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Ph.D. Candidate and Faculty Fellow

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EDUCATION

Columbia University. Graduate School of Arts and Science.

New York, NY. USA.
Doctor of Philosophy, Ecology, Evolution and Environmental Biology;
Emphasis: Remote sensing and Earth Systems Science. Advisor: Ruth DeFries. Expected Spring 2013.

Master of Philosophy. October 2010.

Clark University. Graduate School of Geography - IDCE Department.

Worcester, MA. USA.
Master of Arts in Geographic Information Science for Development and Environment. Advisor: Robert G. Pontius Jr. October 2007.

National University of Colombia. Department of Agronomy.

Medellin, Colombia.
Bachelor of Science in Forestry. Advisor: Alvaro Lema Tapias. September 2000.

RESEARCH INTEREST

My research interests center on assessing environmental, social, and economic tradeoffs associated with land changes, particularly in tropical areas. My expectation is to generate meaningful methods and information to assist societies in meeting their needs for land resources while guaranteeing the long term functioning of natural systems.

In my current research, I integrate geospatial and field information, along with remote sensing techniques and ecological modeling to evaluate the influence of climate variability and land cover changes on fire propagation and carbon fluxes in the Peruvian Amazon. Historically, fire has been used for land conversion and management throughout much of the Amazon. However, the escape of fires to areas where burning was not intended is a

relatively recent phenomenon in the region with pervasive consequences for human health, agricultural production, and nature conservation. My work specifically addresses the extent to which changes in land cover interact with climate to facilitate or inhibit fire proliferation and post-burning carbon fluxes.

PUBLICATIONS

Publications as peer reviewed journal articles

Gutiérrez-Vélez, VH, DeFries, R. Annual multi-resolution detection of land cover conversion to oil palm in the Peruvian Amazon. Submitted to *Remote Sensing of Environment*.

Gutiérrez-Vélez, VH & Pontius Jr., RG. 2012. Influence of carbon mapping and land change modelling on the prediction of carbon emissions from deforestation. In press. *Environmental Conservation*.

Gutiérrez-Vélez, VH, DeFries, R, Pinedo-Vasquez, M, Uriarte, M, Padoch, C, Baethgen, W, Fernandes, K & Lim, Y. 2011. High-yield oil palm expansion spares land at the expense of forests in the Peruvian Amazon. *Environmental Research Letters*. 6 044029.

Gutiérrez-Vélez, VH & MacDicken, K. 2008. Quantifying the Direct Social and Governmental Costs of Illegal logging in the Bolivian, Brazilian and Peruvian Amazon. *Forest Policy and Economics*. 10: 248-256. (among *Science Direct TOP25 Hottest Papers in Forest Policy and Economics in 2008*)

Gutiérrez, V, Zapata, M, Usma, C, Laguado, W & Santacruz, A. 2006. Maximizing the profitability of forestry projects under the Clean Development Mechanism using a forest management optimization model. *Forest Ecology and Management*. 226: 341-350.

Gutiérrez, V & Lopera, G. 2003. El árbol de área basal promedia como predictor del volumen por usos del rodal. *Revista de la Facultad Nacional de Agronomía*. 55: 1683-1693.

Gutiérrez, V & Lopera, G. 2002. Metodología para la cuantificación de existencias y flujo de carbono en plantaciones forestales. In Gayoso, J & Jandl, R (eds.). *IUFRO World Series*. 13: 75-86. International Union of Forest Research Organization (IUFRO). Vienna.

Lopera, G & Gutiérrez, V. 2002. Flujo de carbono y respuesta a diferentes estrategias de manejo en plantaciones tropicales de *Pinus patula*. In Gayoso, J & Jandl, R (eds.). *IUFRO World Series* 13: 127-138. International Union of Forest Research Organization. IUFRO. Vienna.

Gutiérrez, V & Lopera, G. 2002. Valoración económica de la fijación de carbono en plantaciones tropicales de *Pinus patula*. In Gayoso, J & Jandl, R (eds.). *IUFRO World Series*. 13: 63-74. International Union of Forest Research Organization IUFRO. Vienna.

Publication as peer reviewed book chapter

Lopera, G & Gutiérrez, V. 2003. Fijación de carbono en plantaciones tropicales de *Pinus patula*. In: Orrego, S, del Valle, J & Moreno, F. (eds.). *Medición de la captura de carbono en ecosistemas forestales tropicales de Colombia*. Universidad Nacional de Colombia, Centro Andino para la Economía del Medio Ambiente.

