

## Lucas C. R. Silva

College of Arts & Sciences  
Soil-Plant-Atmosphere Research Laboratory  
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**SUMMARY:** My teaching and research programs focus on an integrative understanding of the soil-plant-atmosphere system. My students are taught basic biophysical, biogeochemical, and ecological principles as well as the application of these principles to solve problems facing the global community. My approach bridges multiple quantitative disciplines to answer long-standing questions related to how natural and human-engineered ecosystems response to, and exert influence on, the environment. My current research projects fuse theory, experimentation, and modeling to enhance natural climate solutions through land management, conservation, and restoration across biomes.

### EDUCATION

<b>PhD</b>	2007-2011	Environmental Biology	University of Guelph, Canada
<b>MS</b>	2005-2007	Ecosystem Ecology	University of Brasília / University of Miami
<b>BS</b>	2001-2005	Forestry	University of Brasília, Brazil

### PROFESSIONAL EXPERIENCE

<b>Assistant Professor</b>	2016-	University of Oregon
<b>Research Faculty &amp; Lecturer</b>	2013-2016	University of California, Davis
<b>Postdoctoral Fellow</b>	2011-2013	University of California, Davis

### PUBLICATIONS

Full list including: 1 book chapter; 2 technical report; 89 peer-reviewed articles ([Google Scholar](#): >2920 citations; H-index 28; i10-index 60); \* indicates corresponding authorship

- 92- MAXWELL T & SILVA LCR\* (2020) A State Factor Model of Carbon-Water Relations. *CELL Press Trends in Plant Sciences* <https://doi.org/10.1016/j.tplants.2020.02.007>
- 91- CORREA-DIAZ A, SILVA LCR et al. (2020) From trees to ecosystems: Spatiotemporal scaling of climatic impacts on montane landscapes using dendrochronological, isotopic and remotely-sensed data *Global Biogeochemical Cycles* <https://doi.org/10.1029/2019GB006325>
- 90- SILVA LCR\* & LAMBERS H (2020) Soil-plant-atmosphere interactions: structure, function, and predictive scaling for climate change mitigation. *Marschner Review* <https://link.springer.com/article/10.1007/s11104-020-04427-1>
- 89- BOMFIM B, SILVA LCR\* et al. (2020) Fire affects asymbiotic nitrogen fixation in southern Amazon forests. *J of Geophysical Research Biogeosciences* <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2019JG005383>
- 88- BOMFIM B, SILVA LCR, PEREIRA R, GATTO A, EMMERT F, HIGUCHI N (2020) Litter and soil biogeochemical parameters as indicators of sustainable logging in Central Amazonia. *Science of the Total Environment* <https://doi.org/10.1016/j.scitotenv.2020.136780>
- 87- SILVA LCR\*, WOOD M, et al. (2020) Landscape Carbon Sequestration for Atmospheric Recovery: A Perspective on Convergence to Accelerate Carbon Sequestration. National Science Foundation (NSF) White Paper. [https://law.uoregon.edu/sites/law1.uoregon.edu/files/white\\_paper\\_lcsar.pdf](https://law.uoregon.edu/sites/law1.uoregon.edu/files/white_paper_lcsar.pdf)
- 86- MOTTA A, CORRÊA R, MELO V, MUNIZ A, SILVA LCR, et al. (2020) Elemental signatures of an Amazonian Dark Earth as result of its formation process. *Geoderma* 361(1) 114085
- 85- CASTRUITA-ESPARZA L, SILVA LCR et al. (2019) Coping with extreme events: growth and water-use efficiency of dominant trees during the driest and wettest periods of the past 160 years *J of Geophysical Research Biogeosciences* 124(11) 3419-3431
- 84- DOANE TA, SILVA LCR, HORWATH W (2019) Exposure to light elicits a spectrum of chemical changes in soil *J of Geophysical Research Earth Surface* 124(8) 2288-2310
- 83- LILES GC, MAXWELL T, SILVA LCR\*, et al. (2019) Two Decades of Experimental Manipulation Reveal

- Potential for Enhanced Biomass Accumulation and Water Use Efficiency in Ponderosa Pine Plantations Across Climate Gradients. *J Geophysical Research Biogeoscience* 124(7) 2321-2334
- 82- WARD B, WONG CI, NOVELLO VF, MCGEED D, SANTOS RV, SILVA LCR, et al. (2019) Reconstruction of Holocene coupling between the South American Monsoon System and local moisture variability from speleothem  $\delta^{18}O$  and  $87Sr/86Sr$  records. *Quaternary Science Reviews* 210(15) 51-63
- 81- JERSZURKI D, SOUZA J, SILVA LCR (2019) Sensitivity of ASCE-Penman-Monteith Reference Evapotranspiration under Different Climate Types in Brazil. *Climate Dynamics* 53(1) pp 943–956
- 80- CORREA-DÍAZ A, SILVA LCR, et al. (2019) Linking remote sensing and dendrochronology to quantify climate-induced shifts in high-elevation forests over space and time *J of Geophysical Research Biogeosciences* 124(1) 166-183
- 79- GIGUÈRE-CROTEAU, É BOUCHER, Y BERGERON, SILVA LCR, et al. (2019) North America's oldest boreal trees show an unprecedented increase in water-use efficiency, but not growth. *Proceedings of the National Academy of Science* 116 (7) 2749-2754
- 78- LIANG Y, KRAUS T; DOANE TA; SILVA LCR, et al. (2019) Effects of ferric sulfate and polyaluminum chloride coagulation enhanced treatment wetlands on Typha growth, soil and water chemistry. *Science of the Total Environment* 648, 116-124.
- 77- BOMFIM B, SILVA LCR\*, DOANE T, HORWATH W (2019) Interactive effects of land-use change and topography on asymbiotic nitrogen fixation in the Brazilian Atlantic Forest. (issue cover) *Biogeochemistry* 142(1) 137–153.
- 76- MAXWELL T, SILVA LCR\*, HORWATH W (2018) Predictable oxygen isotope exchange between plant lipids and environmental water: implications for ecosystem water balance reconstruction. *J of Geophysical Research Biogeosciences* 123 ,2941–2954.
- 75- DUARTE-GUARDIA S, PERI PL, AMELUNG W, SHEIL D, LAFFAN SW, BORCHARD N, SILVA LCR et al (2018) Better estimates of soil carbon from geographical data: a revised global approach. *Mitigation Adaptation Strategies Global Change* 24(3) 355–372.
- 74- MAXWELL T, SILVA LCR\*, HORWATH W (2018) Integrating effects of species composition and soil properties to predict shifts in montane forest carbon-water relations. *Proceedings of the National Academy of Science*. 115 (18) E4219-E4226.
- 73- CORREA-DÍAZ A, SILVA LCR, GÓMEZ-GUERRERO A, DÍAZ JV, ET AL (2018) Physiological response of "*Taxodium mucronatum*" Ten. To the increases of atmospheric  $CO_2$  and temperature in the last century. *Agrociencia* 52(1) 129-149.
- 72- SILVA LCR\* & LAMBERS H (2018) Soil-plant-atmosphere interactions: ecological and biogeographical considerations for climate-change research. Book chapter. 29-60. In: *Climate Change Impacts on Soil Processes & Ecosystem Properties* 625p. <https://www.sciencedirect.com/science/article/pii/B9780444638656000028>
- 71- JERSZURKI D, COUVREUR V, MAXWELL T, SILVA LCR, MATSUMOTO N, SHACKEL N, SOUZA JLM, HOPMANS J (2017) Impact of root growth and hydraulic conductance on canopy carbon-water relations of young walnut trees (*Juglans regia* L.) under drought. *Scientia Horticulturae* 226, 342-352
- 70- SPERLING O, SILVA LCR\*, TIXIER A, THÉROUX-RANCOURT G, ZWIENIECKI M (2017) Temperature gradients assist carbohydrate allocation within trees *Nature Scientific Reports* 7, 3265.
- 69- JERSZURKID, SOUZA JLM, SILVA LCR (2017) Expanding the geography of evapotranspiration: An improved method to quantify land-to-air water fluxes in tropical and subtropical regions. *PLOS One* 12(6) e0180055.
- 68- DEVEREL S, OIKAWA P, DORE S, MACK S, SILVA LCR (2017) Restoration of California deltaic and coastal wetlands: A tool for climate change mitigation. Co-authored book. *American Carbon Registry*, 186 pp. <http://americancarbonregistry.org/carbon-accounting/standards-methodologies/restoration-of-california-deltaic-and-coastal-wetlands>
- 67- SILVA LCR\* (2017) Carbon sequestration beyond tree longevity. *Science* 355 (6330), 1141
- 66- MORRIS J, YE R, SILVA LCR, HORWATH WR (2017) Nitrogen fertilization had no effect on  $CH_4$  and  $N_2O$  emissions or productivity in rice planted in rewetted peat lands. *Soil Science Society of America Journal*. 81, 224–232.
- 65- WORTHAM BE, WONG CI, SILVA LCR, MCGEE D, RASBURY ET, MONTAÑEZ IP (2017) Assessing response of local moisture conditions in central Brazil to variability in regional monsoon intensity using

