

CURRICULUM VITAE

HECTOR ESTRADA-MEDINA

Research interests

Management of natural resources on dry tropical forests areas
Bedrock-soil-plant-water relationships in natural ecosystems and agroecological systems
Plant growth in shallow soils
Agricultural management and quality assessment of karst soils
Water use efficiency and water quality
Climate Smart Agriculture

Professional experience

Guest Researcher. Departamento de Manejo y Conservación de Recursos Naturales Tropicales (PROTROPICO). Facultad de Medicina Veterinaria y Zootecnia. Universidad Autónoma de Yucatán. From January 2001 to September 2004.

Associate researcher at current adscription since 2009.

Education

- 1991-1995. Bachelor's on Biology. Facultad de Estudios Superiores "Zaragoza" – Universidad Nacional Autónoma de México; México, D.F.
- 1997-1999. Master on Management and Conservation of Tropical Natural Resources. Facultad de Medicina Veterinaria y Zootecnia, Universidad Autónoma de Yucatán, México.
- 2004-2009. Soil and Water Sciences PhD at University of California Riverside.

International conferences

- **Estrada-Medina H (speaker)**, Graham R, Allen M, Jiménez-Osornio J. J. (2011) Subsurface features: beyond shallow soils in Yucatan. Reunión anual 2011 de la ESA. 8-12 de agosto de 2011. Austin, Texas, EU.
- **Estrada-Medina H (speaker)**, Graham R, Allen M, Tuttle W, Jiménez-Osornio JJ (2010). Importance of subsurface soil pockets for plant growth in a karst environment World Congress of Soil Science, Soil Solutions for a Changing World. 1 – 6 August 2010, Brisbane, Australia.
- **Héctor Estrada Medina (speaker)**, Ignacio Querejeta, Michael F. Allen y Juan Jose María Jiménez-Osornio. 2008. Karst features and plant water sources in Yucatan, Mexico AGU Joint Assembly. Mayo 27-30, 2008. Fort Lauderdale, Florida, EU.
- Francisco Bautista-Zúñiga y **Héctor Estrada Medina (speaker)**. 2006. Mayan Soil Classification in the Yucatan State, Mexico (**speaker**). 18th World Congress of Soil Science. July 9-15, 2006. Philadelphia, EU.
- **Héctor Estrada Medina**, Robert C. Graham, Michael F. Allen and Juan Jose María Jiménez Osornio. 2006. Soil-like properties of limestone in Yucatán, México. 18th World Congress of Soil Science. July 9-15, 2006. Philadelphia, USA.
- **Héctor Estrada Medina (speaker)**, Ignacio Querejeta, Michael F. Allen, Juan José María Jiménez-Osornio and María del Rocío Ruenes. 2006. Water source partitioning among

Mexican native trees growing on shallow karst soils in a seasonally dry tropical climate. Ecological Society of America international meeting. Ecology in an era of globalization: challenges and opportunities for environmental scientists in the Americas. Mérida, Yucatán, México. January 8-12, 2006.

- **Héctor Estrada Medina (speaker)**, Robert C. Graham, Michael F. Allen and Juan Jose María Jiménez Osornio. 2006. Karstic Features, water dynamics and tree development in Yucatán, Mexico. Ecological Society of America international meeting. Mérida, Yucatán, México. January 8-12, 2006.
- **Héctor Estrada Medina (speaker)**, Robert C. Graham, Michael F. Allen and Juan Jose María Jiménez Osornio. 2005. Karstic Features and Tree Root Development in Yucatán, México. 2005 ASA-CSSA-SSSA International Annual Meetings Salt Lake City, UT - November 6 - 10, 2005.

Journal papers

1. **Estrada-Medina Héctor**, Bautista Zuñiga Francisco, Jiménez-Osornio Juan José María. González-Iturbe José Antonio y Aguilar Cordero Wilian de Jesús. (Sent) Maya and WRB soil Classification in Yucatán, México: differences and similarities. Tropical and Subtropical Agroecosystems.
 2. **Héctor Estrada-Medina**, Louis S. Santiago, Robert C. Graham, Michael F. Allen, Juan José Jiménez-Osornio (2013). Source water, phenology and growth of two tropical dry forest tree species growing on shallow karst soils. *Trees: structure and function* 27:1297-1307.
 3. **Héctor Estrada-Medina**, Robert Graham, Michael F. Allen, Juan Jose Jimenez-Osornio and (2013) The role of limestone bedrock and dissolution karst features on tree root distribution in northern Yucatán, México. *Plant & soil*, 362:37-50.
 4. Wendy Saraí Luna Flores, **Héctor Estrada-Medina**, Juan José Jiménez-Osornio (2012). Efecto del estrés hídrico inducido sobre el crecimiento y eficiencia del uso del agua de la productividad en plántulas de especies arbóreas caducifolias. *TERRA latinoamericana* 30 (4):343-354.
- (**Héctor Estrada-Medina**, Wes Tuttle, Robert Graham, Michael F. Allen and Juan Jose Jimenez-Osornio (2010) Identification of underground karst features using Ground-Penetrating Radar (GPR) in northern Yucatan, Mexico. *Gsvadzone* 9: 653–661. (DOI: 10.2136/vzj2009.0116)
 - J. I. Querejeta, **H. Estrada-Medina**, M. F. Allen, J. J. Jiménez-Osornio. 2007. Water source partitioning among Mexican native trees growing on shallow karst soils in a seasonally dry tropical climate. *Oecologia* 152:26-36.
 - J. I. Querejeta, **H. Estrada-Medina**, M. F. Allen, J. J. Jiménez-Osornio, R. Ruenes. 2006. Utilization of bedrock water by *Brosimum alicastrum* trees growing on shallow soil atop limestone in a dry tropical climate. *Plant and soil*. *Plant and soil*, 287:187–197.