Publications as conference proceedings

Gutiérrez, V & Lopera, G. 2003. El árbol de área basal promedia como predicción del volumen por usos del rodal. *Proceedings: primer simposio forestal DCF. Medellín*. Pg. 110-116

Lopera, G & Gutiérrez, V. 2000. Viabilidad Técnica y Económica de la Utilización de Plantaciones de *Pinus patula* como Sumideros de CO₂. *Proceedings: V congreso nacional de ciencia y tecnología del carbón*. Universidad Popular del Cesar. Valledupar. Pg. 61-64.

Publications as popular scientific newsletters

Laguado, W, Gutiérrez, V & Santacruz, A. 2005. Estado del arte en la formulación y aprobación de proyectos forestales bajo el MDL. *Cambium*. 3(5): 1-6.

Gutiérrez, V. 2004. Las actividades forestales y la mitigación del cambio climático en el contexto político y ambiental internacional: Entrevista de Víctor Gutiérrez, director de Carbono & Bosques a la Dra. Sandra Brown: Mexico Noviembre 2004. *Cambium*. 3(1): 1-5.

Gutiérrez, V. 2004. Implicaciones de las decisiones adoptadas en COP9 en el diseño y manejo de proyectos MDL forestales. *Cambium*. 2(2): 3-4.

Santacruz, A, Gutiérrez, V & Laguado, W. 2004. Controversia internacional sobre los proyectos forestales en el MDL, luego de COP9. *Cambium*. 2(4): 3-4.

Gutiérrez, V. 2003. Permanencia del carbono en actividades de aforestación y reforestación dentro del marco del mecanismo de desarrollo limpio. *Cambium*. 1(6): 3.

Gutiérrez, V. 2003. Alteraciones del ciclo del nitrógeno y cambio global. *Cambium*. 1(7): 3-4.

Other publications

Lara, W, Gutiérrez, V, Zapata-Arbeláez, B, Santacruz, AM, Laguado, WG, Sierra, A, Bustamante, CM, Yepes, A, Black, T, Arjona, F. 2011. Priority areas for implementing the CDM to forest restoration projects in conservation corridors of the Andes. In Newton, AC, & Tejedor, N. (eds). *Principles and Practice of Forest Landscape Restoration: Case studies from the drylands of Latin America*. IUCN. Gland, Switzerland. P 292-293.

Gutierrez-Velez, VH, Harris, NL, Pearson, TRH, Petrova, S, Grimland, S & Brown, S. 2009. USAID Forest Carbon Calculator: Data and Equations

for the Agroforestry Tool. Submitted by Winrock International under USAID Cooperative Agreement No. EEM-A-00-06-00024-00.

MEDIA COVERAGE

May 4 2012. Palma aceitera, "agente de deforestación en Perú":
http://www.bbc.co.uk/mundo/noticias/2012/05/120503_peru_palma_aceitera_am.shtml

January 19 2012. La producción industrial de aceite de palma en el Perú se expande a costa de los bosque tropicales:
http://es.mongabay.com/news/2012/es0110-peru_palm_oil.html

January 17 2012. More intensive oil-palm farming may not spare rainforest:
<http://environmentalresearchweb.org/cws/article/news/48305>

January 10 2012. Industrial palm oil production expands at expense of rainforests in Peru:
http://news.mongabay.com/2012/0110-peru_palm_oil.html

RESEARCH AND TEACHING EXPERIENCE

Columbia University. E3B Department. Teaching Assistant. Undergraduate course on Environmental Biology. New York, NY. Spring 2012.

Temple University. Department of Geography and Urban Studies. Invited lecturer. Undergraduate course on Digital Mapping. Philadelphia. PA. April 2011.

Columbia University. E3B Department. Teaching Assistant. Graduate seminar: Topics on Conservation Biology. New York, NY. Spring 2010.

Columbia University. E3B Department. Teaching Assistant. Undergraduate course: Science for Sustainable Development. New York, NY. Spring 2009.

University of Maryland. Department of Geography. Graduate Research Assistant. College Park, MD. July 2007 – July 2008.

Winrock international. Research internship. Turners Falls, MA. June – July 2006.

National University of Colombia. Department of Forest Sciences. Adjunct professor of Forestry. Medellin, Colombia. June 2003 – June 2004.

