

XAVIER HARO-CARRIÓN

Department of Geography

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RESEARCH INTERESTS

- Land Change Science; Remote Sensing; Land-use / land-cover change analysis with a focus on forest and vegetation change at different spatial and temporal scales.
- Forest and biodiversity conservation in human-environment settings, especially in fragmented landscapes.
- The Neotropics, focused in Ecuador.

EDUCATION

- 08/13/19 **PhD in Interdisciplinary Ecology with concentration in Geography, University of Florida, FL**
Dissertation: Land-cover and vegetation change at regional and local scales in Ecuador. Advisor: Jane Southworth.
- 08/13/13 **MSc in Biology (Botany), University of Florida, FL**
Thesis: Forest conservation in a fragmented landscape of semi-deciduous tropical forest in Ecuador. Advisor: Francis (Jack) Putz.
- 09/28/06 **Licenciado (BSc equivalent) in Biology, Pontificia Universidad Católica del Ecuador, Quito.**
Thesis: A comparative study of vascular epiphyte diversity in forests and cacao agro-forests in SW Esmeraldas, Ecuadorian Chocó. Advisor: Hugo Navarrete.

PROFESSIONAL CERTIFICATIONS

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|----------|---|---|
| 08/13/19 | Digital Geography & GIS Geographic Information Systems | Department of Geography, University of Florida. College of Agricultural and Life Sciences, University of Florida. |
| 05/07/13 | Tropical Conservation and Development (TCD) | Department of Latin American Studies, University of Florida. |
| 08/13/13 | Environmental Education and Communications | Department of Wildlife Ecology & Conservation, University of Florida. |

ACADEMIC APPOINTMENTS

- 2021 – **Assistant Professor**, Department of Geography, Macalester College
- 2019 – 21 **Berg Postdoctoral Fellow**, Department of Geography, Macalester College
- 2017 – 19 **Teaching Assistant**, Department of Geography, University of Florida
Course Instructor, Department of Geography, University of Florida
- 2011 – 13 **Laboratory Instructor**, Department of Biology, University of Florida

AWARDS, FELLOWSHIPS & HONORS

- 2016-18 University of Florida Biodiversity Institute (UFBI) Fellow.
 2014-15 Secretaria Nacional de Ciencia y Tecnología (SENESCYT, Ecuador) Fellow.
 2008-10 **Fulbright Fellow** (Fulbright Program – Ecuador)
 2004 Smithsonian Institution Research Training Program (RTP; *undergraduate*) Fellow

SCHOLARSHIP

PUBLICATIONS IN PEER-REVIEWED JOURNALS

- Santos, E. A., **Haro-Carrión, X.**, & Oshun, J. 2022. Age-specific and species-specific tree response to seasonal drought in tropical dry forests. *Science of The Total Environment*, 157908. <https://doi.org/10.1016/j.scitotenv.2022.157908>
- Haro-Carrión, X.**, Johnston, J., & Bedoya-Durán, M. J. 2021. Landscape Structure and Seasonality: Effects on Wildlife Species Richness and Occupancy in a Fragmented Dry Forest in Coastal Ecuador. *Remote Sensing*, 13(18), 3762. <https://doi.org/10.3390/rs13183762>
- Haro-Carrión, X.**, B. Loiselle & F.E. Putz. 2021. Tree species diversity, composition and aboveground biomass across dry forest land-cover types in coastal Ecuador. *Tropical Conservation Science*, 13, <https://journals.sagepub.com/doi/full/10.1177/1940082921995415>
- Haro-Carrión, X.**, P. Waylen & J. Southworth. 2020. Spatiotemporal changes in vegetation greenness across continental Ecuador: a Pacific-Andean-Amazonian gradient, 1982-2010. *Journal of Land Use Science*, 1-16, <https://doi.org/10.1080/1747423X.2020.1866705>
- Haro-Carrión, X.**, & J. Southworth. 2018. Understanding land-cover change in a fragmented forest landscape in a biodiversity hotspot of Coastal Ecuador. *Remote Sensing* 10(12): 1980; <https://doi.org/10.3390/rs10121980>
- Guo Cao, Bisheng Wang, **X. Haro-Carrión**, D. Yang, & J. Southworth. 2017. A new difference image creation method based on deep neural networks for change detection in remote sensing images. *International Journal of Remote Sensing* 38(23): 7161-7175.
- Lyons-Galante, H.R., & **X. Haro-Carrión**. 2017. Effect of distance from edge on exotic grass abundance in tropical dry forests bordering pastures in Ecuador. *Journal of Tropical Ecology* 33: 170-173.
- Haro-Carrión, X.**, T. Lozada, H. Navarrete, & G.H.J. de Koning. 2009. Conservation of vascular epiphyte diversity in shade-cacao plantations in the Chocó region of Ecuador. *Biotropica* 41: 520-529.
- Haro-Carrión, X.**, & H. Robinson. 2008. A review of the genus *Critoniopsis* in Ecuador (Vernonieae: Asteraceae). *Proceedings of the Biological Society of Washington* 121: 1-18.
- Haro-Carrión, X.** 2004. Bromeliad distribution in two plots in the Sumaco Biosphere Reserve. *Lyonia*, 7(1), 57–62.

