

## Paul S.J. Verburg, Ph.D.

Department of Natural Resources and Environmental Science  
University of Nevada, Reno  
1664 N. Virginia Street  
Reno, NV 89557

## Curriculum Vitae

Phone: (775) 784-4019  
Cell: (775) 722-2276  
Email: pverburg@cabnr.unr.edu

### Short Biography

I have been employed at the University of Nevada, Reno (UNR) since August 2013 as an Assistant Professor of Soil Biogeochemistry and Pedology in the Department of Natural Resources and Environmental Science (NRES) of the College of Agriculture, Biotechnology, and Natural Resources (CABNR). Prior to joining UNR, I was an Associate Research Professor (2005-2013), Assistant Research Professor (2000-2005), and Postdoctoral Research Associate (1998-2000) at the Desert Research Institute (DRI), a soft-money research institute. Between 2008 and 2012, I was Interim Executive Director of the Division of Earth and Ecosystem Sciences at DRI. While at DRI, I was an Adjunct Professor at UNR in the Hydrologic Sciences Program, Environmental Sciences Program, and the NRES Department. In total, I have worked 17 years in research and 4 years in upper administration since obtaining my Ph.D. degree.

My research focuses on understanding impacts of environmental perturbations, such as climate change, land use and management, and fire, on soil biogeochemical processes in natural and managed systems using both experimental and modeling approaches. *I have authored or co-authored 50 peer-reviewed publications in high-impact international journals (H-index=24; i10-index=37; 3954 citation), and I have delivered or been co-author on 70 presentations (16 invited) at professional scientific meetings and institutions. I have been awarded over \$9.3 million in grants (of which \$2.2 million as PI). Most of my funding has been awarded from highly competitive national programs at the National Science Foundation, U.S. Department of Energy, U.S. Department of Agriculture and the U.S. Department of Defense. I have been invited to serve on 6 national grant program review panels (I have served on 2 panels; declined 4 due to teaching obligations), and in 2013, I was invited to serve as an NSF Program Officer but declined due to family circumstances. I have reviewed more than 100 papers and/or proposals, and I have a well-documented record of service to UNR, DRI, and the scientific community.*

At UNR, I have developed and regularly teach the following formal courses: (1) an introductory undergraduate course in soil science (NRES 322 – Soils), (2) an upper division undergraduate/graduate course in Soil Genesis and Morphology (NRES 485/701C), and (3) an advanced graduate course in Soil Biogeochemistry (NRES 702). I have served as primary advisor to 8 graduate students and 2 graduate student foreign interns. I have mentored 18 undergraduate students, and supervised 1 postdoctoral fellow and 3 technicians. Most of my students and employees have gone on to work in academic science, natural resource management, or environmental science/management. Several of my undergraduate advisees completed supervised independent research projects in my lab that resulted in peer-reviewed publications and/or presentations at professional scientific meetings. In addition, I have served as a committee member for 53 graduate students at UNR.

I was awarded the *Peter B. Wagner Medal of Excellence* in recognition of outstanding scientific accomplishments at DRI, and I was awarded the *CABNR Outstanding Teacher Award at UNR*. Recently, I was nominated for the university-wide *F. Donald Tibbitts Distinguished Teacher Award at UNR* and the national *USDA Excellence in College and University Teaching in the Food and Agricultural Sciences Award*.

## Education

- 1998**      **Ph.D. in Environmental Science.**  
Wageningen Agricultural University, The Netherlands.  
*Dissertation Title:* Organic Matter Dynamics in a Boreal Forest Soil as Affected by Climate Change (Research conducted in Norway).  
*Advisor:* Dr. N. van Breemen
- 1992**      **M.S. in Soil Science.**  
Wageningen Agricultural University, The Netherlands.  
*Thesis Title:* Mineral Transformations and Clay Neoformation in Two Profiles on an Andesitic Chronosequence under Humid-tropical Conditions (Research was conducted in Costa Rica).  
*Advisor:* Dr. N. van Breemen  
*Thesis Title:* The Formation of Etch Pits and Micropores in Minerals.  
*Advisor:* Dr. S.B. Kroonenberg
- Coursework included more than 100 credits in soil science, including courses in soil mineralogy, chemistry, physics, biology, tillage, formation and morphology.

## Appointments

- 2013 – present**    **Assistant Professor**, Department of Natural Resources and Environmental Science, University of Nevada, Reno.
- 2008 – 2012**      **Interim Executive Director**, Division of Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada.
- 2005 – 2013**      **Associate Research Professor**; Division of Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada.
- 2000 – 2013**      **Adjunct Faculty**; Hydrologic Sciences, University of Nevada, Reno.  
**Adjunct Faculty**; Environmental Sciences, University of Nevada, Reno.  
**Adjunct Faculty**; Natural Resources and Environmental Science, University of Nevada, Reno.
- 2000 – 2005**      **Assistant Research Professor**; Division of Earth and Ecosystem Sciences, Desert Research Institute, Reno, Nevada.
- 1998 – 2000**      **Postdoctoral Research Associate**; Biological Sciences Center, Desert Research Institute, Reno, Nevada.  
*Advisor:* Dr. D.W. Johnson

## Citizenship

United States

## Languages

Dutch (native language)  
English (fluent/native level)  
German (proficient)  
French (conversational)  
Norwegian (basic knowledge)  
Spanish (basic knowledge)

## Awards

- 2019 **Nominated, USDA Excellence in College and University Teaching in the Food and Agricultural Sciences Award** (National award recognizing outstanding college faculty in agriculture, natural resources, veterinary and human sciences; awarded to two professors per year.)
- 2018 **Nominated, F. Donald Tibbitts Distinguished Teacher Award, UNR** (University-wide award for excellence in teaching; awarded to two professors per year.)
- 2018 **Awarded, Outstanding Teacher of the Year, College of Agriculture, Biotechnology and Natural Resources, UNR** (College-level award honoring excellence in teaching; awarded to one professor per year.)
- 2017 **Nominated, Outstanding Teacher of the Year, College Of Agriculture, Biotechnology and Natural Resources, UNR**
- 2009 **Faculty of 1000 Biology** selection for Arnone et al. (2008) *Nature* paper
- 2008 **Front cover of *Nature*.** Arnone et al. (2008) was featured on the journal front cover.
- 2008 **Front cover of *Soil Science Society of America Journal*.** Marion et al. (2008) was featured on the journal front cover.
- 2006 **Winner Best Oral Presentation Award, Forest and Range Soils section.** Annual Meeting of the Soil Science Society of America, Indianapolis, IN
- 2005 **Awarded, Peter B. Wagner Medal of Excellence for DRI Scholars in the Early Stages of Career Development, DRI.** (Institution-wide award recognizing excellence in research creativity, productivity, and contributions to science; awarded to one professor per year.)