Book chapters

1. García-Gil Gerardo, Castillo Caamal José, Huchin Malta Wendy, **Estrada-Medina Héctor**, Salazar Gómez Varela Carmen, Pérez Pérez Juan Ramón, Ortiz Juan Javier y Tun garrido Juan.

- Sistema natural: geosistemas (2013) En: García-Gil Gerardo y Sosa-Escalante Javier (eds.) Ordenamiento Ecológico territorial: visión 2030. Universidad Autónoma de Yucatán, Mérida, México.
2. Flores L., F. Bautista, S. Sedov, S. Palacios, **H. Estrada** y M. Uicab (2011) “Suelos de la zona maya en el contexto de la evolución del paisaje e historia de ocupación humana. Escenarios de cambio ambiental: registros del cuaternario en América latina” (Soils of the Maya area in the context of the landscape evolution and history of human occupation). Unión mexicana de estudios del cuaternario y Universidad Nacional Autónoma de México. Fondo de Cultura Económico.
 3. Edith B. Allen, José Ignacio Querejeta, Rodrigo Vargas, **Héctor Estrada-Medina**, Louise Egerton-Warburton, Arturo Gómez-Pompa and Michael F. Allen. 2009. Restoration and mycorrhizae in seasonal tropical forest: fungal species composition, carbon accumulation, and water relations. En: Álvarez-Sánchez, J. (Ed.). Ecología de micorrizas arbusculares y restauración de ecosistemas. Universidad Nacional Autónoma de México. 361 pp. (ISBN: 978-607-02-0712-9).
 4. Jiménez-Osornio, J.J., **H. Estrada-Medina**, Aguilar-Cordero W, Montañez-Escalante P, Ruenes-Morales R, Ortíz-Pech R (2008) Ecological land use planning for sustainable landscapes in Yucatán. p. 42-48. In H. Tiessen, and J.W.B. Stewart (ed.) Applying ecological knowledge to landuse decisions. SCOPE-IAI-IICA. Germany. (ISBN: 978-85-99-875-04-9).

Professional societies

Soil Society of America. Since 2005.
The Ecological Society of America. Since 2005.
AGU (American Geophysical Union). Since 2006.
Mexican Soil Science Society. Since 2013

Teaching experience

- 200-2002. Agricultural School of Maní Yucatán. Modules: Compost and soil management.
- 2009-current Universidad Autónoma de Yucatán
- Soil genesis and management, Water dynamics on agricultural systems, Geographical Information Systems
- 2010-2012 Universidad Autónoma de Yucatán
- Ecological ordinance of the territory.

Research grants

1. Proyecto “**Assessment of the drought resistance and its effect on the isotopic water use efficiency of productivity in plántulas tree seedlings of ecological and economic importance of Yucatán**” (July 2010-August 2011). Sponsor: PROMEP. Amount granted: \$30000.00 USD DOLLARS.
2. Project “**Effect of hydric stress on the development, wáter use efficiency and stable isotopes (13C y 18O) on tree seedlings of ecological and economic importance of Yucatán**” (September 2009 – August 2010). Sponsor (CONACyT). Amount granted: “\$9000.00” US DOLLARS.

3. Project: **“Water contribution by limestone bedrock and subsurface soil pockets and its effect on the water use efficiency of two tree species in Yucatan, Mexico”** (June 2008 - August 2009). Sponsor (UC-MEXUS). Amount granted: \$12 000.00 USD dollars.

Collaborative projects

1. **“Homegardens for food security, climate change mitigation and adaptation in Yucatan”**
Activities: developing and monitoring of indicators of land use impacts on climate change. Indicators are taught to be monitored by farmers and high school students (01/01/2013 – 30/12/2013). Funded by PNUD.
2. **“Interdisciplinary and Interinstitutional Collaborative Strategies to promote the sustainable development in Yucatán”** Activities: Workshops with farmers to teach them how to map soils (01/09/2011 – 30/03/2012). Funded by FORD fundation.
3. **“Developing of a germoplasm bank for the conservation and management of the biodiversity with agroecological, medical and forestry interest in the Maya Area”**
Activities: Soil maps and soil samplings (01/09/2010 – 30/03/2011) Funded by FORDECyT

Services and consultancies

- May-Jul 2013 Evaluation of erodability of yucatecan Soils (Servicio Geológico Mexicano). Responsible of soil samplings, lab analyses.
- May-Dec 2013 National Program Against Drought (Comisión Nacional del Agua). Responsible of the Yucatán Peninsula Area.

Others

1. Responsible of the Laboratory of Analyses of Soils, Plants and Water of the University of Yucatan.
2. Member of the National Research System, México
3. Member of the water network (CONACyT, México)

Languages

Spanish: Native language.

English: Fluid.

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