

SELENE ESCOBAR RAMÍREZ

Ph.D. in Agroecology
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PROFESSIONAL PROFILE AND SKILLS

- Plant-insect interactions in tropical agroecosystems (i.e. ecosystem services and dis-services by ants such as seed dispersal, natural pest control and herbivory).
- Research on Integrated Pest Management in tropical crops through Biological Control and Conservation Biological Control. My research in Agroecology is oriented to provide crop management recommendations to farmers in order to control pest populations in a sustainable way.
- Assess the effect of crop management practices at micro and meso-scale (i.e. shaded vs. non-shaded coffee) as well as landscape composition, on natural pest control by ants in Colombian coffee crops.

Ph.D. RESEARCH TOPIC

My Doctoral dissertation seeks to understand the best strategies for the efficient natural control by generalist ants of the main coffee pest, the coffee berry borer bug – *CBB* (*Hypothenemus hampei*).

Additionally, I tested the effects of crop management practices at local (i.e. shaded vs. unshaded; organic vs. intensified crops) and landscape-scale (compositional and configuration heterogeneity of the surrounding landscape), on natural pest control by ants in Colombian coffee crops. The results of my dissertation provided coffee farmers with management recommendations to reduce pest predation. My doctoral research contributes to implementing CBB Biological Control by Conservation as a fundamental component of the Integrated Pest Management strategy in tropical crops.

LANGUAGES

Spanish (born) and fluent in written and spoken English as a tool for science communication and teaching

EDUCATION

- 2018 Ph.D. in Agroecology
Crop Sciences, Faculty of Agricultural Sciences, University of Göttingen.
Thesis title: “*Effect of local and landscape scale factors on ant diversity and coffee berry borer infestation rates in a Colombian coffee region*”.
20. July. 2018. Göttingen, Germany
- 2011 Master in Sciences–Biology (MSc)
Department of Biology, Faculty of Sciences, Universidad del Valle.
Thesis title: “*Seed dispersal by ants and its potential in ecological recovery of cattle grasslands in Cauca and Valle del Cauca*”. July 2011. Cali, Colombia.
- 2006 Biologist (BSc)
Department of Biology, Faculty of Sciences, Universidad del Valle.
Title: “*Seed transport by ants in agroecosystems of La Vieja river basin (Quindío and Valle del Cauca)*”. April 2006. Cali, Colombia.

PUBLISHED RESEARCH PAPERS

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- 2018 Escobar-Ramírez, S., Rivas-Torres, G., Grass, I., Armbrrecht, I. and Tscharrntke, T. (*In prep*). Landscape context, local management and ant presence determine infestation of coffee berry borers in Colombian coffee plantations. *Agriculture, Ecosystems & Environment*.
- 2018 Escobar-Ramírez, S., Grass, I., Armbrrecht, I. and Tscharrntke, T. (*In review*). Decrease of beta diversity, but not alpha diversity of coffee-foraging ants in unshaded coffee. *Journal of Agriculture and Forest Entomology* (Submitted June 2018)
- 2018 Escobar-Ramírez, S., Grass, I., Armbrrecht, I. and Tscharrntke, T. (*In review*). Biological control and natural enemies of the coffee berry borer – a review. *Biological Control* (Submitted April 2018)
- 2012 Escobar S, Duque S, Henao N, Hurtado-Giraldo A & Armbrrecht I. 2012. Removal of Nonmyrmecochorous Seeds by Ants: Role of Ants in Cattle Grasslands. *Psyche*, vol. 2012, Article ID 951029, 8p. doi:10.1155/2012/951029.
- 2011 Henao N, Escobar-Ramírez S, Calle, Montoya-Lerma J & Armbrrecht I. 2011. An Artificial Aril Designed to Induce Seed Hauling by Ants for Ecological Rehabilitation Purposes. *Restoration Ecology*, vol 20, No. 5, pp. 555-560.
- 2011 Letourneau D, Armbrrecht I, Salguero B, Montoya-Lerma J, Jiménez E, Daza MC, Escobar S, Galindo V, Gutiérrez C, Duque- López S, López J, Acosta A, Herrera J, Rivera LF, Saavedra C, Torres AM, Trujillo A. 2011. Does plant diversity benefit agroecosystems? A synthetic review. *Ecological Applications*, 21 (1): 9-21.

- 2010 Farji-Brener AG, Amador-Vargas S, Chinchilla F, Escobar S, Cabrera S, Herrera MI, Sandoval C. 2010. Information transfer in head-on encounters between leaf-cutting ant workers: food, trail condition or orientation cues? *Animal Behavior*, Vol. 79 (2): 343-349p. ISSN: 0003-3472.
- 2007 Escobar S, Armbrrecht I & Calle Z. 2007. Seed transport by ants in forest and livestock systems in the Colombian Andes. *Agroecología*. v.2, p.65 – 74.