BOOK CHAPTERS

- Rios, M., V. Yanchaliquín, B. Páez & **X. Haro-Carrión**. 2008. Plantas medicinales de Salina de Guaranda, Provincia de Bolívar, Ecuador. Fundación Pachamama y Ediciones Abya-Yala. Quito. 106 pp. [English translation: Medicinal plants of Salinas de Guaranda, Bolívar Province, Ecuador. Pachamama Foundation and Abya-Yala Edition. Quito. 106 pp.]
- Rios, M., M.J. Koziol, **X. Haro-Carrión** & H. Borgtoft Pedersen. 2007. Los estudios etnobotánicos en el Ecuador: escenario actual y desafíos/Ethnobotanical studies in Ecuador: current status and challenges. *In: Rios, et.al. (Eds)*. Plantas útiles del Ecuador: aplicaciones, retos y perspectivas/Useful plants of Ecuador: applications, challenges, and perspectives. Abya-Yala editions. Quito, Ecuador. Pp 51-109

OTHER FORMS OF SCHOLARSHIP

- Haro-Carrión, X.**, Bryson Berry, and Lucas Eggers. 2023. “Vegetation Greening: A Snapshot from the Andean Tropics.” QUBES Educational Resources.
<https://doi.org/10.25334/Z625-AP97>.

IN PREPARATION ARTICLES (Only manuscripts with drafts are included in this list)

- Báez, S., **X. Haro-Carrión** E., Tamargo, M. Bauters, M.P. Perring, S. León-Yáñez, X. Palomeque, & H. Verbeeck. Diversity and biomass recovery along altitudinal gradients in restored tropical montane forests: the role of elevation, climate and landscape attributes. In preparation for *Biotropica*
- Tamargo, E., **Haro-Carrión, X.**, M. Bauters, M.P. Perring, H. Verbeeck, S. León-Yáñez, X. Palomeque, & S. Báez. Landscape and local determinants of tree diversity recovery in restored tropical montane forests. In preparation for *Frontiers in Forest and Global Change*
- X. Haro-Carrión**, B. Loiselle & J. Southworth How does landscape structure and configuration affect tree species diversity: a case study of a fragmented dry forest landscape in Ecuador. In preparation for *Landscape Ecology*
- X. Haro-Carrión**, R. Williams & L. Suarez. Private and Community Beneficiaries in the Ecuadorian Socio Bosque Conservation Program: Experiences, Co-benefits, Limitations, and Opportunities. In preparation for *Society & Natural Resources*

GRANTS IN SUPPORT OF RESEARCH AND TRAINING

Post-dissertation

- | | |
|------|---|
| 2023 | Collaborative Summer Research (CSR). Macalester College. CO-PI with Evelyn Kent’25 and Lucas Eggers’25 (Geography Department, Macalester College) (\$8,790) |
| 2021 | Collaborative Summer Research (CSR). Macalester College. CO-PI with Nicholas Jacobson ’22 (Geography Department, Macalester College) (\$3,720) |
| | Conservation, Food & Health Foundation New Process Grant. Conservation, Food & Health Foundation. CO-PI with Zoe Pearson (University of Wyoming), Tamara |

Britton (University of Western Ontario) and Lucas Oshun (Regeneration Field Institute) (\$29,843)

Diversity Virtual Travel Award (DVTA). International Association of Landscape Ecology North-America Chapter (IALE-NA) (\$375)

2020 Ned Jaquith Foundation Grant. Ned Jaquith Foundation (\$3000)

Mellon Renewed Purpose Course Development Grant. Kofi Annan Institute for Global Citizenship. Macalester College (\$2000)

2019 Wallace Grant. Jan Serie Center for Scholarship and Teaching. Macalester College (\$4390.93)

Pre-dissertation

2013 – 19 Competitive travel grants to present graduate research (MSc and PhD) in professional meetings from the following sources at the University of Florida:
 Department of Geography (4 grants totaling \$1200)
 Graduate Student Council (3 grants totaling \$1050)
 College of Agricultural and Life Sciences (4 grants totaling \$1000)
 Office of Research (2 grant totaling \$700)
 School of Natural Resources and Environment (2 grants totaling \$500)
 Tropical Conservation and Development Program (1 grant of \$450)
 Biodiversity Institute (1 grant of \$300)
 Land Use and Environmental Change Institute (1 grant of \$300)

2019 University of Florida Open Access Publishing Fund (UFOAP), University of Florida. (\$1,260.29)

2014, 16 Doris Lowe and Earl and Verna Lowe Scholarship, University of Florida. (\$2,000 & 18 each year)