PROFAFOR-CORDELIM. Instructor. International course on the development of reforestation and bioenergy projects under the Clean Development Mechanism (CDM). Quito, Ecuador. March 2004.

Research Center on Ecosystems and Global Change (C&B). Director of the Research Group on Ecosystems and Global Change. August 2003-December 2005.

National University of Colombia. Department of Forest Science. Academic advisor and Scientific Editor. Alternative financial model for the sustainable management of the forests of the San Nicolas Valley. June-December 2002.

National University of Colombia-CAEMA. Instructor. Seminar-workshop on the formulation of forestry based carbon mitigation projects under the Clean Development Mechanism (CDM). Medellín, Colombia. April 2002.

ADMINISTRATIVE AND CONSULTANCY EXPERIENCE

Administrative

Carbono & Bosques. Research Center on Ecosystems and Global Change (C&B). Executive Director. August 2003 – December 2005.

Cambium. Newsletter on Global Change of the Research Center on Forest and Global Change. Chief editor. August 2003 – December 2005.

Carbono & Bosques. Research Center on Forest and Global Change. Director of Research and Education. October 2002 – August 2003.

Consultancy

Tool development and data underlying tools on agroforests and forest plantations. Consultant. USAID - Winrock International. Global Climate Change – Carbon Reporting Initiative Cooperative agreement. June 2008.

Identification and evaluation of optimal areas for the implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) as a support for biodiversity conservation in the North Andean biological corridors of South America. Technical Director. Conservation International – CAEMA - C&B. August – December 2005.

Implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) in the watershed of the Chinchina river-Colombia. Technical Director. Fase I. CAEMA – C&B. July – September 2005.

Feasibility study for the implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) in strategic areas for the conservation of fresh water resources in the city of Bogota-Colombia. Technical Director. CAEMA – C&B. February – June 2005.

Technical and economic feasibility for the implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) in the project: The Renaissance of the Orinoco Savannas of Colombia. Technical Director. CAEMA – C&B. February – June 2005.

Pre-feasibility study for the restoration of the Mata de la Urama locality through the implementation of a conservation corridor under the Umbrella of the Clean Development Mechanism (CDM) in the Tauramena Municipality. Technical Director. CAEMA – C&B. December 2004 – February 2005.

Pre-feasibility study for the implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) in the watershed of the Chinchina River. Technical Director. CAEMA – C&B. September 2003 – February 2004.

Forest management plan for current and projected tree plantations of the public utility company of Medellín-Colombia. Field and office manager. National University of Colombia. April – September 2003.

Pre-feasibility study for the implementation of a carbon sequestration project under the Clean Development Mechanism (CDM) in public lands of the government of the Department of Cundinamarca. Office manager. CAEMA - C&B. April – August 2003.

Characterization and quantification of potentialities of the forests owned by the public utility company of Medellín. Consultant. National University of Colombia. October 2001 – February 2002.

Forest inventory. Alternative financial model for the sustainable management of the forest of the San Nicolas Valley. Consultant. National University of Colombia. February 2002.

Forest Inventory in *Pinus patula* and *Cupressus lusitanica* plantations in El Retiro Municipality. Field technician. Forestal Caribe Ltda. February 2000.

Forest Inventory in *Pinus patula* plantations in the Granada Municipality. Field technician. Forestal Caribe Ltda. July 1999.

Forest growth study on *Cupressus lusitanica* plantations: Permanent growth plots measurement. Field assistant. Forestales Fve Ltda. February 1994.

Text and database typing and calculations. Office assistant. Forestales Fve Ltda. January 1993- May 1994.

Permanent growth plots measurement in *Eucalyptus spp* plantations in the San Sebastián Municipality. Field assistant. Forestales Fve. Ltda. May 1993.

PRESENTATIONS IN SCIENTIFIC AND ACADEMIC EVENTS

Annual multi-resolution detection of forest conversion to oil palm in the Peruvian Amazon. Oral presentation. ForestSat Conference. Oregon State University, Corvallis, OR. September 2012.

Expansión de palma en países amazónicos y lecciones de la experiencia en el sudeste asiático. Oral presentation. Seminário Clima, Dinâmica e Biodiversidade de Florestas Amazônicas. Embrapa - INPE. Belem. Brazil. June 2012

High-yield oil palm expansion spares land at the expense of forests. Oral presentation. 49th annual meeting of the Association for Tropical Biology and Conservation. Bonito. Brazil. June 2012.

