana* | trees | 1 | inter |
| 17 | Maza-Villalobos *et al.* (2011) | density, richness, composition and abundance of species | community level | several | terrestrial herbs | seedling seeds of several species | trres, shrubs, climbing plants woody (lianas), terrestrial herbs | 1 | inter |
| 18 | Omeja *et al.* (2011) | growth (biomass), richness and diversity | community level | *Acanthus pubescens* and *Lantana camara* | shrubs | several seedlings, young and mature trees | trees | 1 | inter |
| 19 | Peña e Duque (2013) | density and growth (biomass) | community level | several | trees | several | trees | 2,4 | inter |
| 20 | Pérez-Salicrup e Sork (1998) | composition, density and abundance | community level | several | trees/ climbing plants woody (lianas) | several | climbing plants woody (lianas) | 5 | inter |
| 21 | Piazon *et al.* (2011) | abundance and richness | community level | several | trees | several | vascular epiphytes herbs | 5 | inter |
| 22 | Pinard e Putz (1994) | abundance and density | community level | several | climbing plants woody (lianas), trees | several | climbing plants woody (lianas) and herbs vines | 5 | inter |
| 23\* | Rocha *et al.* (2015) | abundance and richness | community level | *Bromelia balansae* | terrestrial herbs | seedlings and juvenile of *Helietta apiculata*, *Erythroxylum cuneifolium* and *Eugenia uniflora* | trees and shrubs | 1 | inter |
| 24 | Rodrigues *et al.* (2004) | richness | community level | *Trema micrantha* and *Schizolobium amazonicum* | trees | several | trees | 1 | inter |
| 25 | Sánchez-Velásquez *et al.* (2004) | growth (height) and survival | pair of species | *Acalypha cincta* and *Thouinia serrata* | trees | juvenile of *Brosimum alicastrum* | trees | 1 | inter |
| 26 | Sáyago *et al.* (2013) | diversity and abundance | community level | several | trees | several species of bromeliads | vascular epiphytes herbs | 5 | inter |
| 27 | Sfair *et al.* (2010) | diversity | community level | several | trees | several | climbing plants woody (lianas) | 5 | intere |
| 28 | Silva *et al.* (2010) | abundance and richness | community level | several | trees | several species of orchids | vascular epiphytes herbs | 5 | inter |
| 29 | Souza *et al.* (2014) | richness and density | community level | several | trees | several | trees | 1, 3 | inter |
| 30 | Vieira *et al.* (1994) | density | community level | *Cordia multispicata* | shrub | juveniles of various tree species | trees and shrubs | 1,2, 4 | inter |
| 31\* | Wan *et al.* (2014) | growth (biomass) | pair of species | *Dicranopteris dichotoma* | terrestrial herbs | *Eucalyptus urophylla* | tree | 2 | inter |
| 32\* | Yang *et al.* (2009) | growth | community level | *Acacia auriculiformis* and *Acacia mangium* (exotic) | trees | juveniles of *Castanopsis hystrix, Michelia macclurei* and *Manglietia glauca* | trees | 1,2,4 | inter |
| 33\* | Yang *et al.* (2010) | growth and survival | community level | *Rhodomyrtus tomentosa* | shrubs | juvenile individuals *Schima superba, Michelia macclurei*, *Castanopsis* fiss*a* | trees | 1, 3, 4 | inter |
| 34 | Zanini e Ganade (2005) | survival | community level | several pioneers species | trees | several regenerant species | trees, shrubs and terrestrial herbs | 1 | inter |
| 35 | Zotz *et al.* (2005) | growth, survival and density | pair of species | juvenile of *Werauhia sanguinolenta* | epiphytic vascular herbs | juveniles of *Werauhia sanguinolenta* | epiphytic vascular herbs | 3 | intra |

\* represent the articles of the personal database