## Professional Memberships

Soil Science Society of America  
Ecological Society of America  
American Geophysical Union  
American Association of University Professors  
Nevada Faculty Alliance

## Peer-reviewed Publications

I have (co)authored a total of 50 peer-reviewed articles in high-impact international scientific journals. I have an H-index of 24, an i10-index of 37, and 3954 citations (Google Scholar, August 2019). In my discipline, it is customary to be last author if the work was carried out in my lab and under my supervision. An asterisk (\*) indicates that the author was supervised or co-supervised by me.

### *In Review*

Zhao, Q., S. Dunham-Cheatham, D. Adhikari, C. Chen, A. Patel, S.R. Poulson, D. Obrist, **P.S.J. Verburg**, X. Wang, E. Roden, A. Thompson, Y. Yang. Anaerobic-aerobic transition regulates the oxidation of organic carbon. *Environmental Science and Technology*.

Found, M., K. McGwire, M. Weltz, **P.S.J. Verburg**. Predicting micro-catchment ponded infiltration dynamics. *Catena*.

### **Accepted**

Goehring, N.\*, L. Saito, J. Jeong, J. Kiniry, N. Meki, **P.S.J. Verburg**. Modeling quinoa growth, salt uptake, and soil salinity under saline conditions in western Nevada. *Agronomy*.

### **Published**

Adhikari, D., S. Dunham-Cheatham, D. Wordofa, D., **P.S.J. Verburg**, S.R. Poulson, Y. Yang. 2018. Aerobic respiration of mineral-bound carbon in a soil. *Science of the Total Environment* 651:1253-1260. (*Impact Factor=4.90*)

Trimble, B.\*, F. Calderon, S.R. Poulson, **P.S.J. Verburg**. 2018. Conversion of a Semi-arid Nevada soil to irrigated agriculture preferentially removes labile carbon. *Soil Systems* 2:38; doi:10.3390/soilsystems2030038. (*Impact Factor pending; journal launched in 2017*)

Carter, Z.\*, B.W. Sullivan, R.G. Qualls, R. Blank, C. Schmidt, **P.S.J. Verburg**. 2018. Charcoal increases microbial activity in eastern Sierra Nevada forest soils. *Forests* 9:93; doi:10.3390/f9020093. (*Impact Factor=2.08*) **Paper was featured by the journal.**

Ketchian, E.\*, B. Trimble\*, S.R. Poulson, **P.S.J. Verburg**. 2018. Direct determination of quantity and isotopic composition of soil C in arid soils. *Soil Science Society of America Journal* 82:231-234. (*Impact Factor=1.844*)

You, Y., K. Das, H. Guo, C.-W. Chang, M. Navas-Moreno, J. Chan, **P.S.J. Verburg**, S.R. Poulson, X. Wang, B. Xing, B. Y. Yang. 2017. Microbial transformation of multi-walled carbon nanotube by *Mycobacterium 4 vanbaalenii* PYR-1. *Environmental Science and Technology* 51:2068-2076. (*Impact Factor=6.198*)

Johnson, B.\*, **P.S.J. Verburg**, J.A. Arnone. 2016. Plant species effects on soil nutrients and chemistry in the Great Basin under recent and current climatic conditions. *Oecologia* 182:299-317. (*Impact Factor=3.130*)

Tang, G., J.A. Arnone, **P.S.J. Verburg**, R.L. Jasoni, L. Sun. 2015. Trends and climatic sensitivities of vegetation phenology in semiarid and arid ecosystems in the US Great Basin during 1982–2011 *Biogeosciences*. 12:6985-6997, doi:10.5194/bg-12-6985-2015 (*Impact Factor=4.618*)

Johnson, B.\*, **P.S.J. Verburg**, J.A. Arnone. 2014. Effects of climate and vegetation on soil nutrients and chemistry in the Great Basin studied along a latitudinal-elevational climate gradient. *Plant and Soil* 382:151-163. (*Impact Factor=3.052*)

De Graaff, M.-A., H.L. Throop, **P.S.J. Verburg**, J. Arnone, X. Campos. 2014. A synthesis of climate change impacts on biogeochemical cycling of carbon and nitrogen in shrub-dominated drylands. *Ecosystems* 17:931-945. (*Impact Factor=4.198*)

**Verburg P.S.J.**, S. Kapitzke\*, B.A. Stevenson\*, M. Bisiaux\*. 2014. Carbon allocation in Creosote bush (*Larrea tridentata*) as affected by elevated soil moisture and N availability. *Plant and Soil* 378:227-238. (*Impact Factor=3.052*)

**Verburg P.S.J.**, A.C. Young\*, B.A. Stevenson\*, I. Glanzmann\*, J.A. Arnone III, G. M. Marion, C. Holmes, R.S. Nowak. 2013. Do increased summer precipitation and N deposition alter fine root dynamics in a Mojave Desert ecosystem? *Global Change Biology* 19:948-956. (*Impact Factor=8.444*)

