Sami W. Rifai

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Education:

Ph.D. School of Forest Resources and Conservation, University of Florida, 2016.
Advisor: Dr. Stephanie A. Bohlman
Dissertation: The frequency of catastrophic wind disturbance in the northwest Amazon, and their impact upon tree mortality and diversity

M.S., Warnell School of Forestry and Natural Resources, University of Georgia, 2008.

B.S., Earth and Environmental Science, University of California, Irvine, 2005.

Recent Employment History:

2020 - present Postdoctoral research associate - The Australian Research Council Centre of Excellence for Climate Extremes, University of New South Wales

2017 - 2020 Postdoctoral research Associate & Oxford Martin Fellow, Environmental Change Institute, School of Geography and the Environment, University of Oxford

2013 - 2016 NASA Earth and Space Science graduate fellow, School of Forest Resources and Conservation, University of Florida

Publications:

Li S., Sparrow S., Otto F., Krikken F., **Rifai S.W.**, Anderson L. O., Malhi Y., and D. Wallom. *submitted.* Anthropogenic contribution to the 2015/2016 fire weather in Brazil. submitted to Environmental Research Letters.

Slot M., Rifai S.W., and K. Winter. *in revision.* Short- and long-term acclimation of photosynthesis to elevated temperature and CO_2 in a tropical tree species, *Tabebuia rosea*. submitted to Plant, Cell, and Environment.

Gvozdevaite A., Oliveras I., **Rifai S.W.,** Fauset S., Waites R., Peprah T., Boakye M., Afriyie L., Martini D., Miguel J., Moore S., Adu-Bredu S., and Y. Malhi. *in revision.,* Significance of leaf shape dynamics along light and temperature gradients in the tropics. submitted to *Biotropica.*

Malhi Y. [and 20 others, including **Rifai S.W.**], *in review*. The Global Ecosystems Monitoring network: monitoring ecosystem productivity and carbon cycling across the tropics. submitted to *Biological Conservation*

Aguirre-Gutiérrez J., **Rifai S.W.,** Shenkin A., Oliveras I., [and 32 others] *in review*. Pantropical modelling of forests functional traits using Sentinel-2 remote sensing data. submitted to *Remote Sensing of Environment*.

De Kauwe M., Medlyn B., Ukkola A., Mengyuan M., Sabot M., Pitman A., Meir P., Cernusak L., Rifai S., Choat B., Tissue D., Blackman C., Ximeng L., Roderick M., and P. Briggs. *in press*. Identifying areas at risk of drought-induced tree mortality across South-Eastern Australia. *Global Change Biology.*

Matos I.S., Oliveras I., **Rifai S.W.,** and B.H.P. Rosado. 2019. Deciphering the stability of grassland productivity in response to rainfall manipulation. *Global Ecology and Biogeography*, https://doi.org/10.1111/geb.13039

Rifai S.W., Li S., and Y. Malhi. 2019. Coupling of El Niño Events and Long-Term Warming Leads to Pervasive Climate Extremes in the Terrestrial Tropics. *Environmental Research Letters*

Park, J.Y., Muller-Landau, H.C., Lichstein, J.W., **Rifai, S.W.,** Dandois, J.P., and S.A. Bohlman. 2019. Quantifying leaf phenology of individual trees and species in a tropical forest using unmanned aerial vehicle (UAV) images. *Remote Sensing.* 11(13), 1534

Fonseca L.D.M, Dalagnol R., Malhi Y, **Rifai S.W.,** Costa B.G., Silva T.S.F, Da Rocha H.R, Tavares I.B., and L.S. Borma. 2019. Phenology and seasonal ecosystem productivity in an Amazonian floodplain forest. *Remote Sensing.* 11(13), 1530

Morel A., Hirons M., Demissie S., Gonfa T., Mehrabi Z., Long P., **Rifai S.,** Woldemariam GT., Mason J., McDermott C., Boyd E., Robinson E., Malhi Y., and K. Norris. 2019. The structures underpinning vulnerability: Examining landscape-society interactions in a smallholder coffee agroforestry system. *Environmental Research Letters*