2016 Marilyn Little Scholarship, Altrusa International Gainesville. (\$1,000)

2015 Association of Tropical Biology and Conservation (ATBC) (\$500)

2014 Tropical Conservation and Development Book Scholarship, University of Florida. (\$500)

2010 & 14 Tropical Conservation and Development Summer Research Grant, University of Florida. (\$2,000 each year)

2013 ITTO Grant, International Timber Tropical Organization. (\$5,450)

2012 I-Cubed Grant for Inter-disciplinary Research, University of Florida. (\$2,800)

2006 Short-Term Visitor Grant, National Museum of Natural History, Smithsonian Institution. (\$1,600) * *Undergraduate*

PROJECTS AND OTHER PROFESSIONAL ACTIVITIES

- Current ***Aboveground biomass, restoration, and biodiversity conservation across a mosaic of land-cover types in coastal Ecuador***
 This project aims to utilize unmanned aerial vehicles (UAVs or drones), satellite imagery, and field data to quantify aboveground biomass across diverse land-cover types in coastal Ecuador. As the Principal Investigator (PI), I coordinated preliminary fieldwork during the summer of 2023. Macalester student collaborators include Lucas Eggers '24 and Evelyn Kent '24.
- Seedling and Sapling Densities in Tropical Dry Forest & Literature Review of Tropical Dry Forest Research***
 These multi-country projects are being conducted in partnership with Jennifer Powers (PI, University of Minnesota). As a collaborator, my responsibilities include collecting and managing data pertaining to Ecuador. This involves two main tasks: 1) assessing seedling and sampling densities in the Lalo Loor reserve in coastal Ecuador, and 2) conducting a literature review analysis of papers on the tropical dry forest in Ecuador.
- Conservation Priorities for the new bamboo extractive sector in coastal Ecuador.***
 The goal of this project is to investigate the contribution of bamboo in conservation efforts in Manabí, Ecuador. As a CO-PI, my responsibilities include assessing the geographic distribution of bamboo stands and overseeing and coordinating project sections focused on bird, soil, and plant species conservation. The project involves collaboration with CO-PIs Zoe Pearson (University of Wyoming), Tamara Britton (University of Western Ontario), and Lucas Oshun (Regeneration Field Institute). Nicholas Jacobson '22 (Macalester College) participated as a student.
- 2022-23 ***Online Content for Experiential Learning of Tropical Systems (OCELOTS) Incubator: Creating an online module in tropical biology***
 This project involved the development of an online education module within the OCELOTS network, led by Ann Russell from Iowa State University. Bryson Berry '25 and Lucas Eggers '25 (Macalester College) collaborated on this project.
- 2019-21 ***Consolidating a long-term forest monitoring network in a human modified landscape in Northern Ecuador.***
 The objective of this project is to assess the impact of land-cover and forest fragmentation on forest regeneration. As a collaborator, my responsibility was to develop a land-cover classification and class and landscape metrics. The PI of this project is Selene Báez (Escuela Politécnica Nacional in Ecuador). We anticipate that two peer-reviewed publications will result from this project.
- Urban green spaces and compliance with Covid-19 lockdown in Latin American metropolitan areas.***
 This project explored the relationship between COVID-19 lockdown compliance and access to urban green spaces in Latin American cities. Selected by the United Nations Development Programme (UNDP) and led by Adán L. Martínez-Cruz (Swedish University of Agricultural Sciences), it involved 15 researchers from Latin America. One report resulted from this project.

Mammals' persistence in a fragmented tropical dry forest landscape in Ecuador.

This project utilized camera trap and satellite image data to map endangered species habitat in the Jama, Sucre, and San Vicente jurisdictions of Manabí, Ecuador. Collaborators on this project included Jon Johnston (California Department of Fish and Wildlife) and Juliana Bedoya (University of Florida). The project resulted in one peer-reviewed publication

2014 – 19 ***Land and vegetation change from regional to local scales in Ecuador (Dissertation Research)***

As part of my dissertation research, I conducted three projects. The first project involved a land-cover change analysis to assess changes and the current extent of different forest types in a fragmented forest landscape in Ecuador. This project has been published. The second project focused on a time series analysis to understand the spatial and temporal changes of vegetation greenness in continental Ecuador. This project has also been published. The third project involved an analysis of the impact of land-cover and forest fragmentation on tree species diversity in a fragmented landscape in Ecuador. Currently, a manuscript for this project is being prepared for publication.

2014 ***Amazon Dams Program, Department of Latin American Studies, University of Florida***

I evaluated land-cover change associated with the construction of the Madeira Hydroelectric complex, Rondônia, Brazil. This project was an exploratory preliminary pre-dissertation research.

2013 ***Project “Modernizing Advisory and Extension Services (MEAS)”, Department of Food Resources and Economics, University of Florida***

I worked as research assistant, analyzing survey data.

2010 – 13 ***Conservation in a Fragmented Semi-Deciduous Forest in Ecuador (Masters Research Project)***

I evaluated the consequences of land-cover change on tree diversity and tree aboveground biomass in a fragmented landscape, which resulted in a publication. I also collaborated with T. Blare (University of Florida) in research involving the development of an economic model of payments for carbon sequestration, which resulted in a report.