- Sherry R.A., L.L. Wallace, J.A. Arnone III, D.S. Schimel, **P.S.J. Verburg**, Y. Luo. 2012. Changes in the dominance hierarchy of a Tallgrass Prairie due to one year of warming and increased precipitation carry over into the following year. *Journal of Plant Ecology* 5:134-146. (*Impact Factor=2.831*)
- Sherry R.A., L.L. Wallace, J.A. Arnone III, D.S. Schimel, **P.S.J. Verburg**, Y. Luo. 2011. Changes in duration of reproductive phases and lagged phenological response to experimental climate warming. *Plant Ecology and Diversity* 4:23-35. (*Impact Factor=2.10*)
- Arnone, J.A. III, R.L. Jasoni, A.J. Lucchesi, J.D. Larsen, E.A. Leger, R.A. Sherry, Y. Luo, D.S. Schimel, **P.S.J. Verburg**. 2011. A climatically extreme year has large impacts on C<sub>4</sub> species in tallgrass prairie ecosystems but only minor effects on species richness and other plant functional groups. *Journal of Ecology* 99:678-688. (*Impact Factor=5.81*)
- Zhou, X., Y. Luo, **P.S.J. Verburg**, J.A. Arnone III, D.S. Schimel. 2010. Concurrent and lagged impacts of an anomalously warm year on components of soil respiration: A deconvolution analysis. *New Phytologist* 187:184-198. (*Impact Factor=7.33*)
- Chen, L.-W. A., **P. Verburg**, A. Shackelford\*, D. Zhu, R. Susfalk, J.C. Chow, J.G. Watson. 2010. Moisture effects on carbon and nitrogen emission from burning of wildland biomass. *Atmospheric Chemistry and Physics Discussion* 10:7985-8007. (*Impact Factor=5.896*)
- Cheng X., Y. Luo, B. Su, **P.S.J. Verburg**, D. Hui, D. Obrist, J.A. Arnone III, D.W. Johnson, R.D. Evans. 2009. Responses of net ecosystem CO<sub>2</sub> exchange to nitrogen fertilization in experimentally 2 manipulated grassland ecosystems. *Agricultural and Forest Meteorology* 149:1956-1963. (*Impact Factor=4.753*)
- Verburg, P.S.J.**, D.W. Johnson, D.E. Schorran, L.L. Wallace, Y. Luo, J.A. Arnone III. 2009. Impacts of an anomalously warm year on nutrient availability in experimentally manipulated tallgrass prairie ecosystems. *Global Change Biology* 15:888-900. (*Impact Factor=8.444*)
- Sherry, R.A., S. Weng, J.A. Arnone III, D.W. Johnson, D.S. Schimel, **P.S.J. Verburg**, L.L. Wallace, Y. Luo. 2008. Lag effects of experimental warming and doubled precipitation on aboveground biomass in a tallgrass prairie. *Global Change Biology* 14:2923-2936. (*Impact Factor=8.444*)
- Stamenkovic, J., M.S. Gustin, J.A. Arnone, D.W. Johnson, J.D. Larsen, **P.S.J. Verburg**. 2008. Atmospheric mercury exchange with tallgrass prairie ecosystem housed in mesocosms. *Science of the Total Environment* 406:227-238. (*Impact Factor=4.900*)
- Marion, G.M., **P.S.J. Verburg**, B. Stevenson\*, J.A. Arnone III. 2008. Soluble element distributions in a Mojave Desert soil. *Soil Science Society of America Journal* 72:1815-1823. (*Impact Factor=1.844*) **Featured on the front cover of the journal.**
- Arnone III, J.A., **P.S.J. Verburg**, D.W. Johnson, J.D. Larsen, R.L. Jasoni, A.J. Farnady, C.M. Batts, C. von Nagy, W.G. Coulombe, D.E. Schorran, P.E. Buck, B.H. Braswell, J.S. Coleman, R.A. Sherry, L.L. Wallace, Y. Luo, D.S. Schimel. 2008. Reduction of ecosystem CO<sub>2</sub> uptake in anomalously warm year persists due to lagged rise in respiration. *Nature* 455:383-386. (*Impact Factor=40.137*) **Featured on the front cover of the journal, Selected for Faculty of 1000.**
- Marion, G.M., **P.S.J. Verburg**, E.V. McDonald, J.A. Arnone III. 2008. Salt movement through a Mojave Desert soil. *Journal of Arid Environments* 72:1009-1030. (*Impact Factor=2.313*)
- Sherry, R.A., S. Gu, X. Zhou, N.A. Zehrbach, L.L. Wallace, Y. Luo, J.A. Arnone III, **P.S.J. Verburg**, D. Schimel. 2007. Species-specific differences in flowering phenology in warmed

