Susy Echeverría-Londoño, PhD

Environmental and Public Health
Research Consultant

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Susy Echeverría-Londoño

WORK EXPERIENCE

2023–present **Full-time Parenting**.

2021–2022 **Research Consultant**.

Imperial College London, UK, *Vaccine Impact Modelling Consortium (VIMC), Department of Infectious Disease Epidemiology*, PI: Prof. Neil M. Ferguson, Line manager: Dr Katy Gaythorpe.

1. Conducted thorough analysis, organisation, and preparation of vaccine impact estimates for 12 pathogens (Cholera, HepB, Hib, HPV, Japanese encephalitis, Measles, MenA, PCV, Rotavirus, Rubella, Typhoid, Yellow fever) across 112 countries spanning from 2000 to 2030, incorporating multiple estimates from diverse modeling groups for each pathogen.

2. Extracted and standardised subnational estimates of vaccine coverage to project the impact of routine measles vaccination across 45 African countries while investigating subnational disparities within these regions from 2000 to 2019.

3. Collaborated to examining the effects of COVID-19 pandemic on immunisation activities for 14 pathogens (Diphtheria, HPV, HepB, HIB, Japanese encephalitis, Measles, MenA, PCV, Pertussis, Rotavirus, Rubella, Tetanus, Typhoid, Yellow fever).

4. Contributed to the publication of research findings in high-quality academic journals.

5. Produced regular analytical reports for international organisations and funding bodies such as the Vaccine Alliance (GAVI), the Bill & Melinda Gates Foundation (BMGF), and the World Health Organisation (WHO).

2019–2021 **Research Associate**.

Imperial College London, UK, *Vaccine Impact Modelling Consortium (VIMC), Department of Infectious Disease Epidemiology*, PI: Prof. Neil M. Ferguson, Line manager: Dr Katy Gaythorpe.

1. Conducted thorough analysis, organisation, and preparation of vaccine impact estimates for 10 pathogens (HepB, Hib, HPV, Japanese encephalitis, Measles, MenA, PCV, Rotavirus, Rubella, Yellow fever) across 112 countries spanning from 2000 to 2030, incorporating multiple estimates from diverse modeling groups for each pathogen.

2. Assisted in the development of methods for aggregation and analysis of disease burden and vaccine impact estimates derived from various epidemiological models.

3. Contributed to the publication of research findings in high-quality academic journals.

4. Produced regular analytical reports for international organisations and funding bodies such as the Vaccine Alliance (GAVI), the Bill & Melinda Gates Foundation (BMGF), and the World Health Organisation (WHO).

5. Supported the Imperial College Ebola Response Team in evaluating the effectiveness and reliability of real-time outbreak analysis during multiple Ebola Virus Disease outbreaks in the Democratic Republic of the Congo.

6. Assisted in the preparation of weekly real-time reports on Ebola outbreaks for the World Health Organization (WHO).

2018–2019	**Visiting Scholar**, USA.

University of Pittsburgh, USA, *Biological Sciences*, PI: Dr. Justin Kitzes.

Utilised spatial point pattern analysis to assess and predict extinction risks for 300 plant species through comprehensive exploration and analysis of their spatial time-series data.

2017–2019	**NSF Biodiversity Postdoctoral Associate**, USA.

Kenyon College, *Biology department*, PI: Prof. Andrew Kerkhoff and Prof. Brian J. Enquist..

1. Conducted an extensive analysis of functional diversity distributions among plant species across the biomes of North and South America. Used distribution data from approximately 85,000 plant species, comprising around 9 million geographic points, in conjunction with publicly available functional traits.

2. Investigated the influence of habitat stability on current patterns of plant diversity through analysis of the distribution and phylogenetic relationships among approximately 24,000 plant species.

3. Used machine learning methodologies to conduct paleohabitat reconstructions.

4. Co-taught the BSc course "Global Ecology and Biogeography".

SKILLS

Programming	**R** (advanced, 10-year experience)
	Python (intermediate, 2-year)
	C++, shell, HPC cluster scripts (basic, 1-year)
Data science	**Cleaning, processing, visualisation, statistical analysis** (advanced, 10-year)
	GIS in R, ArcGIS (intermediate, 4-year)
Version ctrl	**Git** OS **Linux/Unix, OS X, Windows** Typography **LaTeX, Office**

EDUCATION

2013–2017	**PhD in Life Science**, *Imperial College London, Natural History Museum*, UK.

Thesis: Diversification patterns of *Solanum* L. (Solanaceae), plant macroecology and biodiversity responses to land-use change.