Núñez-Regueiro, M. M., Fletcher, R. J., Pienaar, E. F., Branch, L. C., Volante, J. N., & **Rifai, S.** 2019. Adding the temporal dimension to spatial patterns of payment for ecosystem services enrollment. *Ecosystem Services*, 36, 100906. https://doi.org/10.1016/j.ecoser.2019.100906

Aguirre Gutiérrez J., Oliveras I., **Rifai S.W.**, Gvozdevaite A., Fauset S., Ziemińska K., Lewis S.L., Feldpausch T.R., Phillips O., Hubau W., Moore S., Peprah T. , Affum-Baffoe K., Swaine M.D.,Adu-Bredu S., Enquist B., and Y. Malhi. 2019. Drier tropical forests are more susceptible to functional changes after a long-term drought. *Ecology Letters.* 22:855-865 doi.org/10.1111/ele.13243

Visakorpi K, Gripenberg S, Malhi Y, Bolas C, Oliveras I, Harris N, **Rifai S**, Riutta T. 2018 Small-scale indirect plant responses to insect herbivory could have major impacts on canopy photosynthesis and isoprene emission. New Phytologist 220, 799–810. doi:10.1111/nph.15338

Rifai, S.W., Girardin C.A.J., Berenguer E., Aguila-Pasquel J., Dahlsjö C.A.L, Doughty C.E., Jeffery K.J., Moore S., Oliveras I., Riutta T.,... and Y. Malhi., 2018. ENSO drives interannual variation of forest woody growth across the tropics through atmospheric and soil water droughts. *Philosophical Transactions of the Royal Society B: Biological Sciences.* 373: 20170410. doi: 10.1098/rstb.2017.0410

Burton C., **Rifai S.W.**, and Y. Malhi. 2018. Inter-comparison and assessment of gridded climate products over tropical forests during the 2015-16 El Niño. *Philosophical Transactions of the Royal Society B: Biological Sciences.* 373:20170406. doi: 10.1098/rstb.2017.0406

Negrón-Juarez, R.I., Chambers, J.Q., Marra, D.M., Holm, J.A, **Rifai, S.W.,** Riley, W.J., McGroddy, M.E., Koven, C.D, Knox, R.G., Urquiza-Muñoz, J.D, Tello-Espinoza, R., Alegria-Muñoz, W.A., Ribeiro, G.H.P.M, and N. Higuchi. 2018. Vulnerability of Amazon forests to storm-driven tree mortality. *Environmental Research Letters 13:5*

Magnabosco Marra, D., Trumbore, S., Higuchi N., Ribeiro, G., Negron-Juarez, R., Holzwarth, F., **Rifai, S.W.**, Santos, J., Lima, A., Kinupp, V., Chambers, J., and Wirth, C. 2018. Windthrows

control biomass patterns and functional composition of Amazon forests. *Global Change Biology.* 24:5867-5881. doi:10.1111/gcb.14457

Wilson, C.H., Caughlin, T.T., **Rifai, S.W.**, Boughton, E.H., Mack, M.M., and S.L. Flory. 2017. Multi-decadal time series of remotely sensed vegetation improves prediction of soil carbon in a subtropical grassland. *Ecological Applications 27: 1646-1656.*

Tucker, J.M., Vittor, A., **Rifai, S.W.**, and D. Valle. 2017. Does deforestation promote or inhibit malaria transmission in the Amazon? A systematic literature review and critical appraisal of the effect of deforestation on malaria. *Philosophical Transactions of the Royal Society B: Biological Sciences. (372)*

Caughlin, T.T., **Rifai, S.W.,** Graves, S.J., Asner, G.P., and S.A. Bohlman. 2016. Landsat-LiDAR integration reveals widespread reforestation in a tropical agricultural landscape. *Remote Sensing in Ecology and Conservation*.

Rifai, S.W., J.D. Urquiza Muñoz , R.I. Negrón-Juarez , F. Ramirez Arevalo , R. Tello, M. Vanderwel , J. Lichstein , J.Q. Chambers , and S.A. Bohlman. 2016. Landscape-scale consequences of differential tree mortality from catastrophic wind disturbance in the Amazon. *Ecological Applications.*

Rifai, S.W., West, T.A.P, and F.E. Putz. 2015. "Carbon Cowboys" could inflate REDD+ payments through positive measurement bias. *Carbon Management.* (6): 151-158.