- tallgrass prairie plots. *Proceedings of the National Academy of Sciences* 104:198-202. (*Impact Factor=9.661*)
- Stevenson, B.\*, **P.S.J. Verburg**. 2006. Effluxed CO<sub>2</sub>-<sup>13</sup>C from sterilized and unsterilized treatments of a calcareous soil. *Soil Biology and Biochemistry* 38:1727-1733. (*Impact Factor=5.437*)
- Verburg, P.S.J.**, J. Larsen, D.W. Johnson, D.E. Schorran, J.A. Arnone III. 2005. Impacts of an anomalously warm year on soil CO<sub>2</sub> fluxes in experimentally manipulated tallgrass prairie ecosystems. *Global Change Biology* 11:1720-1732. (*Impact Factor=8.444*)
- Miller, W.W., D.W. Johnson, C. Denton, **P.S.J. Verburg**, G.L. Dana, R.F. Walker. 2005. Inconspicuous nutrient laden surface runoff from mature forest Sierran watersheds. *Water, Air and Soil Pollution*. 163:3-17. (*Impact Factor=1.702*)
- Verburg, P.S.J.** 2005. Soil solution and soil N response to climate change in two boreal forest ecosystems. *Biology and Fertility of Soils*. 41:257-261. (*Impact Factor=3.683*)
- Obrist, D., M.S. Gustin, J.A. Arnone III, D.W. Johnson, D.E. Schorran, **P.S.J. Verburg**. 2005. Measurements of gaseous elemental mercury fluxes over intact tallgrass prairie monoliths during one full year. *Atmospheric Environment* 39:957-965. (*Impact Factor=3.629*)
- Johnson, D.W., **P.S.J. Verburg**, J.A. Arnone III. 2005. Soil extraction, ion exchange resin, and ion exchange membrane measures of soil mineral N during incubation of a tallgrass prairie soil. *Soil Science Society of America Journal* 69:260-265. (*Impact Factor=1.844*)
- Verburg P.S.J.**, W. Cheng, D.W. Johnson, D.E. Schorran. 2004. Nonsymbiotic nitrogen fixation in three-year-old Jeffrey pines and the role of elevated [CO<sub>2</sub>]. *Canadian Journal of Forest Research* 34:1979-1984. (*Impact Factor=1.559*)
- Verburg, P.S.J.**, J.A. Arnone III, D. Obrist, R.D. Evans, D. LeRoux-Swarthout, D.W. Johnson, D.E. Schorran, Y. Luo, J.S. Coleman. 2004. Net ecosystem C exchange in two experimental grassland ecosystems. *Global Change Biology* 10:498-508. (*Impact Factor=8.444*)
- Obrist, D., M.S. Gustin, J.A. Arnone III, D.E. Schorran, **P.S.J. Verburg**, D.W. Johnson. 2004. Large annual Hg emissions over tallgrass prairie grasslands indicate vegetated terrestrial ecosystems to be sources of Hg to the atmosphere. *RMZ- Materials and Geoenvironment* 51.3:1688-1690. (*Impact Factor unknown*)
- Dawson, J.O., P.F. Ffolliott, J.T. Fisher, I. Moshe, C. Johnson, T.E. Fulbright, **P.S.J. Verburg**, M. Shatanawi. 2004. Dryland biodiversity: The International Arid Lands Consortium contributions to the status of knowledge. *Annals of Arid Zone* 43:445-456. (*Impact Factor=0.17*)
- Obrist, D., **P.S.J. Verburg**, M.H. Young, J.S. Coleman, D.E. Schorran, J.A. Arnone III. 2003. Quantifying effects of phenology on ecosystem evapotranspiration in planted grassland mesocosms using EcoCELL technology. *Agricultural and Forest Meteorology* 118:173-183. (*Impact Factor=4.753*)
- Susfalk, R.B., W.X. Cheng, D.W. Johnson, R.F. Walker, **P.S.J. Verburg**, S. Fu. 2002. Assessing rhizosphere respiration in a forest soil: Soil δ<sup>13</sup>C-CO<sub>2</sub> and its response to lateral diffusion and atmospheric CO<sub>2</sub> mixing. *Canadian Journal of Forest Research* 32:1005-1015. (*Impact Factor=1.559*)
- Rustad, L.E., J.L. Campbell, G.M. Marion, R.J. Norby, M.J. Mitchell, A.E. Hartley, J.H.C. Cornelissen, J. Gurevitch, GCTE-NEWS. 2001. A meta-analysis of the response of soil respiration, net nitrogen mineralization, and aboveground plant growth to experimental ecosystem warming. *Oecologia* 126:543-562. (*Impact Factor=3.130*)

- Verburg, P.S.J.**, D.W. Johnson. 2001. A spreadsheet-based biogeochemical model to simulate nutrient cycling processes in forest ecosystems. *Ecological Modelling* 141:185-200. (*Impact Factor=2.683*)
- Verburg, P.S.J.**, D.W. Johnson, R. Harrison. 2001. Long-term nutrient cycling patterns in Douglas-fir and red alder stands: a simulation study. *Forest Ecology and Management* 45: 203-217. (*Impact Factor=3.387*)
- Verburg, P.S.J.**, N. van Breemen. 2000. Nitrogen transformations in a forested catchment in southern Norway subjected to elevated temperature and CO<sub>2</sub>. *Forest Ecology and Management* 129:31-39. (*Impact Factor=3.387*)
- Nieuwenhuysse, A., **P.S.J. Verburg**, A.G. Jongmans. 2000. Mineralogy of a soil chronosequence on andesitic lava in humid tropical Costa Rica. *Geoderma* 98:61-82. (*Impact Factor=4.163*)
- Verburg, P.S.J.**, D. van Dam, M. Hefting\*, A. Tietema. 1999a. Microbial transformations of C and N in a boreal forest floor as affected by temperature. *Plant and Soil* 208:187-197. (*Impact Factor=3.052*)
- Van Breemen, N., A. Jenkins, R.F. Wright, W. Arp, D.J. Beerling, C. Beier, F. Berendse, R. Collins, D. van Dam, A. Lükewille, L. Rasmussen, **P.S.J. Verburg**, M.A. Wills. 1999. Impacts of elevated carbon dioxide and temperature on nitrogen cycling in a boreal forest ecosystem. *Ecosystems* 1:345-351. (*Impact Factor=4.198*)
- Verburg, P.S.J.**, W.K.P. van Loon, A. Lükewille. 1999b. The CLIMEX soil-heating experiment: Soil response after 2 years of treatment. *Biology and Fertility of Soils* 28:271-276. (*Impact Factor=3.683*)
- Verburg, P.S.J.**, A. Gorissen, W.J. Arp. 1998. Carbon allocation and decomposition of root-derived organic matter in a plant-soil system of *Calluna vulgaris* as affected by elevated CO<sub>2</sub>. *Soil Biology and Biochemistry* 30:1251-1258. (*Impact Factor=5.437*)
- Jongmans, A.G., **P.S.J. Verburg**, A. Nieuwenhuysse, F. van Oort. 1995. Allophane, imogolite and gibbsite in coatings in a Costa Rican Andisol. *Geoderma* 64:327-342. (*Impact Factor=4.163*)

### *In Preparation*

- Verburg, P.S.J.**, A. Young\*, G. Royce, D.W. Johnson, D.E. Schorran, L.L. Wallace, Y. Luo, J.A. Arnone. In preparation. Fine root dynamics as affected by interannual temperature variability in experimentally manipulated tallgrass prairie ecosystems. *Ecosystems*. To be submitted in fall 2019.

