

ROGER MADRIGAL BALLESTERO

WORKING ADDRESS

Tropical Agricultural Research and Higher Education Center (CATIE)

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EDUCATION

Ph.D. (D.Phil.). Institutional Economics. Freiburg University, Germany

M.Sc. Environmental Economics. CATIE, Costa Rica

Licentiate. Economics. University of Costa Rica

B.A. Economics. University of Costa Rica

PROFESSIONAL EXPERIENCE

2023. Visiting Scholar. Macmillan Scholar, Gund Institute for Environment, University of Vermont.

2017-to date. Director, Environment for Development (EfD) at CATIE.
<http://www.efdinitiative.org/central-america/firstpage>

2017-to date. Director, Latin-American Chair on Environmental Decisions for Global Change

2010-to date. Academic coordinator, M.Sc. Program in Economics, Development and Climate Change at CATIE

2007-to date. Senior Research Fellow. Environment for Development Center (EfD-CATIE)

2004-to date. Senior Researcher. CATIE

2007. Visiting scholar. Workshop in Political Theory and Policy Analysis, Indiana University

RECENT PROJECTS (Last five years, non-exhaustive list)

- i. Feasibility assessment of a Water Fund in the Trifinio region (El Salvador, Honduras, Guatemala). Interamerican Development Bank
 - Role: Team leader
- ii. The economics of Marine Spatial Planning. The World Bank.
 - Role: Team co-leader

- iii. Impact evaluation of PES on water resources in Costa Rica. AFD.
 - Role: Team leader
- iv. Accountability, use of technology, and citizen participation for improving rural water systems in Costa Rica (WAPP). CARSÍ.
 - Team co-leader and technical expert on water community processes.
- v. Cost-benefit analysis of water harvesting practices in Nicaragua. COSUDE.
 - Role: Team leader
- vi. Urban water scarcity and affordability in the Global South: A network of observatories and policy studies. EfD Initiative.
 - Team leader responsible for coordinating the research process and establishing a network of observatories on urban scarcity, equity, and affordability in Costa Rica, Chile, Kenya, South Africa, Uganda, and Ghana.
- vii. Social and ecological factors affecting the performance of community-based water organizations (CWOs) in Central America. EfD Initiative.
 - Team leader. The research seeks to determine what institutional, environmental, and climatic conditions affect the performance of CWOs.
- viii. Sustainable Consumption and Production (SCOPE). EfD Initiative.
 - Role: Team leader, coordination of research and policy engagement activities in Chile, China, Costa Rica, India and South Africa.
- ix. Design of Payments for Ecosystem Services program in Kingston, Jamaica. The main objective is to protect water resources and reduce the effect of landslides through investments in green infrastructure. Interamerican Development Bank
 - Role: Team leader
- x. Feasibility of irrigation and human water infrastructure project for the Tempisque Watershed (PAACUME). Costa Rica. SENARA/BCIE.
 - Role: Team leader and responsible for a component of water fees and environmental investments.
- xi. Water, communities, and climate change (AC3). Nicaragua, Guatemala y Costa Rica. IDRC.
 - Team leader and technical coordinator for collecting 7,000 household surveys in 300 water community systems.

TEACHING EXPERIENCE

Graduate MSc Level:

- 2020. Coastal-Marine Governance. Universidad de Costa Rica.
- 2019-to date. Climate Change Economics. CATIE.
- 2004-to date. Introduction to Environmental Economics and Natural Resource Economics. CATIE.

Undergraduate level:

- 2022. Environmental Economics. Universidad de Costa Rica.
- 2021. Engineering Economics. Universidad de Costa Rica

- 2017. International Trade. Universidad de Costa Rica

On-the-job training:

- 2004-to date. At CATIE: Annual course on Economic Valuation and Management of Ecosystem Services.
- 2007 & 2013. INFOR, Chile & Universidad Nacional, Paraguay. Economic Valuation of Ecosystem Services
- 2019. At CATIE: Annual course on Water Economics
- 2019. Forestry Department, Jamaica. Natural Resources Valuation

Invited lecturer: Universidad de la Punta, Argentina; National Technological University, Argentina.