speleothem  $^{87}\text{Sr}/^{86}\text{Sr}$  values. *Earth and Planetary Science Letters* 463, 310-322.

- 64- DIETRICH R, BELL FW, **SILVA LCR**, CECILE A, HORWARTH WR, ANANDM (2017) Climatic sensitivity, water-use efficiency and growth decline in boreal jack pine (*Pinus banksiana*) forests in Northern Ontario. *JGR Biogeosciences* 121 2761–2774.
- 63- WINSOME T, **SILVA LCR\***, SCOW KM, DOANE TA, HORWATH WR (2017) Plant-microbe interactions regulate carbon and nitrogen accumulation in forest soils. *Forest Ecology & Management* 15 415-423.
- 62- **SILVA LCR\***, SUN G., et al. (2016) Tree growth acceleration and expansion of alpine forests: The synergistic effects of atmospheric and edaphic change. *Science Advances* 2(8) e1501302.

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**Joined UO as Assist Prof**

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- 61- FARIAS J., MARIMON B., **SILVA LCR\***, et al. (2016) Survival and growth of native *Tachigali vulgaris* and exotic *Eucalyptus urophylla* × *E. grandis* trees in degraded soils with biochar amendment in southern Amazonia. *Forest Ecology & Management* doi:10.1016/j.foreco.2016.03.022
- 60- SHEIL D, LADD B, **SILVA LCR**, LAFFAN SW, VAN HEIST M (2016). How are soil carbon and tropical biodiversity related? *Environmental Conservation*. DOI: 10.1017/S0376892916000011
- 59- EARLES J, SPERLING O, MCELRONE A, **SILVA LCR**, et al. (2016) Bark water uptake promotes localized hydraulic recovery in coastal redwood crown. *Plant, Cell & Environment* DOI: 10.1111/pce.12612
- 58- **SILVA LCR\***, SALAMANCA-JIMENEZ A, DOANE TA, HORWATH WR (2015) Carbon dioxide level and form of soil N regulate assimilation of atmospheric ammonia in trees. *Nature Scientific Reports* 5:13141
- 57- BUELOW M, STEENWERTH K, **SILVA LCR**, PARIKH S (2015) Characterization of Winery Wastewater for Reuse in California (award winning paper) *American Journal of Enology and Viticulture* 66: 302-310.
- 56- **SILVA LCR\*** (2015) From air to land: Understanding water resources through plant-based multidisciplinary research. *Trends in Plant Sciences* 20(7) 399–401
- 55- **SILVA LCR\***, GOMEZ-GUERRERO A, DOANE TA, HORWATH, W (2015) Isotopic and nutritional evidence for species- and site-specific responses to N deposition and elevated CO<sub>2</sub> in temperate forests. *Journal of Geophysical Research Biogeosciences* 120(6) 1110–1123
- 54- **SILVA LCR\***, PEDROSO G, DOANE T, HORWATH (2015) Beyond cellulose: Oxygen isotope composition of plant lipids as a proxy for terrestrial water balance *Geochemical Perspective Letters* 1 33-42
- 53- PAIVA AO, **SILVA LCR\***, HARIDASAN M (2015) Productivity-efficiency tradeoffs in tropical forest-savanna transitions: linking plant-soil processes through litter input and composition. *Plant Ecology* 216, 775-787
- 52- **SILVA LCR\***, DOANE TA, et al. (2015) Iron-mediated stabilization of soil carbon amplifies the benefits of ecological restoration in degraded lands. *Ecological Applications* 25(5), 2015, pp. 1226–1234
- 51-WANG Z, **SILVA LCR**, SUN G, LUO P, MOU C, HORWATH WR (2015) Quantifying the impact of drought on soil-plant interactions: A seasonal analysis of biotic and abiotic controls of carbon and nutrient dynamics in high-altitudinal grasslands. *Plant & Soil* 389, 59-71
- 50-**SILVA LCR\*** (2014) Seasonal variation in groundwater depth does not explain structure and diversity of tropical savannas. *Journal of Vegetation Science*. 26(2), 404–406
- 49-MAXWELL T, **SILVA LCR\***, HORWATH W (2014) Using multi-element isotopic analysis to decipher drought impacts and adaptive management in ancient agricultural systems. *Proceedings of the National Academy of Sciences* 111(45): E4807–E4808
- 48-**SILVA LCR\*** (2014) The importance of climate-driven forest-savanna biome shifts in anthropological and ecological research. *Proceedings of the National Academy of Sciences* 111 (37) E3831-E3832
- 47-SHI C, **SILVA LCR**, ZHANG H, ZHENG Q, XIAO B, WU N, SUN G (2014) Climate warming alters nitrogen dynamics and total non-structural carbohydrate accumulations of perennial herbs of distinctive functional groups during the plant senescence in an alpine meadow of the Tibetan Plateau, China. *Agricultural and Forest Meteorology* 200: 21-29
- 46-**SILVA LCR\*** (2014) Natural history and evolution of the Kwongan – a global biodiversity hotspot. Invited Book Review. *Trends in Plant Sciences* 19: p686
- 45-LADD B, PERI PL, PEPPER DA, **SILVA LCR**, SHEIL D, et al. (2014) Carbon isotopic signatures of soil organic matter correlates with leaf area index across woody biomes. *Journal of Ecology* 102: 1606–1611