Influence of carbon mapping and land change modeling on the prediction of carbon emissions from deforestation. Oral presentation. Annual meeting of the Association of American Geographers. New York. US. February 2012.

Improving oil palm classification in the Peruvian Amazon by combining active and passive remote sensing data. Poster presentation. Fall meeting of the American Geophysical Union. San Francisco. US. December 2011.

Land cover changes and fire transitions in the Peruvian Amazon. Oral presentation. Conference: Fires in Western Amazonia: The Effects of Climatic, Social, Demographic, and Land Use Changes on Fire Incidence and Fire Hazard. Columbia University-CIFOR. Lima-Pucallpa. Peru. August 2011.

Ecosistemas y cambios ambientales en el neotrópico. Opening address. International Symposium on Ecosystems and Global Change in the Neotropics. Carbono & Bosques- National University of Colombia. Medellín. Colombia. May 2010.

Influence of land change prediction on the estimation of carbon disturbed by deforestation in the Brazilian Amazon. Poster presentation. NCAR ASP Colloquium 2007 – Regional Biogeochemistry: Needs and Methodologies. NCAR. June 2007.

Escenarios de mercado viables para la implementación de proyectos forestales bajo el MDL en Colombia II. Oral presentation. Forest Symposium DCF. National University of Colombia. Medellín. Colombia. September 2005.

Maximizing the profitability of forestry projects under the Clean Development Mechanism (CDM) using a forest management optimization model. Oral presentation. CASFOR II International Conference: Modeling Carbon Sequestration at the Landscape Level: Techniques, models and policy relevance. UNAM – ECOSUR - Wageningen University. Palenque. México. November 2004.

Viable market scenarios for the implementation of forestry projects under the Clean Development Mechanism in Colombia. Poster presentation. CASFOR II International Conference: Modeling Carbon Sequestration at the Landscape Level: Techniques, models and policy relevance. UNAM – ECOSUR - Wageningen University. Palenque. México. November 2004.

El árbol de área basal promedio como predictor del volumen por usos del rodal. Oral presentation. First Forest Symposium DCF. Department of Forest Sciences. National University of Colombia. Medellín. Colombia. March 2003.

Viabilidad Técnica y Económica de la Utilización de Plantaciones de *Pinus patula* como Sumideros de CO₂. Oral presentation. V National Congress in Science and Technology of Carbon. Valledupar. Colombia. November 29 – December 2 2000.

ORGANIZATION OF SCIENTIFIC AND ACADEMIC EVENTS

Drivers of Land Change in Mountain and Tropical Ecosystems and Impacts on Climate and Other Environmental Changes. Special session at the 2012 fall meeting of the American Geophysical Union. Convener and chairperson.

December 2011.

Land use change III. Poster session at the 2012 fall meeting of the American Geophysical Union. Chairperson. December 2011.

International Symposium on Ecosystems and Global Change in the Neotropics. Organizer. Carbono & Bosques- National University of Colombia. Medellín - Colombia. May 2010.

XVII National Congress of the National Association of Students of Biological Sciences (ANECSB). Coordinator of the working board on forest and climate change. Medellín - Colombia. October 2003.

Seminar on Ecosystems and Global Change: Cycle II. Organizer and coordinator. Graduate Program on Forests and Environmental Conservation. National University of Colombia. Research Center on Ecosystems and Global Change (C&B). Medellín. Colombia. February – June 2003.

Seminar on Ecosystems and Global Change: Cycle I. Organizer and coordinator. Graduate Program on Forests and Environmental Conservation. National University of Colombia. Research Center on Ecosystems and Global Change (C&B). Medellín - Colombia. September – December 2002.

GRANTS AND SCHOLARSHIPS

Pre-dissertation research travel grant. E3B department, Columbia University. \$2,000. Jan 2008.

NCAR Advanced Study Program. Summer Colloquium 2007: Regional Biogeochemistry: Needs and Methodologies. NCAR. June 2007.

Scholarship in Geographic Information Sciences for the Development and the Environment. GISDE department, Clark University. \$47,658.5. Jan 2006.

MEMBERSHIPS

Association of American Geographers (AAG)
American Geophysical Union (AGU)
Association for Tropical Biology and Conservation (ATBC)

LANGUAGES

Fluency in Spanish and basic knowledge of Portuguese.