Supervisor: Prof. Andy Purvis. Co-supervisor Dr Sandra Knapp.

2012–2013	**MRes in Biodiversity, Informatics, Genomics** (distinction), *Imperial College London*, UK.
2004–2010	**BSc in Biology** (1st-class honors), *Universidad Industrial de Santander*, Colombia.
2013–2017	**Lecturer & demonstrator**, *Natural History Museum & Imperial College London*, UK.

Lectured and demonstrated for several quantitative courses in the Taxonomy and Biodiversity MSc and Life Sciences BSc programmes.

LANGUAGES

Spanish Native   **English** Full professional   **French, Italian** Intermediate, B1

PUBLICATIONS

2023 Hartner, A. M., Li, X., **Echeverría-Londoño, S,.** Roth, J., Abbas, K., Auzenbergs, M., ... & Gaythorpe, K. COVID-19 Related Immunisation Disruptions from 2020-2030: Projecting Health Impact and Mitigation Strategies for 14 Pathogens Across 112 Low- and Middle-Income Countries. Available at SSRN: `https://ssrn.com/abstract=4492698` or `http://dx.doi.org/10.2139/ssrn.4492698`

2022 Ali, H.A., Hartner, AM., **Echeverría-Londoño, S,.**. & et al. Vaccine equity in low and middle-income countries: a systematic review and meta-analysis. *Int J Equity Health* 21, 82. `https://doi.org/10.1186/s12939-022-01678-5`

2022 **Echeverría-Londoño, S,.** Hartner, A. M., Li, X., Roth, J., Portnoy, A., Sbarra, A. N., ... & Gaythorpe, K. A. Exploring the subnational inequality and heterogeneity of the impact of routine measles immunisation in Africa. *Vaccine*, 40(47), 6806-6817. `https://doi.org/10.1016/j.vaccine.2022.09.049`

2022 Toor, J., Li, X., Jit, M., Trotter, C. L., **Echeverría-Londoño, S,.** Hartner, A. M., ... & Gaythorpe, K. A. COVID-19 impact on routine immunisations for vaccine-preventable diseases: Projecting the effect of different routes to recovery. *Vaccine*, 40(31), 4142-4149. `https://doi.org/10.1016/j.vaccine.2022.05.074`

2022 Ali, H.A., Hartner, AM., **Echeverría-Londoño, S,.** et al. Vaccine equity in low and middle-income countries: a systematic review and meta-analysis. *Int J Equity Health* 21, 82.`https://doi.org/10.1186/s12939-022-01678-5`

2021 **Echeverría-Londoño, S,.** Li, X., Toor, J., de-Villiers, M., Nayagam, S., Hallett, T.B., Abbas, K., Jit, M., Klepac, P., Jean, K. & Garske, T. How can the public health impact of vaccination be estimated? *BMC Public Health*, 21, 2049 (2021). `https://doi.org/10.1186/s12889-021-12040-9`

2021 Toor, J., **Echeverría-Londoño, S,.** Li, X., Abbas, K., Carter, E. D., Clapham, H. E., ... & Gaythorpe, K. A. Lives saved with vaccination for 10 pathogens across 112 countries in a pre-COVID-19 world, *eLife* 10, e67635.`https://doi.org/10.7554/eLife.67635`

2021 Gaythorpe, K. A., Toor, J., **Echeverría-Londoño, S,.** Li, X., & Ferguson, N. M. Vaccines can save children with non-preventable diseases Authors' reply. Estimating the health impact of vaccination against ten pathogens in 98 low-income and middle-income countries from 2000 to 2030: a modelling study, *The Lancet* 397(10291), 2251. `https://doi.org/10.1016/S0140-6736(21)01015-1`

2021 Li, X., Mukandavire, C., Cucunubá, Z. M., **Echeverría-Londoño, S,.** Abbas, K., Clapham, H. E., ... & et al. Estimating the health impact of vaccination against ten pathogens in 98 low-income and middle-income countries from 2000 to 2030: a modelling study, *The Lancet*, 397(10272), 398-408. `https://doi.org/10.1016/S0140-6736(20)32657-X`

2021 Gaythorpe K, Abbas K, Huber J, Karachaliou A, Thakkar N, Woodruff K, Li X, **Echeverría-Londoño, S,.** Ferrari M, Jackson ML, McCarthy K. Impact of COVID-19-related disruptions to measles, meningococcal A, and yellow fever vaccination in 10 countries, *eLife*, 2021;10:e67023. `https://doi.org/10.7554/elife.67023`