- 44-QIAO Y, MIAO S, **SILVA LCR\***, HORWATH WR (2014) Understorey species regulate litter decomposition and accumulation of C and N in forest soils: A long-term dual-isotope experiment. *Forest Ecology & Management* 12(2): 873-878
- 43-FRANCO AC, ROSSATTO DR, **SILVA LCR**, FERREIRA CS (2014) Cerrado vegetation and global change: The role of functional types, resource availability and disturbance in regulating plant community responses to rising CO<sub>2</sub> levels and climate warming. *Theoretical and Experimental Plant Physiology* 26 (1): 19-38
- 42-ROSSATTO DR, **SILVA LCR**, STERNBERG LSL, FRANCO AC (2014) Do woody and herbaceous species compete for soil water across topographic gradients? Evidence for niche partitioning in a Neotropical Savanna. *South African Journal of Botany* 91(4): 14-18
- 41-QIAO Y, HAN X, **SILVA LCR**, MIAO S (2014) Changes in soil respiration due to long-term application of organic and mineral fertilizers. *Journal of Food, Agriculture & Environment* 12 (2): 873-878
- 40-MUKOME FND, DOANE TA, **SILVA LCR**, HORWATH WR, PARIKH SJ (2013) Testing protocol ensures the authenticity of organic fertilizers. *California Agriculture* 67(4): 210-216.
- 39-**SILVA LC.R\***, ANAND M (2013) Historical links and new frontiers in the study of forest-atmosphere interactions. *Community Ecology* 14(2): 208-218.
- 38-ANAND M, LEITHEAD M, **SILVA LCR**, WAGNER C, et al. (2013) The Scientific Value of the Largest Remaining Old-Growth Red Pine Forests in North America. *Biodiversity and Conservation*. 22: 1847–1861.
- 37-BORGHETTI F, LIMA EC, **SILVA LCR** (2013) A simple procedure for the purification of active fractions in aqueous extracts of plants with allelopathic properties. *Acta Botanica Brasilica* 27(1): 50-53.
- 36-ZHU X, **SILVA LCR**, DOANE TA, WU N, HORWATH WR (2013) Quantifying the effects of compost application, water content, and nitrogen fertilization on N<sub>2</sub>O emissions in ten agricultural soils. *Journal of Environmental Quality* 42(3): 912-918.
- 35-HAIDAR RF, PINTO RR, DIAS RR, VALE GD, **SILVA LCR**, FAGG C (2013) Seasonal forests and ecotones (seasonal/ombrophilous forest) in the state of Tocantins, Brazil: structure, classification and guidelines for conservation. *Acta Amazonica* 43(3): 261-290.
- 34-**SILVA LCR\***, HOFFMANN WA, ROSSATTO DR, et al. (2013) Can savannas become forests? A coupled analysis of disturbance thresholds and nutrient stocks in central Brazil. *Plant & Soil* 373(1-2) 829-842.
- 33-ZHU X, **SILVA LCR**, DOANE TA, HORWATH WR (2013) Iron: The forgotten driver of N<sub>2</sub>O emissions from soils. *PLoS One* 8(3): e60146.
- 32-MUKOME FND, ZHANG X, **SILVA LCR**, SIX J, PARIKH SJ (2013) Use of chemical and physical characteristics to investigate trends in biochar feedstocks. *Journal of Agricultural and Food Chemistry*. 61: 2196-2204.
- 31-ROSSATTO DR, HOFFMANN WA, **SILVA LCR**, HARIDASAN M, STERNBERG LSL, FRANCO AC (2013) Seasonal variation in leaf traits between congeneric savanna and forest trees in Central Brazil: implications for forest expansion into savanna. *Trees*. 27: 1139-1150.
- 30-CECILE J, **SILVA LCR**, ANAND M (2013) The decline of trees across biomes. *Science*. 339: 904-905.
- 29-**SILVA LCR\***, CORRÊA RS, et al. (2013) Unprecedented carbon accumulation in mined soils: the synergistic effect of resource input and plant species invasion. *Ecological Applications*. 23: 1345–1356
- 28-GÓMEZ-GUERRERO A, **SILVA LCR\***, et al. (2013) Growth decline and divergent tree-ring isotopic composition ( $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$ ) contradict predictions of CO<sub>2</sub> stimulation in high altitudinal forests. (issue cover) *Global Change Biology*. 19: 1748–1758
- 27-**SILVA LCR\***, HORWATH WR (2013) Explaining global changes in water use efficiency: Why have we overestimated forest responses to rising atmospheric CO<sub>2</sub>? *PLoS One* 8(1): e53089
- 26-**SILVA LCR\***, ANAND M (2013) Probing for the influence of atmospheric CO<sub>2</sub> and climate change on forest ecosystems across biomes. (award winning paper) *Global Ecology and Biogeography*. 22: 83–92
- 25-LADD B, LAFFAN S, AMELUNG W, PERI P, SHEIL D, **SILVA LCR**, GERVASSI P, BONSER S, NAVELL M (2013) Estimating soil carbon in temperate and tropical forest and woodland ecosystems from existing GIS data on three continents. *Global Ecology and Biogeography* 22: 461–469

Joined UCD Research Faculty (Professional Research Series)

- 24-HOFFMANN WA, GEIGER EG, GOTSCH SG, ROSSATTO DR, **SILVA LCR**, LAU OL, HARIDASAN M, FRANCO AC (2012) Ecological thresholds at the savanna-forest boundary: How plant traits, resources and fire govern the distribution of tropical biomes. *Ecology Letters* 15: 759–768.
- 23-LEITHEAD M, **SILVA LCR**, ANAND M (2012) Recruitment patterns and northward tree migration through canopy gap dynamics in an old-growth white pine forest in northern Ontario. *Plant Ecology* 213: 1699-1714.
- 22-ROSSATTO DR, **SILVA LCR**, FRANCO AC, STERNBERG LSL (2012) Depth of water uptake during the wet season is correlated with vegetation structure along a topographic gradient in a Central Brazilian Savanna. *Environmental and Experimental Botany* 77: 259-266
- 21-QIAO Y, **SILVA LCR**, HAN X, MIAO S, YAN C, HORWATH WR (2012) Fate of photosynthetically-fixed carbon in soybean crops measured using <sup>13</sup>C labeling after long-term fertilization of Phaeozem soils in Northeast China. *Zemdirbyste agriculture* 99: 419–424
- 20-**SILVA LCR\***, ANAND M (2011) Mechanisms of Araucaria (Atlantic) forest expansion into southern Brazilian grasslands. *Ecosystems* 14: 1354-1371
- 19-**SILVA LCR\***, GIORGIS M, ANAND M, ENRICO L, PÉREZ-HARGUINDEGUY N, FALCZUK V, TIESZEN LL, CABIDO M (2011) Evidence of shift in C<sub>4</sub> species range in central Argentina during the Late Holocene. *Plant & Soil* 349: 261-279
- 18-LINDOSO GS, **SILVA LCR**, FELFILI JM (2011) Environmental variations and floristic relationship in cerrado sensu stricto on Entisols at Sete Cidades National Park, Piauí *Revista de Biologia Neotropical* 8(2): 1-12

