Mariam Valladares-Castellanos

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⚙ mariamgaby

PROFESSIONAL SUMMARY

Passionate and results-driven environmental scientist with extensive experience in international development and environmental management. Adept at leveraging advanced analytical skills, geographic information systems, and remote sensing technologies to address complex environmental challenges. Proven track record of effective client engagement, leadership, and communication in diverse settings. Committed to sustainable development with a focus on improving water quality and ecosystem resilience in emerging markets. Fluent in Spanish and proficient in English, with basic knowledge of Portuguese and Japanese.

Education

Ph.D. **Louisiana State University**, Environmental Sciences   Aug 2022 – Currently
- GPA: 4.0/4.0
- **Dissertation** Effects of land use regulation change in ecosystem services and potential implications for coastal watersheds

M.Sc. **Purdue University,,** Forestry and Natural Resources   Aug 2016 – Jul 2018
- GPA: 4.0/4.0
- **Thesis** Effect of Landscape and socioeconomic descriptors as drivers of Fire Frequency Changes in the Central Zone of Chile

B.Sc. **Zamorano University,,** Environmental Engineering   Jan 2010 – Dec 2013
- GPA: 4.0/4.0
- **Thesis** Evaluation of the efficiency of a woodchip bioreactor in the denitrification of agricultural drainage water in east central Illinois

Experience

Louisiana State University, Research Assistant   Baton Rouge, LA
                                                                                         Aug 2022 – Currently
- Conducted spatial and statistical data analysis using programming (RStudio) and GIS (ArcGIS Pro) software to model sediment and nutrient retention services, enhancing water quality studies and informing management practices.
- Designed and validated frameworks for ecosystem service models, improving model predictions to guide decision-making and contribute to peer-reviewed publications and presentations.
- Engaged in Big Data engineering for human migration studies, focusing on understanding the effects of flooding on migration patterns.
- Assessed spatial data for Artificial Intelligence (AI) applications in carbon storage projects, contributing to alternative methods to reduce Greenhouse Gas (GHG) emissions and advance environmental management solutions.

Zamorano University, Project Management and Evaluation Specialist   Zamorano, Honduras
                                                                                         May 2022 – Aug 2022
- Led grant proposal formulation and project evaluation, focusing on hydrology, water resources management, and environmental risk assessment.
- Developed academic materials to enhance understanding of climate variability and water resource management.

Ministry of Development and Social Inclusion, Vice-minister of Social Integration   TG, Honduras
                                                                                         Oct 2020 – Jan 2022
- Directed humanitarian interventions and multi-sectoral operations to improve house-

hold health conditions, access to clean water, and reduce air pollution for vulnerable populations in extreme poverty.
- Managed a team of 100+ employees, coordinating stakeholder engagement and addressing operational challenges.

Delivery Office of Presidential Affairs, Agriculture and Natural Resources Specialist

TG, Honduras
Aug 2018 – Aug 2020

- Coordinated agricultural and environmental interventions to support nationwide initiatives in the agriculture sector.
- Monitored institutional performance and provided data-driven recommendations to enhance institutional effectiveness and outcomes.

Zamorano University, Research Consultant

Zamorano, Honduras
Apr 2014 – Feb 2020

- Applied land use change and water pollution studies using remote sensing tools to understand local air and water quality conditions, contributing to national environmental strategies and policy development.
- Created and implemented academic course material on water resources management and environmental journalism, aligning with best practices and current research to enhance educational outcomes.
- Evaluated the initial environmental, financial, and socioeconomic aspects of a local water treatment facility installation, providing a comprehensive assessment to support informed decision-making and project success.
- Delivered training to farmers on climate change adaptation practices in agriculture, focusing on enhancing climate change resilience and improving agricultural sustainability.
- Analyzed and interpreted climate models to evaluate the impact of climate change on bean production, specifically for subsistence farmers, providing actionable insights for adaptive strategies.
- Assessed the effects of land cover changes on nutrient and sediment exports at experimental watersheds in rural areas, aiming to protect vulnerable environments and support effective land management.

Publications

A Framework for validating the InVEST Nutrient Delivery Model (NDR) using long-term water quality data from monitoring stations. *Science of the Total Environment*

2024

Valladares-Castellanos, M, De Jesus Crespo, R., Xu, Y. J, Douthat, T. H.

10.1016/j.scitotenv.2024.175111 ↗

Insurance Coverage and Flood Exposure in the Gulf of Mexico: Scale, Social Vulnerability, Urban Form, and Risk Measures. *Water*

2024

Hyde, A.**Valladares-Castellanos, M**, Habans, R.Douthat, T. H.

10.3390/w16202968 ↗

Going with the flow: the supply and demand of sediment retention ecosystem services for the reservoirs in Puerto Rico.Frontiers in Environmental Science. *Frontiers in Environmental Science*

2023

De Jesus Crespo, R., **Valladares-Castellanos, M**, Mihunov, V. V., Douthat, T. H.

10.3389/fenvs.2023.1214037 ↗