Graves, S.J., **Rifai, S.W.**, and Putz, F.E. 2014. Outer bark thickness decreases more with height on stems of fire-resistant than fire-sensitive Floridian oaks. *American Journal of Botany*. (101): 2183-2188.

Negón-Juárez, R.I., Chambers, J.Q., Marra, D.M., Ribeiro, G.H.P.M, **Rifai, S.W.,** Higuchi, N. and D. Roberts. (2011) Detection of subpixel treefall gaps with Landsat imagery in Central Amazon forests. *Remote Sensing of Environment* (115): 3322-3328.

Rifai, S.W., D. Markewitz, and B.E. Borders. (2010) Twenty years of intensive fertilization and competing vegetation suppression in loblolly pine plantations: Impacts on soil C, N, and microbial biomass. Soil Biology and Biochemistry (42): 713-723.

Teaching Seminars:

- Introduction to Google Earth Engine with Javascript for Forest Applications, University of Florida, November 2016
- Introduction to Google Earth Engine, School of Geography, University of Oxford, March 2017
- Introducción a Google Earth Engine, Universidad Nacional de Colombia, Bogotá, March 2018
- R for Geographers, School of Geography, University of Oxford, October 2018
- Geospatial Analysis with Earth Engine Workshop, University of Guyana, March 18-23 2019
- Geospatial Analysis with Earth Engine Refresher, University of Guyana, July 8-10 2019
- Introduction to Earth Engine, Instituto Nacional de Pesquisas Espaciais, September 13 2019

Mentorship:

2017	Co-supervising M.S. student: Chad Burton, Environmental Change Institute, University of Oxford
2018 - present	Co-supervising Ph.D. student: Leticia d'Agosto Miguel Fonseca, Environmental Change Institute, University of Oxford & Instituto Nacional de Pesquisas Espaciais (INPE-Brazil).

2019 - present Co-supervising B.S. thesis student: Seion George, University of Guyana & Guyana Forestry Commission

Grants and Awards:

2019 Climate Science Service Partnership Brazil, Met Office (£250,000)
"Attributing Amazon Forest fires from Land-use Alteration and Meteorological Extremes" (*PIs: Sarah Sparrow and Yadvinder Malhi, Named Postdoctoral Researcher and main grant author: Sami Rifai)

2018 Global Challenge Research Fund, Oxford Internal through Research England (£49,308)
"Geospatial capacity building to forecast vulnerability of forest carbon stocks to climate change feedbacks in the Guiana Shield ecoregion." (*PI: Yadvinder Malhi, Named Postdoctoral Researcher and grant author: Sami Rifai)

2013 NASA Earth and Space Science Fellowship 2013-2016

** Oxford postdoctoral researchers cannot serve as grant primary investigators*

Professional Activities:

Reviewer: *African Journal of Ecology, AoB Plants, Environmental Research Letters, Frontiers in Forests and Global Change, Journal of Ecology, Philosophical Transactions of the Royal Society B, Proceedings of the National Academy of Sciences*

Society membership: Association for Tropical Biology & Conservation, Ecological Society of America, American Geophysical Union

Visiting Research:

Summer 2019 – Lab group of Luiz Aragão at Instituto Nacional de Pesquisas Espaciais (INPE), São José dos Campos, Brazil.

Summer 2014 – Lab group of Liana O. Anderson and Luiz Aragão at Instituto Nacional de Pesquisas Espaciais (INPE), São José dos Campos, Brazil.

Relevant Skills:

Programming Languages: R (high); Java (high); Python (high); JavaScript API for Google Earth Engine (high); Stan (intermediate); Unix shell/Bash (intermediate); C, C++ (low)

Analytical tools: Multilevel models; Generalized additive models; Bayesian model optimization; Spatiotemporal regression models, Tree-based machine learning regression and classification, Computer vision and image segmentation methods

Spoken Languages: English (native language), Spanish (advanced), Portuguese (intermediate)

Personal References:

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