Joined UCD as Postdoctoral Fellow

- 17-**SILVA LCR\***, STERNBERG L da SL, HAIDAR RF, VALE GD (2010) Deciphering earth mound origins in central Brazil. (issue cover) *Plant & Soil* 336: 3–14
- 16-**SILVA LCR\***, ANAND M, LEITHEAD M (2010) Recent widespread tree growth decline despite increasing atmospheric CO<sub>2</sub>. (journal highlight) *PLoS One* 5(7): e11543.
- 15-**SILVA LCR\***, HARIDASAN M, STERNBERG LSL, FRANCO AC, HOFFMANN WA (2010) Not all forests are expanding into central Brazilian savannas. *Plant & Soil* 333: 431-443.
- 14-**SILVA LCR**, CORRÊA RS (2010) Evolution of substrate quality of a mined area in the Brazilian Savanna after revegetation with *Stylosanthes* spp. *Revista Brasileira de Engenharia Agrícola e Ambiental* 14(8): 835-841.
- 13-CORRÊA RS, **SILVA LCR**, Baptista GMM, Santos PF (2010) Chemical fertility of substrate treated with domestic sewage sludge and municipal composted waste. *Revista Brasileira de Engenharia Agrícola e Ambiental* 14(5): 538–544
- 12-LEITHEAD M, ANAND M, **SILVA LCR** (2010) Northward migrating tree species establish in large, old treefall gaps in the temperate – boreal forest ecotone of northern Ontario, Canada. *Oecologia* 164(4): 1095-1106
- 11-ROSSATTO DR, TAKAHASHI FSC, **SILVA LCR**, FRANCO AC (2010) Functional traits of shade and sun leaves in 10 gallery forest tree species, Federal District, Brazil. *Acta Botanica Brasilica* 24(3): 640-647
- 10-**SILVA LCR\***, ANAND M, OLIVEIRA JM, PILLAR VD (2009) Past century changes in *Araucaria angustifolia* (Bertol.) Kuntze water use efficiency and growth in forest and grassland ecosystems of southern Brazil: implications for forest expansion. *Global Change Biology* 15: 2387–2396
- 9-**SILVA LCR**, STERNBERG L, HARIDASAN M, HOFFMANN WA, et al. (2008) Expansion of gallery forests into central Brazilian savannas. *Global Change Biology* 14(9): 2108–2118
- 8-**SILVA LCR** & CORRÊA RS (2008) Survival and growth of six tree species under four treatments on a mined area in the Brazilian savanna. *Revista Árvore* 32: 731-740
- 7-CORRÊA RS, BAPTISTA GMM, BALDUINO APC, **SILVA LCR** (2008) Agronomic efficiency of two organic residues on the revegetation of a red Oxisol C-horizon. *Revista Ciência Agronômica* 39: 503-510
- 6-FARIA PJ, ALMEIDA F, **SILVA LCR**, VIEIRA RF, AGOSTINI-COSTA TS (2008) Chemical characterization of pulp of *Butia capitata* var *capitata*. *Revista Brasileira de Fruticultura* 30, 3, 820-822
- 5-FARIA PJ, ARELLANO DB, GRIMALDI R, **SILVA LCR**, VIEIRA RF, et al. (2008) Chemical characterization of nut of *Butia capitata* var *capitata*. *Revista Brasileira de Fruticultura* 30: 1-4

- 4-RESENDE AV, MACHADO CTT, SILVA LCR, LINHARES NW et al. (2006) Rocks as a source of potassium and other nutrients in annual crops. *Espaço e Geografia* 9: 135-161
- 3-RESENDE AV, MACHADO CTT, MARTINS ES, SILVA LCR et al. (2006) Rocks as a source of potassium in corn crops in Brazilian savannas (Cerrado). *Boletim de Pesquisa e Desenvolvimento* 162: 1-20
- 2-BORGHETTI F, SILVA LCR, et al. (2005) Aqueous leaf extract properties of Cerrado species in Central Brazil. *Proceedings of the World Congress on Allelopathy* Wagga Wagga, Australia: 388-390
- 1-PINHEIRO CQ, SILVA LCR, CORREA RS (2005) Survival and growth of trees treated with sewage sludge, compost or cattle manure in mined spoils in the Brazilian Cerrado. *Sociedade & Natureza* 5: 789-795

## RESEARCH GRANTS

### a) Current

- NSF Convergence Accelerator 1939511 | Duration: 10/01/19 – 07/30/21 | **Role:** P.I. **Title:** Landscape Carbon Sequestration for Atmospheric Recovery (LCSAR) **Total:** \$ 80,610
- NSF Plant Biotic Interactions (PBI) 1758947 | Duration: 07/01/18 – 07/30/20 | **Role:** PI **Title:** Harnessing biological complexity to improve food security: How do mycorrhizal networks control resource transfer and plant productivity in inter- and mono-crop model systems? **Total:** \$299,705 **Published articles** #72. [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1758947](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1758947)
- NSF Atmospheric and Geospace Sciences (AGS) 1602958 | Duration: 08/01/16 – 03/30/20 **Role:** P.I. **Title:** Collaborative Research: Delineating Holocene climate-biosphere links from climate and vegetation reconstructions from the Amazon region **Total:** \$476,217. **Published articles** #65, 69, 77, 78, 81. [https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1602958](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1602958)
- Resilience Initiative Interdisciplinary Research | Duration: 08/01/19 – 03/30/21 **Role:** P.I. **Title:** Interdisciplinary Science for Environmental and Social Security **Total:** \$50,000