PUBLICATIONS (Refereed)

2023. Palou, N; Madrigal-Ballesteros, R; Schlüter, A; Alvarado, JJ. Applying the SES Framework to coral reef restoration projects on the Pacific coast of Costa Rica. *Revista de Biología Tropical*, Vol. 71 (S1). <https://doi.org/10.15517/rev.biol.trop.v71iS1.54853>

2021. Albers, J., Ashworth, M., Tabaré, C., Madrigal-Ballesteros, R., Preonas, L. MPAs and Aspatial Policies in Artisanal Fisheries. *Marine Resource Economics* 36(4). <https://www.journals.uchicago.edu/doi/10.1086/715818>

2021. Alpízar, F., Tabaré, C., Madrigal-Ballesteros, R., Pattanayak, S. Time-Varying Pricing May Increase Total Electricity Consumption: Evidence from Costa Rica. *Resource and Energy Economics* 66(4). <https://www.sciencedirect.com/science/article/pii/S092876552100049X?via%3Dihub>

2020. Amaechina, E., et al. Policy Note: Policy Responses to Ensure Access to Water and Sanitation Services During COVID-19: Snapshots from the Environment for Development (EfD) Network. *Water Economics and Policy* 2020 06:04

2020. Albers, H.J., Preonas, L., Capitán, T. Robinson, E., Madrigal, R. Optimal Siting, Sizing, and Enforcement of Marine Protected Areas. *Environmental & Resource Economics*. <https://doi.org/10.1007/s10640-020-00472-7>

2019. Madrigal, R; Capitán, T; Salas, A; Córdoba, D. Household and community responses to seasonal droughts in rural areas of Costa Rica. *Waterlines* 38(4):297-315

2019. Chávez, I; Partelow, S; Madrigal-Ballesteros, R; Schlüter, A; Gutierrez, I. Do responsible fishing areas work? Comparing collective action challenges in three small-scale fisheries in Costa Rica. *International Journal of the Commons*. 13.

2017. Madrigal, R; Albers, J; Capitán, T, Salas, A. Spatial decisions, livelihoods and perceptions in small-scale fishing grounds of Costa Rica. *AMBIO A Journal of the Human Environment* 46(4):1-10.
2017. Madrigal, R; Jurado, D. Livelihoods, attitudes towards regulation and the participation in performance-based payments for protecting turtles: Empirical evidence from Nicaragua. *Conservation and Society* 15(1): 74-86.
2015. Madrigal, R; Naranjo, M. Adaptive capacity, drought and the performance of community-based drinking water organizations in Costa Rica. *Journal of Water and Climate Change* 6(4).
2013. Madrigal, R; Alpízar, F; Schlüter, A. Public perceptions of the performance of community-based drinking water organizations in Costa Rica, *Water Resources and Rural Development*, 1–2, 43-56.
2013. Madrigal, R; Schlüter, A; López, M C. What makes them follow the rules? Empirical evidence from turtle egg harvesters in Costa Rica. *Marine Policy*, 37, 270–277.
2012. Schlüter, A; Madrigal, R. The SES Framework in a marine setting: methodological lessons. *Rationality, Markets and Morals*, 3: 158-179.
2011. Madrigal, R; Alpízar, F; Schlüter, A. Determinants of performance in rural water community organizations in Costa Rica. *World Development*, 39 (9): 1663-1675. <https://doi.org/10.1016/j.worlddev.2011.02.011>
2009. Madrigal, R; Alpízar, F. ¿Existen posibilidades de cooperar?: Los experimentos económicos como herramienta de diagnóstico de campo rural. *Revista Centroamericana de Ciencias Sociales*. V (1): 205-234.
2008. Madrigal, R; Alpízar, F. Diseño y gestión adaptativa de un esquema de pagos por servicios ecosistémicos en Copán Ruinas, Honduras. *Revista Investigación Agraria: Sistemas y Recursos Forestales*. 17(1): 79-90. España.