### **Book Chapters**

#### *Published*

- Verburg, P.S.J.**, D. van Dam, J.C.Y. Marinissen, R. Westerhof, N. van Breemen. 1995. The role of decomposition in C sequestration in ecosystems. In: Carbon sequestration in the biosphere: Processes and prospects. M. Beran (Ed.) NATO-ASI Series 1: Global Environmental Change, Volume 33. Springer-Verlag, Berlin.

### *In Preparation*

- Verburg, P.S.J.**, J.A. Arnone, M.-A. De Graaff, H. Throop. Arid Land C Cycling and Impacts of Climate Change. Wiley. To be submitted in summer 2019. Invited Book Chapter.

## **Other Professional Publications**

- Hughson, D.L., D.E. Busch, S. Davis, S.P. Finn, S. Caicco, **P.S.J Verburg**. 2011. Natural resource mitigation, adaptation and research needs related to climate change in the Great Basin and Mojave Desert: Workshop Summary: U.S. Geological Survey Scientific Investigations Report 2011-5103, 34 p.
- Verburg, P.S.J.**, W.W. Miller, M. Busse, E. Rice, M. Grismer. 2009. Soil and water quality response to fuels management in the Lake Tahoe Basin. In: Effects of fuels management in the Tahoe Basin: A Literature Review (Ed: J.W Long). U.S. Forest Service Pacific Southwest Research Station. Davis, CA pp. 116-183.
- Miller W.W., E.M. Carroll-Moore, E. Leger, J. Davison, S.W. Tyler, M. Hausner, **P.S.J. Verburg**, Z. Johnson, R.G. Qualls, G. Wilson K.L. Dean. 2009. Effects of alternative agriculture in western Nevada on plant, soil, and water interactions. Walker Basin Project Final Report (Ed: M. Collopy and J. Thomas). U.S. Department of Interior.

## **Presentations**

I have delivered or been co-author on 70 presentations (16 invited and 54 contributed) at professional scientific meetings (mostly international) and institutions. An asterisk (\*) indicates that the author was supervised or co-supervised by me.

### ***Invited Presentations***

- Verburg P.S.J.** 2017. Soil Salinity in Nevada: Causes, Solutions and Opportunities. Annual Meeting Nevada Water Resources Association, Reno, NV.
- Verburg P.S.J.** 2017. Food security in Nevada; Challenges, Solutions and Opportunities. Economic Development Conference, Las Vegas, NV.
- Verburg, P.S.J.**, B. Johnson\*, J.A. Arnone. 2016. From down low to up high: Opportunities for soil research and education along an elevational gradient. Spring Valley Field Station Workshop, National Science Foundation, Baker, NV.
- Verburg, P.S.J.**, J.A. Arnone, D.W.J. Johnson, R. Jasoni, Y. Luo, L.L. Wallace, R. Sherry, D.S. Schimel. 2014. (Keynote address) Mesocosm facilities: Expensive toy or legitimate scientific tool? ExpeER International Conference on Experimentation in Ecosystem Research in a Changing World: Challenges and Opportunities. Paris, France.
- Verburg, P.S.J.**, B. Stevenson\*. 2012. The potential role of inorganic C in ecosystem C fluxes in arid lands: evidence from a laboratory and field study. Xinjiang Institute for Ecosystem Studies. Urumqi, China.
- Verburg, P.S.J.**, B. Stevenson\*. 2012. The potential role of inorganic C in ecosystem C fluxes in arid lands: evidence from a laboratory and field study. International Conference on C Sequestration in Agricultural Lands. Beijing, China.
- Stevenson, B.\*, **P.S.J. Verburg**. 2011. CO<sub>2</sub> efflux from a calcareous Mojave Desert soil: isotopic results from a laboratory and field study. Fall Meeting American Geophysical Union, San Francisco, CA



- Verburg, P.S.J.**, A.C. Young\*, I. Glanzmann\*, B. Stevenson\*, J.A. Arnone III, R.S. Nowak. 2011. Belowground responses of Creosote bush to experimental nitrogen and water additions in a Mojave Desert ecosystem. EPSCoR Western Consortium Tri-State meeting, Albuquerque NM.
- Arnone J.A. III, A.J. Lucchesi, R.L. Jasoni, J.D. Larsen, E.A. Leger, R.A. Sherry, L.L. Wallace, D.W. Johnson, Y. Luo, D.S. Schimel, **P.S.J. Verburg**. 2010. The role of grassland plant species composition in defining synchronous and lagged responses of NPP and net ecosystem CO<sub>2</sub> balance to interannual temperature variability. Annual Meeting Ecological Society of America, Pittsburgh, PA.
- Luo Y., X. Zhou, **P.S.J. Verburg**, J.A. Arnone III. 2010. Benchmark analysis of parameterization for terrestrial carbon cycle model. Fall Meeting American Geophysical Union, San Francisco, CA.
- Verburg, P.S.J.**, A.J. Shackelford\*, L.-W. A. Chen, D. Zhu, R.B.S Susfalk. 2010. Effects of prescribed fire on nutrient emissions in the Lake Tahoe Basin. Lake Tahoe Science and Management workshop, Incline Village, NV.
- Verburg, P.S.J.**, A. Shackelford\*, L.W. Chen, D. Zhu, R.B. Susfalk. 2009. Managing nutrient emissions from prescribed fire treatments. Annual Meeting California Lake Management Society, Tahoe City, CA.
- Verburg, P.S.J.**, S.E. Kapitzke\*, M. Bisiaux\*. 2008. Carbon allocation in Mojave Desert plant-soil systems as affected by water and nitrogen availability. Annual Meeting Nevada Water Resources Association, Las Vegas, NV.
- Verburg, P.S.J.**, A.C. Young\*, I. Glanzmann\*, B. Stevenson\*, J.A. Arnone III, R.S. Nowak. 2006. Response of fine roots to experimental nitrogen and water additions in a Mojave Desert ecosystem. Biogeomon Conference, Santa Cruz, CA.
- Verburg, P.S.J.**, J.A Arnone III, W. Cheng, R.D. Evans, D.W. Johnson, Y. Luo, J.S. Coleman. 1999. The use of EcoCELL technology to study effects of warming on ecosystem processes. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA.
- Verburg, P.S.J.**, N. Van Breemen, A. Jenkins, R.F. Wright, W. Arp, D.J. Beerling, C. Beier, F. Berendse, A. Lükewille, L. Rasmussen. 1999. The CLIMEX experiment: Impacts of elevated carbon dioxide and temperature on nitrogen cycling in a boreal forest ecosystem. National Center for Ecological Analysis and Synthesis, Santa Barbara, CA.