### b) Completed

- National Geographic Society | Duration: 07/01/18 – 07/30/19 | **Role:** Co-PI **Title:** The climate paradox: mapping resilience and vulnerability of montane forests **Published articles** #80.
- NIFA | Duration: 07/01/14 – 07/30/18 | Grant #: 2014-67003-22077 | **Role:** Co-PI **Title:** *Agricultural sensitivity to climate change and water resources interactions in the San Joaquin Valley California and system resilience offered by adaptation strategies* **Total:** \$1,874,997 **Published articles** #44, 49, 56, 66, 74, 77, 79, 81. <https://app.dimensions.ai/details/grant/grant.3942599>
- Save-the-Redwoods League FY14 | Duration: 07/01/16 – 07/30/18 | Grant #: 089 | **Role:** Co-PI **Title:** *Understanding the influence of an apex predator on the forest carbon cycle: mapping trophic pathways and identifying microbial players with stable isotope and community DNA* **Total:** \$25,000 **Published articles** #59, 67.
- California Department of Food and Agriculture | Duration: 10/01/14 – 04/30/17 | Grant #: 26491 | **Role:** P.I. **Title:** *Measuring evapotranspiration, water balance and depth of water uptake to improve efficiency of California's tree crops* **Total:** \$370,359 **Published articles** #66, 69, 70, 71, 74, 77, 80.
- University of California Academic Federation Innovative Development Award (2015-2017) | **Role:** PI **Title:** Retracing drought impacts in California: A new approach to measure changes in food quality and productivity as caused by fluctuations in rainfall **Total:** \$12,924 **Published articles** #54, 58, 64.
- UC MEXUS-CONACYT (Awarded 2014-2016). CN 13-546 | **Role:** Co-PI P.I. **Title:** Effects of soil-plant feedbacks on the response of forest ecosystems to climate variability and nitrogen deposition **Total:** \$25,000. **Published articles** #28, 55, 73, 75, 76.
- Chinese Academy of Science, Grant for International Researchers (Awarded 2012-2014) **Role:** PI. Sept 2012-14. **Title:** Climate-driven vegetation and soil nutrient dynamics across altitudinal gradients in the Qinghai-Tibetan Plateau, China. Chengdu Institute of Biology \$50,000. **Published articles** #47, 51, 62.
- National Council for Scientific and Technological Development Brazil (2014-2016). **Role:** Co-PI. Ecological

implications of large scale restoration of degraded land in the Cerrado-Amazon transition \$100,000.  
**Published articles** #52, 53, 60, 71, 78.

USAID / UC RIFA (Research and Innovation Fellowships) | Duration: 01/07/16 – 07/30/18 | **Role:** Collaborator **Title:** *Investigating links between plant diversity and soil properties to promote sustainable agriculture in tropical regions.* **Total:** \$122,089 **Published articles** #60, 61, 71, 73, 78.

## AWARDS

- Sustainability Research Award – University of Oregon 2019
- National Academy of Sciences – Macrosystems Biology / NEON Travel Award 2019
- Early Career Excellence in Research – University of Oregon 2018
- Best paper of the year – American Society for Enology & Viticulture 2016
- National Academy of Sciences – Coupled Human & Nat Systems Travel Award 2016
- Innovative Research Development Award – UC Davis Academic Federation 2015
- J Stan Rowe Award for best paper in Ecology – Canadian Botanical Association 2013
- Canadian Society for Ecology and Evolution – Travel Award 2010
- Ontario Agricultural College Graduate Award – U Guelph 2009
- Arthur D. Latornell Graduate Scholarship – U Guelph 2008
- National Academy of Sciences Biocomplexity Graduate Fellowship – U Miami 2006/2007

## MEDIA HIGHLIGHTS

- [Sustainability Research Video](#)
- [Jefferson Public Radio Interview](#)
- [Early Career Excellence in Research Award](#)
- [Solving interdisciplinary puzzles at the SPA Lab](#)
- [Climate change impact on forest carbon and water](#)
- [Looking at climate stress on West Coast rangelands](#)
- [Restoration of California Deltaic and Coastal Wetlands](#)
- [UO researcher finds surprise growth in Tibetan forest](#)
- [Soil carbon – key to protecting biodiversity and climate](#)
- [Winery wastewater a viable water source for vineyards](#)
- [Plants use nitrogen from the atmosphere in unexpected ways](#)

## SERVICE

### a) University

[Resilience Initiative](#) (2018/2019): One of [10 faculty members](#) developing a strategic plan for interdisciplinary research focused on improving human well-being and environmental stability under climate change. For example, a recently awarded grant titled “Landscape Carbon Sequestration for Atmospheric Recovery (LCSAR)” (Silva PI) involves faculty and graduate students in Biology, Landscape Architecture, and Law School as well as partnerships in California, Oregon, and Washington. The project is designed to accelerate CO<sub>2</sub> drawdown through natural climate solutions in alignment with industry and land stewardship needs. It brings together (i) academic experts, (ii) industry stakeholders (iii) federal, tribal, and local managers, (iv) land trusts and private owners, and (v) technology companies developing open access infrastructure to envision transformative partnerships. Expected outcomes include data-integration platforms that catalyze investments toward carbon sequestration to foment the use of landscape-based research into an actionable set of protocols and deliverables.

Data Science Initiative (2018/2019): Faculty search committees related to Data Science (e.g. Data Science / Ecology in IE2 2018/2019; Remote Sensing and Data Science for Social Equity in GEO 2018/2019).

Search committees for UO’s new Strategic Research Initiatives Department Head and Research Development Services (Kate Petcosky; 2017/2018);

Service in the form of training, data gathering, and technical expertise. For example, workshops for ~40 students who are not part of SPA Lab’s core group (2016/2017/2018) including instrumentation and supplies for analysis of plants, soils, and artifacts in collaboration with Anthropology, Earth Sciences, and Biology faculty;

## b) Department

<b>ENVS</b>	Interim Director of Graduate Studies (Spring/Summer 2017) Commencement speaker as Director of Graduate Studies (Summer 2017) Graduate student recruiting committees (Fall/Winter 2016/17 and 2018/19) Chair of Events and Seminar Committee (Fall/Winter 2017/18) Liaison Geography/Environmental Studies
<b>GEO</b>	Graduate student qualifying/thesis committees (Paul Reed, Alejandro Brambila) Data Science for Social Equity faculty search committee (Fall/Winter 2017/18) Graduate student committees (Kate Hayes, Lauren Hendrix, Chantel Saban, Mohamad Eshghi) Seminar Tea Talk Speaker Library representative
<b>IE2</b>	Microbial Ecology faculty search committee (Fall/Winter 2016/17) Data Science Ecology faculty search committee (Fall/Winter 2018/19) Graduate student qualifying committees (Dan Thomas, Jessica Cothern, Kaye Shek, Kayla Evens) Graduate lab rotation (Andrew Morris, Alejandro Brambila, Ian Petersen, Max Spencer, Monica Ruwaimana) Graduate Recruiting Events

## c) Profession

### Editorial role

- Nature Publishing Group. Environmental Sciences Editor (Sept 2016 – Present)  
<https://www.nature.com/srep/about/editorial-board>
- PLoS ONE. Ecology Academic Editor (July 2014-Present)  
<http://journals.plos.org/plosone/static/editorial-board>
- Plant & Soil. Section Editor (Oct 2014-Present)  
<https://www.springer.com/life+sciences/plant+sciences/journal/11104?detailsPage=editorialBoard>
- Soil Science Society of America. Communications editor (Mar 2014 – Aug 2017)  
<https://www.soils.org/about-society/committees/s302/members/>

**Research grant selection panels** - California Department of Fish and Wildlife; National Science Foundation: Division of Environmental Biology / Ecosystem studies; National Science Foundation: CONICYT Comisión Nacional de Investigación Científica y Tecnológica (Chile); National Science Center Poland: Division of Plant Biology / Environmental Sciences; Flanders Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek: FWO, Belgium).

