



## TALLER TUTORIAL DE POSTGRADO

### **Ecofisiología de La Regeneración en Bosques Lluviosos Tropicales**

**02 de septiembre al 31 de octubre 2006**

Unidades crédito: 2

#### **Coordinación:**

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### **ESTRUCTURA DEL TALLER y CRONOGRAMA DE ACTIVIDADES**

Este Taller tiene como finalidad que el estudiante realice una puesta al día de la bibliografía relacionada con los procesos de regeneración en los bosques lluviosos tropicales (BLLT) haciendo especial énfasis a los siguientes tópicos:

- Patrones de regeneración de los árboles en bosques lluviosos tropicales (BLLT).
- Estrategias de regeneración por semillas.
- Respuestas ecofisiológicas de las plántulas y juveniles al ambiente de luz en relación a: capacidad fotosintética, respuesta fotosintética a los flecos de luz, aclimatación fotosintética a cambios en el ambiente luz, respuestas al déficit hídrico estacional.

#### **Evaluación:**

- Durante el desarrollo del taller están pautadas dos reuniones de discusión con el estudiante sobre los diferentes aspectos abordados en la temática del taller.
- Presentación escrita de un seminario bibliográfico.

## BIBLIOGRAFÍA:

Asquith NM (2002). La dinámica del bosque y la diversidad arbórea. En: Guariguata MR, Kattan GH (eds.). Ecología y Conservación de Bosques Neotropicales. Libro Universitario Regional, Editorial Tecnológica de Costa Rica, Cartago, Costa Rica. pp. 377-406.

Baraloto, C., D. E. Goldberg, y D. Bonal (2005). Performance trade-offs among tropical tree seedlings in contrasting microhabitats. *Ecology* 86:2461-2472.

Bloor, J. M. G., y P. J. Grubb (2004). Morphological plasticity of shade-tolerant tropical rainforest tree seedlings exposed to light changes. *Functional Ecology* 18:337-348.

Clark DA, R. Dirzo, N. Fetcher (eds.) 1987. Ecología y ecofisiología de plantas de los bosques mesoamericanos. *Revista de Biología Tropical*, 35, Suplemento 1.

Chazdon R & Montgomery RA (2002). La adquisición de carbono en las plantas. En: Guariguata MR, Kattan GH (eds.). Ecología y Conservación de Bosques Neotropicales. Libro Universitario Regional, Editorial Tecnológica de Costa Rica, Cartago, Costa Rica. pp. 225-250.

Chazdon R, Pearcy R, Lee D, Fetcher N (1996). Photosynthetic responses of tropical forest plants to contrasting light environments. In: *Tropical Forest Plant Ecophysiology*. Mulkey SS, Chazdon RL, Smith AP (eds.). Chapman & Hall. New York. pp. 5–55.

Coste S, Roggy JC, Imbert P, Born C, Bonal D and E Dreyer (2005). Leaf photosynthetic traits of 14 tropical rain forest species in relation to leaf nitrogen concentration and shade tolerance. *Tree Physiology* 25: 1127-1137.

Dalling, J. W., K. Winter, y S. P. Hubbell (2004). Variation in growth responses of neotropical pioneers to simulated forest gaps. *Functional Ecology* 18:725-736.

Dalling, J. W., K. Winter, J. D. Nason, S. P. Hubbell, D. A. Murawski, and J. L. Hamrick (2001). The unusual life history of *Alseis blackiana*: A shade-persistent pioneer tree? *Ecology* 82:933-945.

Dupuy, J. M., y R. L. Chazdon (2006). Effects of vegetation cover on seedling and sapling dynamics in secondary tropical wet forests in Costa Rica. *Journal of Tropical Ecology* 22:65-76.

Feng, Y. L., K. F. Cao, y J. L. Zhang (2004). Photosynthetic Characteristics, Dark Respiration, and Leaf Mass Per Unit Area in Seedlings of Four Tropical Tree Species Grown Under Three Irradiances. *Photosynthetica* V42:431-437.

Fetene, M., y Y. Feleke (2001). Growth and photosynthesis of seedlings of four tree species from a dry tropical afro-montane forest. *Journal of Tropical Ecology* 17:269-283.

Carlos García-Núñez, Aura Azócar and Fermín Rada (1995). Photosynthetic acclimation to light in juveniles of two cloud forest tree species. *TREES* 10: 114-124.

Guariguata, M. R., y R. Ostertag (2001). Neotropical secondary forest sucesión: changes in structural and functional characteristics. *Forest Ecology and Management* 148: 185-206.

Guariguata, M. R., y R. Ostertag (2002). Sucesión Secundaria, Pages 591-623 in G. H. K. Manuel R. Guariguata, ed. Ecología Y Conservación de Bosques Neotropicales. Cartago, Costa Rica.