### *Contributed Presentations*

- Ahmadi, K, J. Brehm, S. Bristow, K. Duggan, C. Craig, R. Kasten, J. Little, E. McLennon, A. Tate, J. Wilcher, **P.S.J. Verburg**, R.R. Blank. 2019. Soil Biogeochemistry Field Project. Annual Meeting Soil Science Society of America. San Diego, CA.
- Pagilla, K.R., **P.S.J. Verburg**, D.J. Hanigan, Y. Yang. 2018. Water Reuse Project at University of Nevada - Reno: Addressing Human Health Impacts from Emerging Contaminants in Reclaimed Water to Enhance its Use for Urban and Peri - Urban Agriculture. Annual Meeting American Chemical Society, New Orleans, LA.
- Yang, Y., Y. You, K. Das, J. Chan, F. Barrios-Masias, **P.S.J. Verburg**, S.R. Poulson, X. Wang, B. Xing. 2018. Microbial transformation and plant uptake of multi-walled carbon nanotubes. Annual Meeting American Chemical Society, New Orleans, LA.

- Goehring, N.\*, L. Saito, **P.S.J. Verburg, J.** Jeong, A. Garrett\*. 2017. Modeling salt movement and halophytic crop growth on marginal lands with the APEX model. Annual Meeting Nevada Water Resources Association, Reno, NV.
- Garrett, A.\*, S. Stracke, R.S. Nowak, N. Goehring\*, L. Saito, **P.S.J. Verburg.** 2017. Assessment of salinity impacts on halophyte growth. Annual Meeting Nevada Water Resources Association, Reno, NV.
- Morgan, T.A., **Verburg, P.S.J.** 2016. Soil Biogeochemistry Case Study: Cold Springs, Nevada, Fall meeting American Geophysical Union. San Francisco, CA.
- Goehring, N.\*, L. Saito, P.S.J. **Verburg, J.** Jeong, A. Garrett\*. 2016. Modeling salt movement and halophytic crop growth on marginal lands with the APEX model. Fall meeting American Geophysical Union. San Francisco, CA.
- Garrett, A.\*, S. Stracke, R.S. Nowak, N. Goehring\*, L. Saito, **P.S.J. Verburg.** 2016. Assessment of halophyte growth in saline environments. Fall meeting American Geophysical Union. San Francisco, CA.
- Verburg, P.S.J.,** E. Ketchian\*, B. Trimble\*, S.R. Poulson. 2016. Assessment of two methods for determination of quantity and isotopic composition of soil C in arid soils. Annual Meeting Soil Science Society of America. Phoenix, AZ.
- Trimble, B.\*, **P.S.J. Verburg,** S.R. Poulson. 2016. Effects of land use change on the organic C fractions in a semi-arid soil. Annual Meeting Soil Science Society of America. Phoenix, AZ.
- Carter, Z.\*, **P.S.J. Verburg,** B.W. Sullivan, R.G. Qualls, R. Blank. 2016. The effects of charcoal on C and N dynamics in eastern Sierra Nevada forested soils. Annual Meeting Soil Science Society of America. Phoenix, AZ.
- Matthews-Novelli\*, E., **P.S.J. Verburg.** 2015. Fire and Carbon: A soil carbon analysis of prescribed burning in north Lake Tahoe pine forest. Annual Meeting Soil Science Society of America. Minneapolis, MN
- Matthews-Novelli\*, E., **P.S.J. Verburg.** 2014. Fire and Carbon: A soil carbon analysis of prescribed burning in north Lake Tahoe pine forest. Annual Meeting Society of American Foresters. Salt Lake City, UT
- Arnone, J.A., **P.S.J. Verburg,** R. Jasoni, W. Coulombe. 2014. Interannual responses of net ecosystem CO<sub>2</sub> exchange and NEP of intact tallgrass prairie ecosystems to an anomalously warm year under elevated atmospheric CO<sub>2</sub> European Geosciences Union General Assembly meeting, Vienna, Austria.
- Arnone, J.A., R. L. Jasoni, J. D. Larsen, W. Coulombe, A. Darrouzet-Nardi, Y. Luo, **P.S.J. Verburg.** 2009. Ecosystem respiratory responses to interannual and seasonal temperature variability in intact tallgrass prairie ecosystems in the EcoCELLs. Fall Meeting American Geophysical Union, San Francisco, CA.
- Johnson, Z\*., **P.S.J. Verburg,** W.W. Miller, E. Carroll-Moore. 2009. Carbon and nitrogen dynamics in a semi-arid agricultural ecosystem in the Western United States. International Symposium on Terminus Lakes, Reno, NV.
- Verburg, P.S.J.,** S.E. Kapitzke\*, M. Bisiaux\*. 2008. Carbon allocation in Mojave Desert plant-soil systems as affected by water and nitrogen availability. Fall Meeting American Geophysical Union, San Francisco, CA.