**Reviewer** - Agricultural & Forest Meteorology; Atmosphere; Biogeoscience; Biology Letters; Ecohydrology; Ecology; Ecological Complexity; Ecosystems; Funct Plant Biology; Global Change Biology; Global Ecology & Biogeography; Nature Climate Change; Nature Sci Reports; Oecologia; Palaeogeography, Palaeoclimatology, Palaeoecology; Plant & Soil; Plant Cell & Envir; PLoS ONE; Restoration Ecology; Soil Biology & Biogeochemistry; Soil Science Society of America; Trees.

**Memberships** – American Association of Geographers; American Geophysical Union; Ecological Society of America; Soil Science Society of America.

## d) Outreach

**Science training in underserved communities:** Organizer and instructor of NSF-funded field ecology and stable isotope courses for undergraduate students in public universities serving underserved communities across the Cerrado-Amazon region in central Brazil (2017-2019). Organizer and instructor of field and lab research projects at UO to provides research opportunities for low-income first-generation SPUR undergraduate students and NSF GRFP training workshops.

**Land managers and farmers:** Lead PI in California Department of Food and Agriculture grants focusing on sustainability under climatic stress in collaboration with UC cooperative extension specialists to improve wastewater management and drought resilience across California; Lead PI in projects spanning several years of outreach activities funded by the National Science Foundation PBI, USDA NIFA in California, Oregon and Washington states focusing on agricultural sustainability and rangeland resilience in connection with plant-fungal network behavior under drought.

**UC MEXUS / USAID / UC RIFA International Research Mentoring:** Co-advisor of students investigating links between plant diversity and soil properties to promote sustainable forestry and agriculture in Mexico and Brazil (2015-



2017) providing innovation fellowships awards to support graduate student research and professional development.

**High School research opportunities:** Supervised high school students from underserved communities in California working on tree identification and ecophysiological measurements. An award-winning project at Woodland high-school involved student training in field sampling techniques and lab work at the UC Davis Stable Isotope Facility. Similar activities are planned for pending grant proposals - NSF Career and USDA NIFA grants in collaboration with UO Summer Program for Undergraduate Research in Life Sciences (SPUR) program (pending).

## TEACHING AND MENTORING

### Courses Taught

University of Oregon

- Soil Science (ENVS 477/577; Fall 2017; Fall 2018; Fall 2019);
- Soil-Plant-Atmosphere Interactions (GEO 607; Spring 2018; Spring 2020);
- Interdisciplinary Research Develop (ENVS 607; Winter 2016; Winter 2019);
- Forests & Society (GEO 410/510; Spring 2019);

University of California Davis

- Global Carbon Cycle (SSC 222; Winter 2013; 2015);
- Stable Isotope Applications in Ecology (SSC 290; Fall 2015);
- Agricultural and Environmental Chemistry (AGC 290; Fall 2014; Spring 2015);

### MENTORING

PhD students	Institution	Advisory role	Year completed	Present Employment
Schlyer Reis	UO (ESSP/Geo)	Main advisor	Current	
Adriana Uscanga Castillo	UO (Geo)	Main advisor	Current	
Jamie Wright	UO (ESSP/Bio)	Main advisor	Current	
Paulo Quadri	UCSC	Co-Advisor	2019	Postdoctoral fellow UCSC
Barbara Bomfim	UC Davis	Co-Advisor	2018	Postdoctoral fellow UO
Toby Maxwell	UC Davis	Co-Advisor	2018	Postdoctoral fellow UO
Daniela Jerszurki	UC Davis	Co-Advisor	2016	Postdoctoral fellow U Negev Israel
Josenilton de Farias	UC Davis	Co-Advisor	2016	Assist professor U Mato Grosso Brazil
Julie Bower	UC Davis	Co-Advisor	2015	Postdoctoral fellow UC Davis CA
Alveiro Salamanca-Jimenez	UC Davis	Co-Advisor	2015	Research faculty NCCR Colombia
Mason Earles	UC Davis	Co-Advisor	2015	Assistant Professor UC Davis

MS students	Institution	Advisory role	Year completed	Present Employment
Oriana Chafe	UO (ESSP)	Main advisor	Current	
Weicheng Wang	UO (Geo)	Main advisor	Current	
Mike Farinacci	UO (Geo)	Main advisor	Current	
Laura Emberson	UC Davis	Main advisor	2017	Environmental analyst NRCS DC
Tara Seely	UC Davis	Main advisor	2017	NSF GRFP PhD student UC Berkeley
Jennifer Morris	UC Davis	Co-Advisor	2015	Research scientist / consultant MLJ CA

Undergraduate students	Institution	Project	Advisory role	Year
Aaron LeFore	UO	Honors thesis	Co-supervising with lab postdocs	2018/2019
Hunter Mackin	UO	Env Sci Internship	Co-supervising with lab postdocs	2018/2019
Sydney Katz	UO	Env Sci Internship	Co-supervising with lab postdocs	2018/2019
Elizabeth Baach	UO	Env Sci Internship	Co-supervising with lab postdocs	2018/2019
Hilary Dawson	UO	NSF PBI	Co-supervising with lab postdocs	2018/2019
Braden Prillwitz	UO	Honors thesis	Main advisor	2018
Alexia Gee	UO	NSF SPUR	Main advisor	2017
Robert Kubacki	UC Davis	Honors thesis	Main advisor	2017
Cecilia Gonzales	UC Davis	AggieMentors	Main advisor	2016

### Student awards

**Jamie Wright** (2019) Travel Award 44th New Phytologist Symposium. Accra, Ghana.

**Ori Chafe** (2019) Best Poster Award. Climate Science Symposium. University of Oregon.

**Adriana Uscanga Castillo** (2018) Best Poster American Association of Geographers Conference.

**Ori Chafe** (2018) NSF Graduate Research Fellowships Program (GRFP) Award.

**Schlyer Reis** (2017) Best presentation award on Disturbance and Resilience. Joint OR Campus Conference 2017.

**Alexia Gee** (2016) University of Oregon Summer Program for Undergraduate Research in Life Sciences (SPUR).  
**Tara Seely** (2016) NSF Graduate Research Fellowships Program (GRFP) Award.  
**Laura Emberson** (2016) Best poster award. Interdisciplinary Graduate and Professional Student Symposium (IGPS).  
**Cecilia Gonzales** (2016) Best poster. UCD Aggie Mentors Symposium.  
**Cecilia Gonzales** (2016). Emerging Env Leader Scholarship. National Council for Science and the Environment.