BOOK CHAPTERS

2011. Madrigal, R. Estimating the cost and benefits of supplying hydrological ecosystem services: an application for small-scale rural drinking water organizations In: B. Rapidel, F. DeClerck, J.F. Le Coq and J. Beer (Editors), *Ecosystem Services from Agriculture and Agroforestry: Measurement and Payment*. Earthscan, London, UK, pp. 161-178.

OTHER PUBLICATIONS AND REPORTS

- Pacay, E., Madrigal, R., Evia, P. (2023). Evidencias de la integración del enfoque “Adaptación basada en Ecosistemas” -AbE en productos financieros y de seguros comerciales. Programa EbA LAC. San José, Costa Rica. 64 pag.

Pacay, E., Madrigal, R., Carrera, F. (2023). Análisis costo beneficio de las obras de cosecha de agua desde la perspectiva privada en Nicaragua. Serie técnica CATIE. 24 pág.

2023. Madrigal, R; Alpizar, F. Análisis de oportunidades para la introducción de instrumentos fiscales que incentiven la descarbonización del sector de gestión de residuos en Costa Rica. Documentos de Proyectos (LC/TS.2023/28), Santiago, Comisión Económica para América Latina y el Caribe (CEPAL), 2023. <https://www.cepal.org/es/publicaciones/48861-analisis-oportunidades-la-introduccion-instrumentos-fiscales-que-incentiven-la>

2022. Alpizar, F; Madrigal, R; Castaño, J. Applying Economic Analysis to Marine Spatial Planning (English). Washington, D.C.: World Bank Group <http://documents.worldbank.org/curated/en/099515006062210102/P1750970bba3a60940831205d770baece51>

2020. Alpizar, F., Madrigal, R., Alvarado, I., Brenes Vega, E., Camhi, A., Maldonado, J. H., Marco, J., Martínez, A., Pacay, E., and G. Watson (2020), 'Mainstreaming of Natural Capital and Biodiversity into Planning and Decision-Making: Cases from Latin America and the Caribbean', IDB Working Paper Series, No. IDB-WP-01193. [Mainstreaming of Natural Capital and Biodiversity into Planning and Decision-Making: Cases from Latin America and the Caribbean \(iadb.org\)](https://www.iadb.org/publications/working-papers/2020/01/01/Mainstreaming-of-Natural-Capital-and-Biodiversity-into-Planning-and-Decision-Making-Cases-from-Latin-America-and-the-Caribbean)

2020. Madrigal, R; Viguera, B; Marin, R. Agua y saneamiento frente a la COVID-19: desafíos y respuestas en Centroamérica. EfD Policy Brief. CATIE, Costa Rica.

2019. Rivera, D; Madrigal, R; Alpizar, F; Robalino, J. ¿Conviene comprar un vehículo eléctrico en Costa Rica? EfD Policy brief. CATIE, Costa Rica.

2018. Alpizar, F; Madrigal, R; Salas, A. Environmental challenges in Costa Rica. Technical Note IDB-TN-1531. Interamerican Development Bank.

2018. Alpizar, F; Salas, A; Madrigal, R. Plan de inversión para las NDC de Costa Rica. Dirección de Cambio Climático, MINAE.

2017. Alpizar, F; Madrigal, R. Conditional cash transfers and payments for ecosystem services. Revista Integración y Comercio, 41: 100-114.

2016. Kim, J; Madrigal, R; Alpizar, F; Rojas, S. Learning from Costa Rican Experience and Roads Ahead: Bridging the Policy and Investment Gap for Payment for Ecosystem Services. GGGI, Seoul, Corea.