Kitajima K (1994). Relative importance of photosynthetic traits and allocation patterns as correlates of seedlings shade tolerance of 13 tropical trees. *Oecologia* 98: 419-428.

Kitajima, K., y M. Fenner (2000). Ecology of seedling regeneration, Pages 331 - 359 in M. Fenner, ed. *Seed: The ecology of regeneration in plant communities*. Wallingford, UK.

Kitajima K, Mulkey SS and SJ Wright (2005). Variation in crown light utilization characteristics among Tropical canopy trees. *Annals of Botany* 95: 535-547.

Krause GH & Weiss E (1991). Chlorophyll fluorescence and photosynthesis. The basics. *Annu. Rev. Plant. Physiol. Plant Mol. Biol.* 42: 313-349.

Leakey, A. D. B., J. D. Scholes, y M. C. Press (2005). Physiological and ecological significance of sunflecks for dipterocarp seedlings. *Journal of Experimental Botany* 56:469-482.

Montgomery, RA (2004a). Relative importance of photosynthetic physiology and biomass allocation for tree seedling growth across a broad light gradient. *Tree Physiology* 24:155-167.

Montgomery, RA (2004b). Effects of understory foliage on patterns of light attenuation near the forest floor. *Biotropica* 36:33-39.

Mooney HA, Field C & Vazquez-Yanez C (1984). Photosynthetic characteristics of tropical forest plants. In: Medina E, Mooney HA & Vazquez-Yanez C (eds.). *Physiological ecology of plants of the wet tropics*. The Hague. Boston. Lancaster. pp. 113-28.

Mulkey S & Wright S (1996). Influence of seasonal drought on the carbon balance of tropical forest plants. In: Mulkey SS, Chazdon RL, Smith AP (eds.). *Tropical Forest Plant Ecophysiology*. Chapman & Hall. New York. pp. 187-216.

Nicotra, A. B., R. L. Chazdon, y S. V. B. Iriarte (1999). Spatial heterogeneity of light and woody seedling regeneration in tropical wet forest. *Ecology* 80:1908 - 1926.

Pearcy RW, Valladares F, Wright SJ and Lasso E (2004). A functional analysis of the crown architecture of tropical forest *Psychotria* species: do species vary in light capture efficiency and consequently in carbon gain and growth?. *Oecologia* 139: 163-177.

Poorter L and Rose S (2005). Light-dependent changes in the relationship between seed mass and seedling traits: a meta-analysis for rain forest tree species. *Oecologia* 142: 378-387.

Robichaux RH, Rundel PW, Steemmerman L, Canfield JE, Morse SR & Friedman WE (1984). Tissue water deficits and plant growth in the wet tropical environments. In: *Physiological ecology of plants of the wet tropics*. The Hague. Boston. Lancaster. pp. 99-112.

Rozendaal, D. M. A., V. H. Hurtado, y L. Poorter (2006). Plasticity in leaf traits of 38 tropical tree species in response to light; relationships with light demand and adult stature. *Functional Ecology* 20:207 - 216.

Scatena FN (2002). El bosque neotropical desde una perspectiva jerárquica. En: Guariguata MR, Kattan GH (eds.). *Ecología y Conservación de Bosques Neotropicales*. Libro Universitario Regional, Editorial Tecnológica de Costa Rica, Cartago, Costa Rica. pp. 23–41.

Strauss-Debenedetti S and Bazzaz F (1996). Photosynthetic characteristics of tropical trees along successional gradients. In: *Tropical Forest Plant Ecophysiology*. Mulkey SS, Chazdon RL, Smith AP (eds.). Chapman & Hall. New York. pp. 162-186.

Valladares F, Allen MT and Pearcy RW (1997). Photosynthetic responses to dynamic light under field conditions in six tropical rainforest shrubs occurring along a light gradient. *Oecologia* 111: 505-514.

Valladares FD, Wright SJ, Lasso E, Kitajima K and Pearcy RW (2000). Plastic phenotypic response to light of 16 congeneric shrubs from a Panamanian rainforest. *Ecology* 81 (87): 1925-1936.

Valladares, F., D. Sanchez-Gomez, y M. A. Zavala. 2006. Quantitative estimation of phenotypic plasticity: bridging the gap between the evolutionary concept and its ecological applications. *Journal of Ecology* 94:1103-1116.

Vincent G (2006). Leaf life span plasticity in tropical seedling grown under contrasting light regimes. *Ann. Bot.* 97: 245-255.

Walters MB and Reich PB (1999). Low-light carbon balance and shade tolerance in the seedlings of woody plants: do winter deciduous and broad-leaved evergreen differ?. *New Phytol* 143: 143-154.

Whitmore TC (1990). *An Introduction to Tropical Rain Forest*. Oxford University Press, UK.