2021 Neves, D.M., Kerkhoff, A.J., **Echeverría-Londoño, S,.** Merow, C., Morueta-Holme, N., Peet, R.K., Sandel, B., Svenning, J.C., Wiser, S.K. and Enquist, B.J. The adaptive challenge of extreme conditions shapes evolutionary diversity of plant assemblages at continental scales, *Proceedings of the National Academy of Sciences* 118(37).`https://doi.org/10.1073/pnas.202113211`

2020 Laiton-Donato, K., Villabona-Arenas, CJ., Usme-Ciro, J., Franco-Muñoz., C, Álvarez-Díaz, D., Villabona-Arenas, LS., **Echeverría-Londoño, S,.** et al., Genomic epidemiology of severe acute respiratory syndrome coronavirus 2, Colombia, *Emerging infectious diseases*, 26, no. 12: 2854. `https://doi.org/10.3201/eid2612.202969`

2020 **Echeverría-Londoño, S,.** Särkinen, T., Fenton, I. S., Knapp, S. and Purvis, A. Dynamism and context dependency in the diversification of the megadiverse plant genus Solanum L. (Solanaceae), *Journal of Systematics and Evolution*, 58(6), 767-782. `https://doi.org/10.1111/jse.12638`

2018 **Echeverría-Londoño, S.,** Enquist. B. J., Neves, D. M., Violle, C. and Kerkhoff, A. J. Plant functional diversity and the biogeography of biomes in North and South America. *Frontiers in Ecology and Evolution*, 6(DEC), 219. `https://doi.org/10.3389/fevo.2018.00219`

2017 Isaacs, P., **Echeverría-Londoño, S.,** Urbina, N. and Purvis, A. Species composition and changes in land use: considerations under climatic change scenarios. Moreno, L. A., Andrade, G. I. and Ruíz-Contreras, L. F. (Editors). In *Biodiversity 2016. Status and Trends of Colombian Continental Biodiversity*, Instituto de Investigación de Recursos Biológicos Alexander von Humboldt, 106 p. `http://reporte.humboldt.org.co/biodiversity/2016/cap2/203/index.html`

2017 Hudson, L. N., Newbold, T., Contu, S., Hill, S. L., Lysenko, I., De Palma, A., Diaz, S., **Echeverría-Londoño, S.,** ... and Purvis, A. The database of the PREDICTS (Projecting Responses of Ecological Diversity in Changing Terrestrial Systems) project, *Ecology and Evolution*, 7(1), 145–188. `https://doi.org/10.1002/ece3.2579`

2016 **Echeverría-Londoño, S.,** Newbold, T., Hudson, L. N., Hill, S. L., Contu, S., Lysenko, I., ... and Purvis, A. Modelling and projecting the response of Colombian biodiversity to land-use change, *Diversity and Distributions*, 22, 1099–1111. `https://doi.org/10.1111/ddi.12478`

2015 Newbold, T., Hudson, L. N., Hill, S. L., Contu, S., Lysenko, I., Senior, R. A., Bennet D. J., Choimes A., Collen, B., Day, J., De Palma, A., Diaz, S., **Echeverría-Londoño, S.,** ... and Purvis, A. Global effects of land use on local terrestrial biodiversity, *Nature*, 520(7545), 45–50. `https://doi.org/10.1038/nature14324`

2014 Newbold, T., Hudson, L. N., Contu, S., Hill, S. L., Lysenko, I., De Palma, A., Phillips, H., Senior, R. A., Bennet D. J., Booth, H., Choimes, A., Correia, D. L. P., Day, J., **Echeverría-Londoño, S.,** ... and Purvis, A. The PREDICTS database: a global database of how local terrestrial biodiversity responds to human impacts, *Ecology and Evolution*, 4(24), 4701–4735. `https://doi.org/10.1002/ece3.1303`

2011 **Echeverría-Londoño, S.** and Miranda-Esquivel, D. R. MartiTracks: A geometrical approach for identifying geographical patterns of distribution, *PLoS ONE*, 6(4), e18460. `https://doi.org/10.1371/journal.pone.0018460`

2010 Miranda-Esquivel, D. R., Morales-Guerrero, A. M. and **Echeverría-Londoño, S.** ¿Cuántos somos? y ¿Cómo nos cuantificamos? In *Evolución "Historia de la Vida". Asociación Colombiana para el avance de la Ciencia ACAC.* ISBN: 978-958-9457-67-2

PRESENTATIONS AND POSTERS

2021 **Poster**. Echeverría-Londoño, S., et al. Exploring the effect of spatial heterogeneity of immunisation in vaccine impact in Sub-Saharan Africa. *EPIDEMICS, 8th International Conference on Infectious Diseases Dynamics*, Online Live and On-Demand

2018 **Presentation**. Echeverría-Londoño, S., et al. Explosive diversification of *Solanum* L (Solanaceae) in the old world, *Three Rivers Evolution meeting*, Pittsburgh, USA.