2012. Madrigal, R. Managing rural water systems: keys to success. *Resources*, 180:18-19.

2009. Madrigal, R; Alpizar, F. Algo más que construir acueductos rurales. Periódico La Nación, enero 18.

2009. Madrigal, R. Rendición de cuentas y la provisión de agua potable. EfD Policy Brief.

2009. Gentes, I; Madrigal, R. Temas pendientes en la gobernabilidad hídrica. EfD Policy Brief.

2009. Boscolo, M; Eckelmann, C; Madrigal, R; Mendez, B; Paveri, M; Zapata, J. Experiences on implementing mechanisms for the compensation of hydrological environmental services from forests in Central America and the Caribbean. FAO-Roma.
2008. Madrigal, R; Alpízar, F. El pago por servicios ambientales dentro del contexto de la acción colectiva en cuencas hidrográficas. FOCUENCAS II-CATIE. Turrialba, CR. 17 p.
2008. Retamal, R; Madrigal, R; Alpízar, F; Jiménez, F. Oferta de servicios ecosistémicos hídricos en el municipio de Copán Ruinas: ¿dónde se generan? ¿cómo protegerlos? ¿cuánto pagar por la protección? FOCUENCAS II-CATIE, Turrialba, CR. 40 p.
2008. Cisneros, J; Alpízar, F; Madrigal, R. Estimación de la demanda por servicios ambientales hídricos en Copán Ruinas, Honduras. *Revista Recursos Naturales y Ambiente*, 51:143-152.
2008. Benites, A; Campos, JJ; Faustino, J; Villalobos, R; Madrigal, R. Identificación de servicios ecosistémicos como base para el manejo participativo de los recursos naturales en la cuenca del río Otún, Colombia. *Recursos Naturales y Ambiente*, 55:83-90.
2007. Angulo, O; Prins, C; Faustino, J; Madrigal, R. Elementos claves para el manejo y gestión del agua en el municipio de Valle de Ángeles, Honduras. *Recursos Naturales y Ambiente*, 51-52: 124-134.
2007. Alpizar, F; Madrigal, R. “Bienes y servicios ecosistémicos en América Latina y el Caribe: buenas prácticas, mecanismos de financiamiento y rol del Estado”. BID-CATIE. 198 p.
2007. Madrigal, R; Alpízar, F. Principios de diseño e implementación de esquemas de pagos por servicios ecosistémicos. CCAD-Iniciativa Corredor Biológico Mesoamericano. 55 p.
2006. Campos, J.J., Alpízar F., Louman, B., Parrotta, J., Madrigal, R. Enfoque integral para esquemas de pago por servicios ecosistémicos forestales. Paper presented at Segundo Congreso Latinoamericano IUFRO-LAT. 26 p.
2005. Harvey, C; Alpízar, F; Chacón, M; Madrigal, R. Characterization of the impact of agriculture on biodiversity conservation in Central America. The Nature Conservancy, San José, CR. 140 p.
2005. Alpízar, F; Madrigal, R. “Propuesta metodológica para el establecimiento de tarifas de entrada en las Áreas Silvestres Protegidas de Costa Rica: Casos de estudio en Parque Nacional Braulio Carrillo, Parque Nacional Manuel Antonio y Parque Nacional Corcovado”. The Nature Conservancy, Costa Rica.
2001. Hall, L; Madrigal, R. Diseño de un modelo de credit scoring. Instituto de Investigaciones en Ciencias Económicas, Universidad de Costa Rica.

WORKING PAPERS

Viguera, B; Madrigal, R; Pacay, E; Navarrete, G. Alternatives for improving PES effectiveness on water resources. Submitted to the Journal of Soil and Water Conservation

Róger Madrigal-Ballesteros; Katrina Mullan; Eduardo Pacay; Subhrendu K. Pattanayak; Juan Robalino & Pablo Evia. Volumetric pricing in rural Central America: drivers of adoption and potential effects on water delivery. Submitted to World Development Sustainability

Róger Madrigal-Ballesteros; Katrina Mullan; Eduardo Pacay; Subhrendu K. Pattanayak; Pablo Evia and Felipe Carrera. Social and ecological factors affecting the choice of volumetric pricing in rural water systems.