2010 ***Conservation International (CI)-Ecuador***

As an intern, I conducted a survey-based evaluation of the implementation of the Socio Bosque Program by CI-Ecuador, which was presented at CI-Ecuador and helped guide CI in the implementation of the Socio Bosque program.

2006 – 08 ***Project “Plant communities of the páramos of southern Ecuador”, Pontifical Catholic University of Ecuador, Quito, Ecuador***

As a research assistant, I helped with field sampling and data analysis of vegetation. ***Project “Useful plants of the community of Salinas de Guaranda”***
Assisted in field sampling, species identification, and publication of a booklet. Collaborated in literature review research that resulted in a book chapter.

- 2004 ***Comparative study of vascular epiphyte diversity in forest and cacao agroforestry systems in southwestern Esmeraldas province, Ecuadorian Chocó (Undergraduate Research)***
I analyzed the conservation of vascular epiphyte diversity in shade cacao farms in Esmeraldas, Ecuador. This research was conducted as part of the “Bio-Sys” project of the University of Göttingen, Germany.
One peer-reviewed publication and one report resulted from this project.
- 2001 – 03 ***QCA Herbarium, Pontifical Catholic University of Ecuador, Quito, Ecuador***
While studying for my undergraduate degree, I worked as curator assistant helping with the management of the botany collection of the herbarium.

STUDENT RESEARCH ADVISED

- 2022 **Co-chair**, Honors Thesis. Jacobson, Nicholas. *Bamboozled: Evaluating Bamboo Coverage within a Fragmented Semi-Deciduous Landscape in Coastal Ecuador*. Department of Geography, Macalester College.
- Committee member**, Honors Thesis. McHenry, Claire, *Species Effect on the Ecohydrology of a Floodplain Forest in the Upper Mississippi*. Department of Geology, Macalester College.

RELEVANT ATTENDED PROFESSIONAL TRAININGS

- 2023 **Workshop for Early Career Faculty**. Niels Center for the Liberal Arts at Eckerd College. St. Petersburg, FL. Feb. 2-5, Jun. 8-11, Nov.30-Dec.3 (upcoming)
- During the first meetings, I explored the history and mission of liberal arts education and learn about teaching techniques.
- 2022 **Geo for Good Summit**. Google Earth Outreach Program, Mountain View, CA, USA. October 3-6
- Learned new approaches and tools related to the use of the Google Earth Engine platform and other Google geo-spatial technology.
- 2020 **Reimagining your syllabus for responsiveness: Aligning goals, assessment, and strategies to teaching**. June 22
Developing effective assignments for hybrid context and beyond. June 29
Design your course once for multiple modalities. July 13
Associated Colleges of the Midwest (ACM) workshop series, *in English, virtual (synchronous)*
- Acquired pedagogical tools designed for on-line teaching and to improve my teaching in general.
- Critical Digital Pedagogy workshop**. Jan Serie Center for Scholarship and Teaching. Macalester College. June 8-19, *in English, virtual (synchronous)*
- Studied pedagogy tools for on-line teaching.

- 2019 **Remote Sensing for Conservation and Biodiversity.** NASA Applied Remote Sensing Training (ARSET) webinar. January 22 & 24, *in English*
- Explored the use of remote sensing technology to analyze biodiversity.
- 2018 **Google Earth Engine workshop (Intermediate level).** Google Office, Washington, D.C., USA. December 13, *in English*
- Learned how to perform intermediate remote sensing processes in the Google Earth Engine platform.
- Google Earth Engine workshop (Beginners level).** Google Office, Atlanta, GA, USA. March 5, *in English*
- Learned how to perform basic remote sensing processes in the Google Earth Engine platform.
- 2015 **Integrando conhecimentos sobre hidrelétricas na Amazônia Legal: Aprendendo com as experiências dos rios Colorado (EUA), Madeira (RO) e Tocantins (TO)** (Integrating knowledge about hydroelectric dams in the Legal Amazon: Learning from the experiences of the Colorado (USA), Madeira (RO) and Tocantins (TO) Rivers). Federal University of Rondonia and Federal University of Tocantins. Porto Velho, RO, Brazil. May 7-10, *in Portuguese*
- Analyzed the socio-environmental impacts of the construction of dams in the Amazon.
- 2013 **Landscape functions and people.** University of Waveningen and The Center for People and Forests (RECOFTC). Bangkok, Thailand. November 18-29, *in English*
- Analyzed approaches to the study of landscapes.
- 2009 **Global change and tropical ecosystems.** Organization of Tropical Studies, Costa Rica. April 22-May 13, *in English*
- Explored how different tropical forest types are being impacted by human activities and some conservation approaches organization are implementing.
- 2006 **Tropical Ecosystems: Andes to Amazon.** Ceiba Foundation for Tropical Conservation, Ecuador. July 10 – August 6, 2006, *in English*
- Learned about ecology and conservation of major tropical ecosystems.
- 2004 **Research Training Program (RTP).** National Museum of Natural History (NMNH), Smithsonian Institution, Washington, DC, USA. Summer, 2004, *in English*
- Learned about research design and conducted a research project.
- 2003 **Curso-pasantía Pre-profesional** (Pre-professional course-internship). Missouri Botanical Garden, National Herbarium of Ecuador and School of Biology – Central University of Ecuador. Feb-Mar, 2003, *in Spanish*
- Learned fundamental principles of tropical ecology and conducted a research project.