TEACHING EXPERIENCE

- 2008 Teaching Assistant in Biology, Universidad del Valle. Faculty of Science, Department of Biology. Course: Laboratory of General Biology. Career: Biology. 8hrs/week (1 year)
- 2011 Teacher for the Biology module: Academic Leveling Plan “TALENTS”. Mayoralty of Santiago de Cali and Universidad del Valle (Second and third cohort). September 2011 to April 2012. 24hrs/week (6 months)
- 2013 Teacher for the Biology Module: “Science Seedlings Program”, Universidad del Valle. September 2012-December 2013. 4hrs/week (5 months)

OTHER RELEVANT PUBLICATIONS

Chapters in books

- 2015 Jiménez-Carmona E., Y. Domínguez-Haydar, N. Henao y G. Zabala. S. Escobar, I. Armbrrecht, P. Chacón. 2015. Ants in the monitoring of ecological restoration. Pag:108- 118. In: Aguilar-Garavito, M. y W. Ramírez (eds.). Monitoring of Ecological Restoration Processes in Tropical Terrestrial Ecosystems. Alexander von Humboldt Research Institute (IAVH). Bogotá, D.C., Colombia. 250 pp. ISBN: 978-958-8889-30-6.
- http://repository.humboldt.org.co/bitstream/handle/20.500.11761/9281/monitoreo_restauracion_baja_1.pdf?sequence=1&isAllowed=y
- 2008 Rivera LF, Botero M, Escobar S & Armbrrecht I. 2008. Ant Diversity in livestock systems. In: Murgueitio E., Cuartas C. y J. Naranjo (eds). 2008. Livestock of the Future: Research for Development. Fundación CIPAV. Cali, Colombia. 490p. ISBN: 978-958-9386-55-2. <http://www.cipav.org.co/noticias/noticias-n5.html>

Technical reports

- 2012 Escobar-Ramírez S, Henao E, Gómez C. 2012. Migratory insects in Colombian Agroecosystems. Pp. 129–154. In: Beneficial agroecosystems to migratory species in Colombia. SELVA and Unit for Rural Land Planning, Land Development and Agricultural Uses (Ministry of Agriculture and Rural Development). Bogota, Colombia.
- https://avesmigratoriascolombia.files.wordpress.com/2013/02/selva-2012_agroecosistemas-beneficiosos-para-especies-migratorias.pdf

Published databases

- 2016 Jiménez, E., García-Cárdenas, R., Escobar-Ramírez, S., Armbrecht, I. y Montoya, J. 2016. Ants in coffee plantations with different management intensity in Cauca, Colombia. 3154 registers, published 26/10/2016. *On line*, <http://ipt.biodiversidad.co/valle/resource?r=hormigas-cafetales-cauca>

RESEARCH EXPERIENCE

- 2013 Project “*Ecological functions and ants in coffee with different crop management 2017 intensity*” (Code: 110656933821). Sponsors: COLCIENCIAS and Universidad del Valle. Research Assistant as PhD student.
- 2009 Project “*Ants as functional agents for the ecological recovery of livestock systems*” (Code: 110645221048). Sponsors: COLCIENCIAS and Universidad del Valle. Research Assistant as Master student. Duration: 2 years
- 2009 Young Researcher of COLCIENCIAS. Research work: Laboratory and field detection of *Wasmannia auropunctata* (Hymenoptera: Formicidae) marked with rabbit immunoglobulins. Scholarship for Young and Innovative Researchers.. Duration: 1 year
- 2007 Project “*Do isolated trees stimulate biological control? The role of predator ants in Colombian coffee plantations and cattle grasslands*” (Code: 11060717808). Sponsors: COLCIENCIAS and Universidad del Valle. Research Assistant. Duration: 1 year
- 2004 Project “*Ant diversity in silvopastoral systems of Colombian Andes*”. Sponsors: CIPAV and Universidad del Valle. Undergrad student. Duration: 1 year

PARTICIPATION IN EVENTS

- 2015 ORAL PRESENTATION
Escobar-Ramírez, S. Evidence in favor of natural control of (*Hypothenemus hampei*) by ants in coffee crops (Cauca, Colombia). In: 3rd International exchange of agroecology and coffee for peace construction in Colombia. November 24 to 27 November (2015). Pitalito, Colombia
- 2010 POSTER PRESENTATION
Escobar-Ramírez S., Ramírez M, Valderrama L, Montoya-Lerma J & Armbrecht I. Laboratory and field detection of *Wasmannia auropunctata* (Hymenoptera: Formicidae) marked with rabbit immunoglobulins. XVI Congress on International Union for the Study of Social Insects, IUSI. August 8-14 (2010). Copenhagen. Denmark. ISBN 978-87-92100-00-9.