## LANGUAGE SKILLS

**Native or bilingual proficiency:** *English, Portuguese, and Spanish.*

## SELECT CONFERENCES AND SYMPOSIA

- SILVA LCR** (2019) Spatiotemporal scaling of carbon-water relations from trees to landscapes: A quantitative approach to improve forest management to enhance socio-ecological resilience. *Invited Seminar. Oregon State University.*
- BROZ A, RETALLACK G, HORGAN B, POLIZZOTTO M, SILVA LCR** (2019) Organic Matter Preservation in Clay-Rich Paleosols of Earth and Mars. *SSSA International Annual Meetings*
- SILVA LCR** (2019) A new Hypothesis for the Origin of Amazonian Dark Earths. *Invited Seminar. University of Brasilia, Brazil.*
- WRIGHT J, SILVA LCR** (2019) Using soil and speleothem records to probe for climate-induced forest expansion in the Amazon-Cerrado transition. 44th New Phytologist Symposium, Accra, Ghana.
- CORREA-DÍAZ A, SILVA et al** (2019) Linking remote sensing and dendrochronology to quantify climate-induced shifts in high-elevation forests over space and time. North American Forest Ecology Workshop (NAFEW) will be held in Edmonton, Alberta, Canada.
- SILVA LCR** (2018) Commencement Speaker. Environmental Studies graduation. University of Oregon.
- SILVA LCR** (2018) Interdisciplinary Assessment of Climate-induced Ecosystem Dynamics in the Tropics: Implications for Sustainable Development. *Invited Seminar. University of Brasilia, Brazil.*
- REIS SA, SILVA LCR** (2018) Linking Juniper Tree Growth, Range Expansion, and Climate Change in the Sagebrush Steppe. *Ecological Society of America Conference. New Orleans, Louisiana.*
- USCANGA A, Silva LCR** (2018) Examining causes and consequences of regime shifts in human-environment systems of the Mexican cloud forest. *American Association of Geographers. New Orleans, Louisiana.*
- WRIGHT J, SILVA LCR** (2018) Forest Expansion Detected in Brazil Using Carbon Stable Isotopes in Soil. *Ecological Society of America Conference. New Orleans, Louisiana.*
- SILVA LCR** (2017) The strength of weak ties in soil-plant-atmosphere interactions and climate change research. Invited Seminar. University of Oregon. Geography.
- SILVA LCR** (2017) The strength of weak ties: Placing soil-plant-atmosphere interactions at the forefront of climate change research. Invited Seminar. University of Quebec at Montreal, Canada.
- MAXWELL TM, SILVA LCR** (2017), Dynamic and inertial controls on forest carbon-water relations. Abstract PP31D-2311, Oral presentation at 2017 Fall Meeting, AGU, New Orleans, LA, Dec. 11-15. 2.
- MAXWELL TM, SILVA LCR** (2016), Predictable oxygen isotope exchange of plant lipids improves our ability to understand hydrologic shifts and partition evapotranspiration across scales. Abstract PP31D-2311, presented at 2016 Fall Meeting, AGU, San Francisco, Calif., Dec. 12-16. 3.
- MAXWELL TM, SILVA LCR** (2016), Soil Properties Drive CarbonWater Relations Across a Climate Gradient in Sierra Nevada Forests. Abstract 60315, Oral Presentation, ESA, Ft. Lauderdale, FL, Aug. 7-12.
- SILVA LCR** (2016) The strength of Weak Ties in Coupled Human and Environmental Systems. Colegio de Postgraduados, Estado de Mexico, Mexico.
- SILVA LCR** (2016) Coupled Human and Environmental Systems. *National Academy of Sciences. Arthur M. Sackler colloquia. Washington DC.*
- JERSZURKI D, SILVA LCR, et al** (2016) Modeling an Alternative Reference Evapotranspiration Method under Different Climate Regimes in Brazil. *American Geophysical Union Annual Meeting. San Francisco CA.*
- BOMFIM B, SILVA LCR, DOANE T, HORWATH WR, HELLO J** (2016) The Effect of Land-use Change and

- Management on Free-living N<sub>2</sub> fixation in the Brazilian Atlantic Forest. American Geophysical Union Fall Meeting. San Francisco, California.
- WRIGHT J, BOMFIM B, MAXWELL T, **SILVA LCR** (2016) American Geophysical Union's spring 2016 Impacts of tropical land use change on soil C and N: results from long-term and short-term primary forest conversions
- WRIGHT J, BOMFIM B, **SILVA LCR** (2016) Spring SERCAL Conference May 11th (2016) Kings Beach, California, 96143 Title: Yellow Starthistle Management through Carrying Capacity and Grazing
- SEELY T, **SILVA LCR**, SHACKHEL K (2016) Linking Plant Water-Use Efficiency and Depth of Water Uptake to Field--Level Productivity Under Surplus and Deficit Irrigation in Almond Orchards. *American Geophysical Union Annual Meeting*. San Francisco CA.
- WORTHAM B, WONG C, **SILVA LCR**, et al (2016) Potential decoupling between the regional monsoon intensity and local moisture conditions during the last millennium in central Brazil. *American Geophysical Union Annual Meeting*. San Francisco CA.
- MAXWELL T, **SILVA LCR**, et al (2016) Predictable oxygen isotope exchange of plant lipids improves our ability to understand hydrologic shifts and partition evapotranspiration across scales. *American Geophysical Union Annual Meeting*. San Francisco CA.
- SEELY T, **SILVA LCR**, SHACKHEL K (2016) Linking Plant Water Use to Field-Level Water Efficiency Under Surplus and Deficit Irrigation: A Case Study in Almond Orchards. *SSSA Annual Meeting*. Phoenix AZ.
- EMBERSON L, SILVA LCR, HORWATH (2016) Wheat Physiology and Yield Unaltered By Climatic Pressures. *SSSA Annual Meeting*. Phoenix AZ.
- WRIGHT J, BOMFIM BO, **SILVA LCR** (2016) Yellow Starthistle Management through Carrying Capacity and Grazing. *California Society for Ecological Restoration*. Kings Beach, California.
- MAXWELL TM, **SILVA LCR**, HORWATH WR (2015) Soil properties drive water-use efficiency across a climate gradient. *American Geophysical Union - AGU - San Francisco, CA*.
- WORTHAM BE, WONG CI, MONTANEZ IP, GLESSNER JG, RASBURY ET, **SILVA LCR** (2015) Reconstructing late Holocene Brazilian hydroclimate from speleothem Sr isotopes measured using solution and laser ablation techniques. *American Geophysical Union - AGU - San Francisco, CA*.
- BOMFIM BO, **SILVA LCR**, MARIMON BH, MARIMON B, HORWATH WR (2015) Quantifying the effect of fire disturbance on free-living nitrogen fixation in tropical ecosystems. *American Geophysical Union - AGU - San Francisco, CA*.
- STEENWERTH K L, BUELOW M, **SILVA LCR**, PARIKH SJ. (2015) Update on survey of winery wastewater composition and its application for vineyard irrigation. *Waste Water Workshop, UC Davis, Kearney Agricultural Research and Extension (KARE) Center*, 12 August.
- JERSZURKI D, COUVREUR V, HOPMANS JW, **SILVA LCR**, SHACKEL KA, SOUZA JLM (2015) Impact of root growth and root hydraulic conductance on water availability of young walnut trees. *European Geosciences Union - EGU - Vienna, Austria*, 12-17 April
- BOMFIM B, **SILVA LCR**, W R HORWATH, R S PEREIRA, GATTO A Soil Nutrient Stocks and Litter Input in Primary Forest under Selective Logging, Brazilian Amazonia. Soil Science Society of America Conference: Soil's Role in Restoring Ecosystem Services. Sacramento, CA, USA. March 6 – 9, 2014.
- BOMFIM B, **SILVA LCR**, W R HORWATH, R S PEREIRA, A GATTO, F EMMERT The impacts of selective logging on litter input, soil carbon and nutrient stocks, in the Brazilian Amazon. International Union of Forest Research Organizations 2014 World Congress - Salt Lake City, Utah, USA. Oct. 5 – 11, 2014.
- BOMFIM B, **SILVA LCR**, T DOANE, B H MARIMON, B S MARIMON, L S NEVES, W R HORWATH. Quantifying the effect of fire disturbance on free-living nitrogen fixation in tropical ecosystems. American Geophysical Union Fall Meeting. San Francisco, California, USA. Dec. 14 – 18, 2015.
- WONG C, **SILVA LCR** Special session proposer/organizer (December 2014) Interdisciplinary approaches to reconstructing climate variability and associated feedbacks from the last deglaciation, Holocene, and Anthropocene. *American Geophysical Union -AGU*. San Francisco, California – US.
- SILVA LCR**, HORWATH, W (November 2014) Iron-driven biological stabilization of organic matter amplifies the benefits of ecosystem restoration explaining unprecedented carbon accumulation in degraded soils. Invited oral presentation *Soil Science Society of America - SSSA*. Long Beach, California – US.
- HORWATH, W, **SILVA LCR** (November 2014) Unprecedented Carbon Accumulation in Mined Tropical Soils