Cook, J; Fuente, D; Visser, M; Vasquez, F; Amoah, A; Madrigal, R. Water consumption distributions, findings from 6 countries. EfD Water Observatories project

Alpizar, F; Abatayo, A; Delnoij, J; Richter, A, Madrigal, R. Ecolabeling and decision making. Evidence on electric car buying decisions in Chile, Colombia, Costa Rica & Mexico. EfD Scope collaborative.

Cook, J; Fuente, D; Visser, M; Vasquez, F; Amoah, A; Madrigal, R. Burden sharing and fairness principles in water management. EfD Policy-Relevant Research projects.

Mourtinho, F; Hayes, T.; Viguera, B; Madrigal, R. Participation incentives in community water organizations in Costa Rica.

Hearne, B; Madrigal, R. Sewage systems in Costa Rica. Submitted to Water Policy

Madrigal, R; Martinez, A; Lopez, A; Imbach, P. Servicios ecosistémicos: un pilar para el desarrollo de América Latina y el Caribe. En Informe Bienal Estado y Perspectivas de la Bioeconomía en América Latina y el Caribe. Editado por IICA

THESIS SUPERVISION

Principal advisor: 30 MSc students at CATIE and the Universidad de Costa Rica. He is also a member of students' advisory committees at Wageningen University, the University of Vermont, and Osnabrück University.

SELECTED CONFERENCES (as presenter)

2020-2022-2023. European Association of Environmental and Resource Economists.

2020. Association of Environmental and Resource Economists.

2011-2017-2019. International Association for the Study of the Commons (IASC).

2018. Scotland's Biennial Land Use and the Environment Conference XII

2016-2018. World Water Week

2015. World Water Conference

2014. Workshop on the Ostrom Workshop, Indiana University.

OTHER TRAINING ATTENDED

2007. Institutional Analysis and Development Course. Workshop in Political Theory and Policy Analysis. Taught by Elinor Ostrom, Indiana University, U.S.

2007. International Forestry and Resources Institutions. Workshop in Political Theory and Policy Analysis. Taught by Burnell Fisher, Catherine Tucker, and Elinor Ostrom, IU, U.S.

2006. I International Conference on Commons and Citizenship. DF, México.

2006. Welfare and public economics course. Latin American and Caribbean Environmental Economics Program. Taught by David Shogren, Wyoming University, U.S.

2006. Environmental Economics and Policy Course. Latin American and Caribbean Environmental Economics Program. Taught by David Zilberman, Berkeley University, U.S.

FELLOWSHIPS AND AWARDS

2008. German Academic Exchange Program (DAAD) Fellowship

2007. Norman Borlaug Fellowship

2003. Best Student Award 2002-2003 Class, CATIE

2003. Distinguished MSc. dissertation. 2003. CATIE

2002. Fellowship. KOICA (Korean International Cooperation Agency)

2001. Fellowship. Göteborg University and the Swedish International Development Cooperation Agency

2001. Fellowship. National Council of Science and Technology, Costa Rican Ministry of Technology

SPECIAL APPOINTMENTS

2023-to date. Board of Directors. Nectandra Institute.

2023-to date. Research Advisory Committee (RAC) of the South African Research Chair (SARCHi) focused on Governance and Economics for Water and Sanitation Institutions.

2020-to date. Steering Committee. GIACT-Universidad de Costa Rica. MSc Program. Posgrado Gestión Integral de Áreas Costeras Tropicales.

PEER REVIEWER

Journal of Environment and Development; Revista Biología Tropical; Global Health Action; Journal of Water, Sanitation and Hygiene for Development; World Development; Water Resources Research; International Journal of the Commons; Revista de Ciencias Económicas-UCR; Conservation Biology; Ecology and Society; Ecosystem Services; Journal of Agricultural and Resource Economics; Journal of Rural Studies.

RESEARCH INTERESTS

Water economics, climate change adaptation, design of policy instruments, circular economy approaches, common-pool resources management, economic valuation of ecosystem services, marine economics.

LANGUAGES

Spanish - mother tongue; English - fluent (speaking, reading, writing)