2009 ORAL PRESENTATION

Escobar S, Ramírez M, Valderrama L, Montoya-Lerma J & Armbrrecht I.
Laboratory marking of *Wasmannia auropunctata* (Hymenoptera: Formicidae)
using the ELISA technique. In: VII Colloquium of International Union for the
Study of Social Insects, IUSSI Bolivarian Section. 19th to 21st August.
Universidad Nacional. Bogotá. Colombia

AWARDS AND GRANTS

- 2016 Full scholarship from DAAD to attend the course DAAD-DIES “ProGRANT Proposal Writing for Research Grants”. Bogotá, Colombia.
- 2013 COLCIENCIAS Scholarship “Francisco Jose de Caldas” for Doctoral studies abroad. October 2013-June 2018
- 2010 IUSSI 2010 Congress Grants. Congress grants for junior researchers from low-income countries. International Union for the Study of Social Insects. Copenhagen (Denmark).
- 2009 COLCIENCIAS Young Researcher 2009. National Call for Young and Innovative Researchers. Sponsors: COLCIENCIAS and Universidad del Valle.
- 2009 OTS course grant. Partial grant for attendance the international field course “Tropical Ecology and Conservation” at the Organization for Tropical Studies – OTS- (2009).

INVITED TALKS

- 2014 Inge Armbrrecht & Selene Escobar. *Ecosystem services by ants in Andean coffee and pasture agroecosystems*. Invited by: Department of Animal Ecology and Tropical Biology. University of Würzburg. March 17.March. 2014. Würzburg, Germany.

ABSTRACTS IN CONFERENCES

- 2016 López-Dávila, A.J., Escobar-Ramírez, S., Armbrrecht, I. Nesting preferences of coffee-shrub ants on two artificial substrates in coffee plantations of Cauca, Colombia. 43° SOCOLEN Congress. Colombian Society of Entomology. July 27 to 29 (2016). Manizales, Colombia. ISSN: 2389-7694 (on line), pag. 71.

- 2011 Escobar-Ramírez S, Armbrecht I & Montoya-Lerma J. Do ants disperse tree seeds of ecological interest?: The role of ants in pastures. International Union for the Study of Social Insects, IUSSI, Bolivarian Section. 8th Biennial General Meeting. 1-4 August 2011. University of West Indies. St. Agustin, Trinidad. ISSN 1029-3299
- 2011 Hurtado A, Armbrecht I, Torres AM & Escobar S. Do *Solenopsis geminata* (Hymenoptera: Formicidae) nests promote the establishment of *Senna spectabilis* (Fabaceae: Caesalpinioideae) seedlings? A greenhouse approach. International Union for the Study of Social Insects, IUSSI, Bolivarian Section. 8th Biennial General Meeting. 1-4 August 2011. University of West Indies. St. Agustin, Trinidad. ISSN 1029-3299.
- 2011 Duque S, Armbrecht I & Escobar S. Ants as transporters of tree seeds with potential in open pastures rehabilitation, in the geographic valley of the Cauca River. XXXVIII Congress of the Colombian Society of Entomology. 27-29 July 2011. Manizales, Colombia.
- 2010 Escobar-Ramírez S, Ramírez M, Valderrama L, Montoya-Lerma J & Armbrecht I. Laboratory and field detection of *Wasmannia auropunctata* (Hymenoptera: Formicidae) marked with rabbit immunoglobulins. XVI Congress on International Union for the Study of Social Insects, IUSSI. August 8-14 (2010). Copenhagen. Denmark. ISBN 978-87-92100-00-9.
- 2010 Armbrecht I, Henao N, Calle Z, Escobar S, Montoya J. 2010. Inducing seed hauling by ants to enhance the recovery of degraded pastures in Colombia. XVI Congress on International Union for the Study of Social Insects, IUSSI. August 8-14 (2010). Copenhagen. Denmark. ISBN 978-87-92100-00-9.
- 2007 Escobar S, Armbrecht I & Calle Z. Seed transport by ants in forests and agroecosystems from Colombian Andes. I Latin-American Congress of Agroecology. August 13- 15 (2007). Antioquia. Colombia.
- 2005 Escobar S, Armbrecht I & Calle Z. Seed transport mediated by ants: an experience in agroecosystems of the La Vieja river basin. V Colloquium of International Union for the Study of Social Insects –Bolivarian Section-. September 6-11 (2005). Universidad del Valle. Cali. Colombia

SPECIAL COURSES

- 2017 Diploma in Biodiversity, Ecology and Agroecosystems. Organized by the Faculty of Natural and Exact Sciences, Universidad del Valle. Instructors: Ivette Perfecto and John Vandermeer. 10-21 January 2017. Intensity: 100 hours. Cali, Colombia.
- 2015 Biodiversity Economy. Ecology and Agroecosystems. Organized by the Faculty of Natural and Exact Sciences, Universidad del Valle. Instructors: Erik Gómez-Baggethun (Norwegian Institute for Nature Research –NINA-). February 2-6. 2015. Intensity: 40 hours. Cali, Colombia
- 2006 International Course “Biological activities of Secondary Metabolites, Antioxidant, Insecticidal and Chemical Relationships between Plants and Insects”. Faculty of Natural and Oceanographic Sciences. Universidad de Concepción. Chile.
- 2005 Payment for Environmental Services: from theory to practice. Fundación Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria (CIPAV). March 2005. Cali, Colombia
- 2004 Taxonomy, Biology and Ecology of Ants. Instituto Alexander von Humboldt. Universidad del Quindío. October 2004. Armenia, Colombia.



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28. July. 2018
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