- Following Restoration. Invited presentation *Soil Science Society of America*. Long Beach, California – US.
- SILVA LCR**, PEDROSO G, DOANE TA, MUKOME F, HORWATH, W (June 2014) Beyond Cellulose: Quantifying Plant to Ecosystem Level Water Balance  $\delta^{18}\text{O}$  Composition of Lipids. *Goldschmidt*. Sacramento, California - US.
- WONG CI, **SILVA LCR**, MONTAÑEZ IP, COOPER KM, HORWATH WR. (June 2014) Speleothem reconstruction of last 1,500 years of Brazilian climate. *Goldschmidt*. Sacramento, California - US.
- MAXWELL T, **SILVA LCR**, PEDROSO G, MUKOME F, DOANE T, HORWATH, W (March 2014) Quantifying water balance-carbon storage relationships using oxygen isotope ratios of plant lipids. *Goldschmidt*. Sacramento, California - US.
- SILVA LCR**, CORRÊA RS, DOANE T, HORWATH, W (March 2014). Biotic and abiotic controls of carbon accumulation in mined soils undergoing restoration. Oral presentation. *Soil Science Society of America - SSSA*. Sacramento, California -US.
- MAXWELL T, **Silva LCR**, PEDROSO G, MUKOME F, DOANE T, HORWATH, W (March 2014) Quantifying water balance-carbon storage relationships using oxygen isotope ratios of plant lipids. *Soil Science Society of America - SSSA*. Sacramento, California - US.
- MORRIS J, **SILVA LCR**, YE, R, HORWATH, W (March 2014) Quantifying the contribution of rice to  $\text{CH}_4$  and  $\text{N}_2\text{O}$  emissions in agricultural wetlands. *Soil Science Society of America - SSSA*. Sacramento, CA - US.
- ZHU X, **SILVA LCR**, DOANE TA, HORWATH WR (2013) Iron: The forgotten driver of  $\text{N}_2\text{O}$  emissions from soils. *PLoS One* 8(3): e60146. *Soil Science Society of America - SSSA*. Sacramento, California - US.
- BOMFIM B, **SILVA LCR**, HORWATH WR (October 2014) The impacts of selective logging on litter input, soil carbon and nutrient stocks, in the Brazilian Amazon. *International Union of Forest Research Organizations XXIV World Congress*. Salt Lake City, US.
- SILVA LCR**, PEDROSO G, DOANE TA, HORWATH, W (November 2013) Beyond the Cellulose: Quantifying Plant to Ecosystem Level Water Balance Using Oxygen ( $\delta^{18}\text{O}$ ) Isotopic Composition of Lipids. *Soil Science Society of America - SSSA*. Tampa, FL - US.
- MUKOME FND, ZHANG X, **SILVA LCR**, SIX J, PARIKH S (November 2013) Use of Chemical and Physical Characteristics to Investigate Trends in Biochar Feedstocks. *Soil Science Society of America*. Tampa, FL.
- MORRIS J, **SILVA LCR**, YE, R; HORWATH, W (November 2013) Quantifying the Contribution of Rice to  $\text{CH}_4$  Emissions and Determining Effect of Nitrogen Rates On Greenhouse Gas Emissions. *Soil Science Society of America - SSSA*. Tampa, FL - US.
- SCOW K, **SILVA LCR** (Oct 2012) Soil Biology and the Anthropocene. Invited oral presentation. *Soil Science Society of America - SSSA*. Cincinnati, Ohio - US.
- SILVA LCR**, CORRÊA RS, Doane T, Horwath WR (Ago 2012) Invasive grasses enhance soil carbon content from near zero to forest-like levels following the restoration of mined areas in central Brazil. Oral presentation. *Ecological Society of America – ESA*. Portland, Oregon - US.
- SILVA LCR**, ANAND M (2011) Forest expansion across biomes: The role of climate change and related forces. Invited oral presentation. *Ecological Society of America – ESA*. Austin, Texas – US.
- BECKAGE B, GROSS L, KAUFFMAN S, **SILVA LCR**, ET AL (2011) Inherent limits to prediction and implications for projecting forest response to climate change. *Ecological Society of America – ESA*. Austin, Texas – US.
- SILVA LCR**, ANAND M (2010) Mechanisms of forest expansion in southern Brazil. *Canadian Society of Ecology and Evolution*. Oral presentation. Quebec, Quebec - Canada.
- ZEBALLOS SR, GURVICH DE, **SILVA LCR**, ET AL. (2010) Relación entre le eficiencia del uso de agua ( $\delta^{13}\text{C}$ ) y las estrategias de uso de agua del Bosque Serrano. *IV Reunión Binacional Ecología* Buenos Aires Argentina.
- WHITWORTH-HULSE JI, GURVICH DE, **SILVA LCR**, ZEBALLOS SR, POCA M, POZZI E, CINGOLANI AM (2010) Relaciones entre las estrategias de uso de nutrientes y de agua en cinco especies leñosas de la Pampa de Achala. *IV Reunión Binacional de Ecología*. Buenos Aires - Argentina.
- SILVA LCR**, ANAND M, LEITHEAD M (2009) Loss of  $\text{CO}_2$  sensitivity results in temperate and boreal forests decline. Invited oral presentation. *Sudbury Restoration Workshop*. University of Laurentian, Sudbury, ON.
- SILVA LCR**, ANAND M, LEITHEAD M (2009) Temperate and Boreal tree growth decline in spite of increasing  $\text{CO}_2$ . *Ecological Society of America - ESA*. Oral Presentation, Abstracts. Albuquerque, New Mexico - US.