TEACHING

Currently offered at Macalester College (with short descriptions)

GEOG474: Our Changing Planet: A Seminar in Land Change Science

What are the human and environmental dynamics that produce changes in land use and land cover over time within a landscape, and the magnitude and location of these changes? This is the question we will attempt to answer in this seminar using theories, concepts and models of land change science (LCS; Turner et al. 2007). LCS is an interdisciplinary field concerned with improving the understanding of land use and land cover change dynamics and their relationships with global environmental change. We will review some general LCS literature, but the bulk of the course will be dedicated to study land change processes in students' picked landscapes using available scientific literature and/or empirical analyses.

Frequency: Every other year

Max number of students: 12

[Syllabus](#)

GEOG204: Earth and the Environment: Elements of Physical Geography

Study the spatial distribution of Earth's ever-changing physical environments, the processes that created and changed these distributions, and the implications of them for people. This course covers a range of physical geography topics including atmospheric and climatic systems, water resources, landforms, landscapes, ecosystems and biomes. Via case studies we will also examine the social forces that shape many of these systems to gain a broader understanding of their socio-environmental interconnections.

Frequency: Yearly

Max number of students: 20

[Syllabus](#)

GEOG372: Advanced Remote Sensing

This course is designed to follow on from basic concepts of remote sensing studied in Geog362 and directed to students who want to work deeply on a remote sensing research project of their own choice. Introduction to some advanced classification approaches (e.g. Random Forests, Time Series Analysis) and to the Google Earth Engine (GEE) platform will be initially offered.

However, as the course progresses the focus will switch entirely to students' projects. Students are expected to build a body of literature related to a topic of their choice, lead discussions of these papers, analyze data in GEE (or another platform of their choice), peer-review their peers' work, and other steps related to the production of a scientific paper.

Frequency: Every three semesters

Max number of students: 12

[Syllabus](#)

GEOG239: Neotropical Landscapes

Neotropical ecosystems provide a range of services—both locally and globally—including water sources, climate mitigation and biodiversity conservation. They are also home to various people groups and support the livelihood of local and global human populations. This course provides students a basic understanding of the most important biophysical and social characteristics of the dominant landscapes of the Neotropics such as the Amazon basin, páramos, tropical dry

forests, wetlands, deserts and temperate forest of southern South America. Using examples of these areas, we also analyze human-environment interactions including land change processes, biodiversity, resource and cultural conservation, and climate change impacts.

Frequency: Yearly

Max number of students: 20

[Syllabus](#)

GEOG362: Remote Sensing of the Environment

Remote Sensing of the Environment is designed to introduce the student to the theory and application of digital imagery data in geographical research. It emphasizes fundamental remote sensing concepts and utilizes remote sensed data for analyzing human-environmental issues such as deforestation, reforestation, urban expansion, or any other change in land surface across space or time.

Frequency: Every semester except when Advance Remote Sensing is offered.

Max number of students: 12

[Syllabus](#)

GEOG249: Environment and Society in Latin America

Geog / Lati 249 is a regional course designed to acquaint students with the physical and human geography of Latin America. It is a general introduction to Latin American environments and peoples from a geographic perspective, with emphasis on human-environment processes. No prerequisites are required and effort is made to make the material accessible to a broad range of students. While the course will have an emphasis on environment, to facilitate learning, the course will be divided the material into three components: Physical, Cultural, and Economic Geography.

Frequency: Shared with R. Carter; the course is offered yearly, but I teach it rarely.

Max number of students: 25

[Syllabus](#)

Previously taught

- 2017 – 19 **GEO2242: Extreme Weather (online, asynchronous); University of Florida**
Role: Teaching Assistant (TA) during spring and fall semesters; course instructor during summer semesters
Course Description: This course will address issues relating to extreme weather events and extreme climates here on planet earth. It will introduce students to the basic concepts of the science of weather and climate and current scientific developments in such areas as extreme weather prediction, global climate change, and improved forecasting of events. In addition, the course will address the impact of extreme climate and weather events on society and the environment. The goal of this course is to bring weather and climate alive for you through required readings, assignments, video presentations, satellite technologies, online class activities and computer simulations.
Max number of students: 120