2018 **Poster**. Echeverría-Londoño, S., et al. Plant functional diversity and the biogeography of biomes in North and South America, *Three Rivers Evolution meeting*, Pittsburgh, USA.

2018 **Poster**. Echeverría-Londoño, S., et al. Plant functional diversity and the biogeography of biomes in North and South America, *Botany 2018*, Rochester (MN), USA

2016 **VVIP presentation**. Echeverría-Londoño, S., et al. Modelling and projecting the response of Colombian biodiversity to land-use change, *State visit by the President of Colombia, Juan Manuel Santos, to the UK and the Prince of Wales*, Natural History Museum, London, UK

2016 **Presentation**. Echeverría-Londoño, S., et al. Modelling and projecting the response of Colombian biodiversity to land-use change, *First symposium of Colombian research in the UK*, Imperial College London, UK.

2016 **Presentation**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Explosive diversification of *Solanum* L (Solanaceae) in the old world, *BES macroecology meeting 2016*, University of Oxford, UK.

2016 **Presentation**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Diversification patterns of genus *Solanum*, *NHM students conference*, Natural History Museum, London, UK.

2015 **Poster**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Explosive diversification of *Solanum* L (Solanaceae) in the old world, *Systematics: The Science that Underpins Biology. The Systematic Association Biennal meeting*, University of Oxford, UK.

2015 **Presentation**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Explosive diversification of *Solanum* L (Solanaceae) in the old world, *EU Macroecology meeting*, Zoological museum of Copenhagen, Denmark.

2015 **Poster**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Diversification patterns of *Solanum*, *NHM students conference 2015*, Natural History Museum, London, UK.

2014 **Poster**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Diversification patterns of *Solanum*, *The London Evolutionary Research Network (LERN)*, Queen Mary University, London, UK.

2014 **Poster**. Echeverría-Londoño, S., Knapp, S. and Purvis, A. Patterns of lineage diversification in the genus Solanum L., *Plants Radiation meeting*, Institute of Systematic Botany, University of Zürich, Switzerland.

2013 **Presentation**. Echeverría-Londoño, S., et al. Modelling and projecting the responses of Colombian biodiversity to human impacts, *11th INTECOL conference*, London, UK.

2010 **Presentation**. Echeverría-Londoño, S. and Miranda-Esquivel, D. M. Panbiogeografía cuantitativa: un acercamiento geométrico, *III Congreso Colombiano de Zoología*, Medellín, Colombia.

2009 **Presentation**. Miranda-Esquivel, D. M., Echeverría-Londoño, S. and Morales-Guerrero, A. M. Todas las secuencias son iguales, pero unas son mas iguales que otras, *III Simposio red colombiana de Biología Evolutiva (Colevol)*, Cali, Colombia.

INVITED SEMINARS

2021 Laboratoire Modélisation, Épidémiologie et Surveillance du Risque Sanitaire (MESuRS) seminars, *Conservatoire National des Arts et Métiers*, France.

2021 School of Public Health seminars, *Imperial College London*, UK.

2018 Ecology and Evolution seminars, *University of Pittsburgh*, USA.

2017 Monthly seminars, *Department of Biology, Kenyon College*, Gambier, USA.

2017 Ecosystems and Tropical Forest group lab seminar, *School of Geography and the Environment, University of Oxford*, UK.

2015 Ecology and Evolution seminar, *Royal Botanic Garden*, Edinburgh, UK.

SCHOLARSHIPS, AWARDS AND RECOGNITIONS

2022 Journal of Systematics and Evolution Outstanding Paper by Young Investigators Award 2020.

2018 NSF grant fund, $72,361, "RCN-UBE Incubator: The Biological and Environmental Data Education Network", *NSF*.

2016 Selected to present research to the (Nobel Peace Prize winning) President of Colombia and His Royal Highness the Prince of Wales, *Natural History Museum*.

2013 Training and travel grant, £300, *British Ecology Society*.

2013 Bursary, £1,000, MRes in Biodiversity Informatics and Genomics, *Imperial College London*.

2012–2016 Postgraduate scholarship, £122,000, *Administrative Department of Science, Technology and Innovation of Colombia (Colciencias)*.

2004–2009 Academic stimuli, biology program (highest GPA in I, II, IV, IX semesters), *Universidad Industrial de Santander*.

REFERENCES

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