- Hui D., **P.S.J. Verburg**, J.A. Arnone III, Y. Luo. 2008. Dynamics and partitioning of whole ecosystem respiration in a controlled grassland ecosystem Annual Meeting Ecological Society of America, Milwaukee, WI.
- Fei S., R.A. Sherry, X. Zhou, L.L. Wallace, J. Arnone, D.S. Schimel, **P.S.J. Verburg**, Y. Luo 2008. COS 80-4: Changes of root biomass in response to a one-year temperature and precipitation alteration experiment in a tallgrass prairie Annual Meeting Ecological Society of America, Milwaukee, WI.
- Verburg, P.S.J.**, D.W. Johnson, D.E. Schorran, L.L. Wallace, Y. Luo, J.A. Arnone III. 2007. Impacts of an anomalously warm year on nutrient availability in experimentally manipulated tallgrass prairie ecosystems. Fall Meeting American Geophysical Union, San Francisco, CA.
- Verburg, P.S.J.**, A.C. Young\*, I. Glanzmann\*, B. Stevenson\*, J.A. Arnone III, R.S. Nowak. 2007. Linkages between biotic and abiotic belowground processes in a Mojave Desert ecosystem: Responses to experimental nitrogen and water additions. American Geophysical Union Joint Assembly Meeting, Acapulco, Mexico.
- Stamenkovic J., M. Gustin, D. Obrist, J. Arnone, D. Johnson, **P. Verburg**. 2006. Environmental controls on mercury flux from ecosystem components at different temporal scales. 8th International Conference on Mercury as a Global Pollutant, Madison, WI.
- Marion, G.M., **P.S.J. Verburg**, B. Stevenson\*, J.A. Arnone III. 2006. Biogeochemical cycling in a Mojave Desert soil. Annual Meeting Soil Science Society of America, Indianapolis, IN.
- Verburg, P.S.J.**, A.C. Young\*, I. Glanzmann\*, B. Stevenson\*, J.A. Arnone III, R.S. Nowak. 2006. Response of fine roots to experimental nitrogen and water additions in a Mojave Desert ecosystem. Annual Meeting Soil Science Society of America, Indianapolis, IN **Winner of Best Paper Award**.
- Verburg, P.S.J.**, A.C. Young\*, I. Glanzmann\*, B. Stevenson\*, J.A. Arnone III, R.S. Nowak. 2006. Response of fine roots to experimental nitrogen and water additions in a Mojave Desert ecosystem. Annual Meeting Ecological Society of America, Memphis, TN.
- Farnady, A., J. Arnone III, **P.S.J. Verburg**. 2005. Quantifying the effects of interannual climate variability on plant biomass in an Oklahoma Tall-grass Prairie ecosystem. Annual Meeting Ecological Society of America, Montreal, Canada.
- Sherry, R., L.L. Wallace, Y. Luo, J.A. Arnone III, **P.S.J. Verburg**, D.W. Johnson, D. Schimel. 2005. The effects of interannual variation in temperature and precipitation on grassland production and community structure: 3 years data. Annual Meeting Ecological Society of America, Montreal, Canada.
- Stein, C.M., D.W. Johnson, W.W. Miller, **P.S.J. Verburg**, J.D. Murphy. 2004. Effects of nitrogen fixation by *Ceanothus velutinus* on soil fertility and surface water runoff in post fire forest ecosystems. Annual Meeting Soil Science Society of America, Seattle, WA.
- Johnson, D.W., **P.S.J. Verburg**, J.A. Arnone III. 2004. Non-destructive measurements of N availability during a soil warming experiment. Annual Meeting Soil Science Society of America, Seattle, WA.
- Stevenson, B.A.\*, **P.S.J. Verburg**. 2004. Potential effects of inorganic C on net ecosystem C exchange in arid ecosystems. Annual Meeting Soil Science Society of America, Seattle, WA.

- Verburg, P.S.J.**, J.A. Arnone III, D.W. Johnson, D.E. Schorran. 2004. In situ impacts of an anomalously warm year on soil CO<sub>2</sub> fluxes in tallgrass prairie ecosystems under experimental manipulation in the EcoCELLs. Annual Meeting Soil Science Society of America, Seattle, WA.
- Obrist, D., M.S. Gustin, J.A. Arnone III, D.E. Schorran, **P.S.J. Verburg**, D.W. Johnson. 2004. Large annual Hg emissions over tallgrass prairie grasslands indicate vegetated terrestrial ecosystems to be sources of Hg to the atmosphere. 7th International Conference on Mercury as a Global Pollutant, June 2004, Ljubljana, Slovenia.
- Royce, G., **P.S.J. Verburg**, J.A. Arnone III, S.C. Tyler. 2004. Controls on BNPP and soil water balance in response to interannual climate variability. Annual Meeting Ecological Society of America, Portland, OR.
- Sherry, R., L.L. Wallace, Y. Luo, J.A. Arnone III, **P.S.J. Verburg**, D.W. Johnson, D.S. Schimel. 2004. Interannual temperature and precipitation effects on grassland production, phenology and community structure: A field study. Annual Meeting Ecological Society of America, Portland, OR.
- Batts, C., **P.S.J. Verburg**, J.A. Arnone III. 2004. Hydrologic responses of tallgrass prairie ecosystems in the EcoCELLs to seasonal and interannual climate variability. Annual Meeting Ecological Society of America, Portland, OR.
- Stamenkovic, J., D. Obrist, J.A. Arnone III, D.E. Schorran, **P.S.J. Verburg**, D.W. Johnson, M. Gustin. 2004. Mercury emissions from tallgrass prairie ecosystems. Annual Meeting Ecological Society of America, Portland, OR.
- Darrouzet-Nardi, A., **P.S.J. Verburg**, J.A. Arnone III. 2004. Presence and absence of thermal acclimation of root and soil microbial respiration to warming in tall grass prairie. Annual Meeting Ecological Society of America, Portland, OR.
- Arnone, J.A. III, D.E. Schorran, D.W. Johnson, L.L. Wallace, Y. Luo, D.S. Schimel, **P.S.J. Verburg**. 2004. Plant species shifts codetermine tallgrass prairie NPP responses to interannual climate variability in the EcoCELLs. Annual Meeting Ecological Society of America, Portland, OR.
- Verburg, P.S.J.**, J.A. Arnone III, D.W. Johnson, D.E. Schorran. 2004. In situ impacts of an anomalously warm year on soil CO<sub>2</sub> fluxes in tallgrass prairie ecosystems under experimental manipulation in the EcoCELLs. Annual Meeting Ecological Society of America, Portland, OR.
- Johnson, D.W., J.A. Arnone III, **P.S.J. Verburg**, L.L. Wallace, Y. Luo, N.A. Zehrbach. 2004. Interannual climate variability and ecosystem processes in tallgrass prairie: Non-destructive measures of soil nutrients. Annual Meeting Ecological Society of America, Portland, OR.
- Verburg, P.S.J.**, J.A. Arnone III, D.E. Schorran. 2003. NSF-IRCEB: Interannual climate variability and ecosystem processes in tallgrass prairie: Soil respiration. Annual meeting Ecological Society of America, Savannah, GA.
- Arnone, J.A. III, D.E. Schorran, D.W. Johnson, L.L. Wallace, Y. Luo, J.S. Coleman, D.S. Schimel, **P.S.J. Verburg**. 2003. NSF-IRCEB: Interannual climate variability and ecosystem processes in tallgrass prairie: Effects on ecosystem CO<sub>2</sub> fluxes. Annual Meeting Ecological Society of America, Savannah, GA.
- Johnson, D.W., J.A. Arnone III, **P.S.J. Verburg**, L.L. Wallace, Y. Luo, N.A. Zehrbach. 2003. NSF-IRCEB: Interannual climate variability and ecosystem processes in tallgrass prairie: Non-