- 2017 **GEA 3405: Geography of Latin America (in person); University of Florida**
Role: Course Instructor
Course Description: Similar to Geog249 at Macalester College, but at the University of Florida the class included 5000 words of writing to fulfill Gordon
Max number of students: 30
- 2011 – 13 **BSC2011: Integrated Principles of Biology II Lab (in person); University of Florida**
Role: Laboratory Instructor
Course Description: This is the second semester of a two-semester introductory biology course for majors, designed to accompany BSC 2011. The lab provides hands-on experience and interactive exercises in genetics, ecology and evolution. Form and function are investigated in whole organisms. Several detailed dissections are performed, including those of the fetal pig, and monocot and dicot flowers. Ecological concepts are elucidated through laboratory exercises, interactive computer programs, and field studies. Students investigate the distribution of individuals within populations, patterns of population growth and demography, species interactions and species richness within ecological communities. Ecological concepts are reviewed while observing the devastating ecological consequences of invasive species on native ecosystems. Evolutionary processes are discussed in association with study of adaptation in plants and animals. Scientific writing and the statistical analysis of biological data are also emphasized.
Max number of students: 20 max per section
- 2012 **BOT2010C: Introductory Botany; University of Florida**
Role: Teacher Assistant (TA)
Course Description: To gain appreciation of the beauty in the forms and functions of plants from molecular to global levels. This appreciation will derive from understanding more about plant anatomy, physiology, genetics, life cycles, evolution, and ecology. Throughout this semester you will learn not only about plants, but also about how to do science, and how to communicate with others about science. Your instructors have redesigned this course to better reflect current research in student learning. Pedagogical research (i.e., studies on the science of teaching) reveals that students learn better when they work in cooperative groups, have opportunities to discover information for themselves that is relevant to their own lives, and when they have choice and control over what they learn. To foster learning, therefore, inquiry-based activities are extensively used in this course.
Max number of students: 30

PRESENTATIONS (Includes only those where I was the speaker)

Invited talks:

At external institutions

- 2022 **Haro-Carrión, X.** Long-term changes in vegetation greenness in Ecuador: regional trends and potential ecological implications. Advancing Spectral Biology in Changing Environments to understand Diversity (ASCEND) group. University of Minnesota and University of Wisconsin-Madison.

** Oral presentation*

Haro-Carrión, X. Regional & local human-driven changes in vegetation & forest cover in Ecuador. Ecology, Evolution & Behavior (EEB) Weekly Colloquium Series. EEB Department. College of Biological Sciences, University of Minnesota.

** Oral presentation*

Haro-Carrión, X. & Jacobson, N. Metodología para realizar inventarios territoriales de guaduales [Methodology to conduct territorial mapping of bamboo stands]. II Evento de intercambio técnico sobre la caña guadua, con énfasis en la disminución de riesgos. Universidad Laica Eloy Alfaro de Manabí (ULEAM). Manta, Ecuador.

** Virtual synchronous presentation, in Spanish*

Haro-Carrión, X. Cambios de cobertura y vegetación en varios paisajes de Manabí: implicaciones para la biodiversidad [Changes in land-cover and vegetation in various landscapes in Manabí: implications for biodiversity]. Jornadas académicas 2022. Facultad de Ciencias Agropecuarias e Ingeniería Ambiental. Universidad Laica Eloy Alfaro de Manabí (ULEAM). Manta, Ecuador.

** Oral presentation, in Spanish*

2019 **Haro-Carrión, X.** Cambios en la cobertura del suelo y en la vegetación a escalas regional y local en Ecuador [Land and vegetation changes at local and regional scales in Ecuador]. Charlas del Departamento de Biología, Escuela Politécnica Nacional (EPN), Quito, Ecuador

** Oral presentation, in Spanish*

At Macalester College

2023 **Haro-Carrión, X.** Land change in Latin America: present and past. GEOG 113: World Regional Geography (Dr. Bill Moseley), Department of Geography, Macalester College.

** Oral presentation*

Haro-Carrión, X. Remote sensing and big data. BIOL 359: Big Data in Ecology (Dr. Mary Heskell), Department of Biology, Macalester College

** Oral presentation*

2022 **Haro-Carrión, X.** Landscapes: a physical geography perspective. GEOG 111: Human Geography (Dr. Jesse McClelland), Department of Geography, Macalester College.

** Oral presentation*

Haro-Carrión, X. Spatio-temporal changes in vegetation greenness in Ecuador: what could they mean for the carbon cycle? ENVI 370: Ecosystem Ecology (Dr. Christine O'Connell), Department of Environmental Studies, Macalester College

** Oral presentation*

Haro-Carrión, X. The beautiful world of Physical Geography research. GEOG 111: Human Geography (Dr. Jesse McClelland), Department of Geography, Macalester College.

** Oral presentation*

Haro-Carrión, X. Long-term changes in vegetation, climate and land-cover change: a case study from Ecuador. ENVI / GEGO 294: Amazonia at a Tipping Point (Dr. Sylvia Cifuentes), Department of Environmental Studies, Macalester College

** Oral presentation*

- 2020 **Haro-Carrión, X.** Land change in Latin America: present and past. GEOG 113: World Regional Geography (Dr. Bill Moseley), Department of Geography, Macalester College.
* *Virtual (asynchronous) with Q&A (synchronous)*
- Haro-Carrión, X.** The beautiful world of Physical Geography research. GEOG 111: Human Geography (Dr. Jay Bowman), Department of Geography, Macalester College.
* *Oral presentation*
- 2019 **Haro-Carrión, X.** Remote sensing approaches to understand changes in vegetation in Ecuador. GEOG 225: Introduction to Geographic Information Systems (Dr. Holly Barcus), Department of Geography, Macalester College.
* *Oral presentation*
- Haro-Carrión, X.** Land-cover and vegetation change at regional and local scales in Ecuador. *EnviroThursdays*, Department of Environmental Studies, Macalester College, Saint Paul, MN.
* *Oral presentation*

National and International Meetings

- 2022 **Haro-Carrión, X.,** J. Johnston., & M.J. Bedoya-Durán. How does landscape structure affect mammal species? A case study of a highly fragmented dry forest landscape in Ecuador. *Association for Tropical Biology and Conservation and Organization for Tropical Studies (ATBC) 58th Annual Meeting*. Cartagena, Colombia.
* *Oral presentation*
- Haro-Carrión, X.,** J. Johnston., & M.J. Bedoya-Durán. Landscape structure and its impact on wildlife species in a highly fragmented dry forest landscape in Ecuador. *American Association of Geographers (AAG) Annual Meeting*.
* *Virtual (synchronous)*
- 2021 **Haro-Carrión, X.,** J. Southworth. & B. Loiselle. How does landscape structure and configuration affect tree species diversity: a case study of a dry forest landscape in Ecuador? *Association for Tropical Biology and Conservation and Organization for Tropical Studies (ATBC) 57th Annual Meeting*.
* *Virtual (synchronous)*
- Haro-Carrión, X.,** P. Waylen., & J. Southworth. Analyzing NDVI time series data to detect meaningful changes in vegetation greenness: a case study from Ecuador. *International Association of Landscape Ecology North America Chapter (IALE-NA) Annual Meeting*.
* *Virtual (synchronous)*
- Haro-Carrión, X.,** & J. Southworth. Mapping tree diversity using Landsat data in a fragmented dry forest landscape in Ecuador. *American Association of Geographers (AAG) Annual Meeting*.
* *Virtual poster*
- 2019 **Haro-Carrión, X.,** P. Waylen., & J. Southworth. Variaciones espacio-temporales del verdor de la vegetación en el Ecuador continental entre los años 1982 y 2010 [Spatio-temporal variations of vegetation greenness in continental Ecuador between the years 1982 and 2010]. *XVII Encuentro de Geógrafos de América Latina (EGAL)*, Quito, Ecuador.
* *Oral presentation, in Spanish*

- 2018 **Haro-Carrión, X.**, J. Southworth., & P. Waylen. Spatiotemporal Changes in Vegetation Greenness Across Continental Ecuador, 1982-2010. *American Geophysical Union (AGU) Annual Meeting*, Washington, D.C.
* *Poster presentation*
- 2017 **Haro-Carrión, X.** & J. Southworth. Understanding land-cover change and its impact on biodiversity in a fragmented landscape in Ecuador. *54th Annual Meeting of the Association for Tropical Biology and Conservation and Organization for Tropical Studies (ATBC)*, Merida, Mexico.
* *Oral presentation*
- Haro-Carrión, X.**, J. Southworth & P. Waylen. Spatio-temporal changes in vegetation greenness across continental Ecuador from 1982 to 2010. *American Association of Geographers (AAG) Annual Meeting*, Boston, MA.
* *Oral presentation*
- 2016 **Haro-Carrión, X.** & J. Southworth. Classifying a highly fragmented forest landscape in Ecuador. *American Association of Geographers (AAG) Annual Meeting*, San Francisco, CA.
* *Oral presentation*
- 2013 **Haro-Carrión, X.** Land-cover change in a semi-deciduous tropical forest: Consequences for tree diversity and aboveground biomass. *50th Annual Meeting of the Association for Tropical Biology and Conservation and Organization for Tropical Studies (ATBC)*, San José, Costa Rica.
* *Poster presentation*

Regional and Local Meetings

- 2018 **Haro-Carrión, X.** & J. Southworth. Can we map tree diversity using Landsat data? *2nd Annual Symposium: Collaborations in Biodiversity Research*. Biodiversity Institute, University of Florida, Gainesville, FL.
* *Poster presentation*
- Haro-Carrión, X.**, Loiselle, B., & J. Southworth. Understanding land-cover change and its impact on biodiversity in an Ecuadorian fragmented landscape. *United States Regional Association of the International Association for Landscape Ecology (US – IALE) Annual Meeting*, Chicago, IL.
* *Oral presentation*
- Haro-Carrión, X.** & J. Southworth. Understanding land-cover change of a highly complex landscape in a biodiversity hotspot of Coastal Ecuador. *54th Annual Meeting of the Florida Association of Geographers (FSG)*, Melbourne, FL.
* *Oral presentation*
- 2017 **Haro-Carrión, X.** Vegetation greenness in Ecuador: trends in spatio-temporal patterns. *School of Natural Resources and Environment (SNRE) Research Symposium*, University of Florida, Gainesville, FL.
* *Oral presentation*
- 2015 **Haro-Carrión, X.** & J. Southworth. The performance of Random Forests to classify a fragmented landscape of semi-deciduous tropical forests. *Southeastern Division of the American Association of Geographers (SEDAAG) Annual Meeting*, Pensacola, FL.
* *Oral presentation*

- Haro-Carrión, X.** Land-cover change driven by the Madeira Hydroelectric complex, southeastern Amazonia. *Amazon Working Group Seminar Series*. Center for Latin American Studies, University of Florida, Gainesville, FL.
* *Oral presentation*
- 2013 **Álvarez H., B. Trent, X. Haro-Carrión, C. Segovia, G. Zapata.** The Yasuni ITT initiative: conservation vs. development. *Tropilunch seminar*. Center for Latin American Studies, University of Florida, Gainesville, FL.
* *Oral presentation*
- Haro-Carrión, X.** Conservation in a fragmented semi-deciduous forest in Ecuador. *PechaKucha 20x20*, Gainesville, FL.
* *Oral presentation*
- Haro-Carrión, X.** Land-cover change in a fragmented landscape of semi-deciduous tropical forest: consequences for tree diversity and aboveground biomass. *Sigma Xi Student Research Showcase*.
* *Virtual presentation*
- 2011 **Haro-Carrión, X.** Analysis of Implementation of the Programa Socio Bosque (PSB) “Forest Partner Program” by CI-Ecuador. *Tropilunch seminar*. Center for Latin American Studies, University of Florida, Gainesville, FL.
* *Oral presentation*
- 2008 **Haro-Carrión, X.** Conservation of vascular epiphytes in shade-cacao plantations in northwestern Ecuador. *Perspectives in Ecological Research (PEERS) seminar*. Department of Biology, University of Florida, Gainesville, FL.
* *Oral presentation*

SERVICE

Peer Reviewer for:

- *Atmosphere* (MDPI): 2021- one review of one manuscript
- *Conservation Science and Practice* (Society for Conservation Biology): 2022 - one review of one manuscript
- *Ecological Indicators* (Elsevier): 2021- three reviews of one manuscript
- *Forests* (MDPI): 2019 - four reviews of three manuscripts
- *Land* (MDPI): 2022: one review of one manuscript; 2020: one review of one manuscript.
- *Remote Sensing* (MDPI): 2022: one review of one manuscript; 2020: two reviews of one manuscript; 2019: four reviews of three manuscripts.

- Present **Representative of the Neotropical Region.** Association of Tropical Biology and Conservation (ATBC).
- Present **Member.** Equity, Inclusion and diversity (EID) group. Association of Landscape Ecology North-America Chapter (IALE-NA)
- 2021-22 **Faculty Representative.** Institute for Global Citizenship (IGC) – Study Away Program. Macalester College.
- 2017 – 19 **Student Representative.** *International Student Advisory Board (IGSAB)*. University of Florida International Center (UFIC), University of Florida.
- 2017 **Student Organizer.** *Workshop “Tools and strategies for conservation and development in the Amazon: Lessons learned and future pathways.”* Center for Latin American Studies, University of Florida.

- 2015 **Session Chair.** *Southeastern Division of the Association of American Geographers (SEEDAG) Annual Meeting.* Session: Biogeography and Modeling.
- 2014 – 15 **Student Representative for Latin America.** *Tropical Conservation and Development Program (TCD) Steering Committee.* Center for Latin American Studies. University of Florida.
- 2014 – 15 **Student Organizer.** *Center for Latin American Studies' annual conference "Envisioning a Sustainable Tropics"* Held March 2015, University of Florida.

ADDITIONAL SKILLS

- Languages** Spanish: native
English: bilingual proficiency
Portuguese: professional working proficiency
- Computing** Geospatial software: knowledge of ArcGIS, ENVI, Erdas Imagine.
Biology / conservation software: EstimateS, Miradi.
Programming: R (intermediate) and Google Earth Engine (intermediate)
- Field skills** Plant diversity surveys (plotting) and basic Neotropical plant dendrology
Scuba diving (PADI No. 22080J55624; Level 2 [18m])

PROFFESIONAL MEMBERSHIPS

- Active American Association of Geographers (AAG)
Association for Tropical Biology and Conservation (ATBC)
International Association of Landscape Ecology North America Chapter (IALE-NA)
- 2021 Asociación Geográfica del Ecuador (AGE)
- 2019 American Geophysical Union (AGU)
Florida Society of Geographers (FSG)
- 2016 Southeastern Division of the American of Association Geographers (SEDAAG)