destructive measures of soil nutrients. Annual Meeting Ecological Society of America, Savannah, GA.

- Obrist, D., M.S. Gustin, J.A. Arnone III, D.E. Schorran, **P.S.J. Verburg**, D.W. Johnson. 2003. Large annual Hg emissions over tallgrass prairie grasslands indicate strong potential of terrestrial ecosystems to the release of Hg to the atmosphere. Fall Meeting American Geophysical Union, San Francisco, CA.
- Obrist, D., M.S. Gustin, J.A. Arnone III, D.E. Schorran, **P.S.J. Verburg**, D.W. Johnson. 2003. Large annual Hg emissions over tallgrass prairie grasslands indicate higher natural loading of Hg to the atmosphere than previously estimated. First Swiss Geosciences Meeting, Basel, Switzerland.
- Verburg P.S.J.** 2003. Soil solution response to climate change in two boreal forest ecosystems. GCTE-TERRAC Meeting, Lake Tahoe, NV.
- Ffolliott, P., J.O. Dawson, J.T. Fisher, I. Moshe, T.E. Fulbright, A. Al Musa, W.C. Johnson, **P.S.J. Verburg**. 2002. Dryland environments. Selected paper from IALC conference, Assessing Capabilities of Soil and Water Resources in Drylands: The Role of Information Retrieval and Dissemination Technologies, Tucson, AZ.
- Johnson, D.W., R.B. Susfalk, W.W. Miller, J.M. Murphy, D.E. Todd, Jr., **P.S.J. Verburg**, R.F. Walker. 2002. Spatial variability in arid soils: Sampling and characterization issues. Selected papers from the IALC conference, Assessing Capabilities of Soil and Water Resources in Drylands: The Role of Information Retrieval and Dissemination Technologies. Tucson, AZ.
- Verburg, P.S.J.**, J.A Arnone III, R.D. Evans, D. LeRoux-Swarthout, D. Obrist, D.W. Johnson, D.E. Schorran, Y. Luo, J.S. Coleman. 2002. Net ecosystem C exchange in two model grassland ecosystems. Annual Meeting Ecological Society of America, Tucson, AZ.
- Su, B, D. Hui, **P.S.J. Verburg**, D. Obrist, J.A. Arnone III, D.W. Johnson, R.D. Evans, Y Luo. 2002. Canopy radiation- and water-use efficiencies of cheatgrass as affected by pulse and gradual N fertilization. Annual Meeting Ecological Society of America, Tucson, AZ.
- Denton, C., W.W. Miller, D.W. Johnson, **P.S.J. Verburg**, G.L. Dana. 2002. In-Situ measurement of surface runoff water quality from Sierran watersheds. Lake Tahoe Higher Education & Research Symposium: Using Science as a Tool in Restoration and Water Quality Management in the Tahoe Basin. Kings Beach, CA.
- Verburg, P.S.J.**, M.J. Ducey, D.W. Johnson. 2001. Diagnosis of soil limitations to forest productivity using spreadsheet models. Bioenergy Workshop, Memphis, TN.
- Verburg, P.S.J.**, D.W. Johnson, R. Harrison. 2000. Long-term nutrient cycling patterns in Douglas-fir and red alder stands: a simulation study. Annual Meeting Soil Science Society of America, Minneapolis, MN.
- Verburg, P.S.J.**, D. van Dam, M. Hefting\*, A. Tietema. 1997. Microbial transformations of C and N in a boreal forest floor as affected by temperature. Annual Meeting Soil Science Society of America, Indianapolis, IN.

## **Funding History**

I have been awarded over \$9.3 million in grants (of which \$2.2 million as PI). I have a steady record of obtaining grants to fund my research program. Many of my grants were awarded from highly competitive national programs at the National Science Foundation, U.S. Department of Energy, U.S. Department of Agriculture and the U.S. Department of Defense.

### ***Current***

**Verburg, P.S.J.**, Newingham, B. Post-fire wind erosion in the Great Basin, U.S. Department of Agriculture. \$150,000; 2018-2020.

Pagilla, K.R., Y. Yang, **P.S.J. Verburg**, D. Hanigan, L. Singletary. Addressing human health impacts from emerging contaminants in reclaimed water to enhance its use for urban and peri-urban agriculture. U.S. Department of Agriculture. \$400,000; 2017-2020.

Saito, L., J. Davison, A. Faciola, G. Miller, B. Nowak, **P.S.J. Verburg (lead PI since Aug. 2016)**. Using halophytic plants to improve food security and environmental quality in dryland ecosystems. U.S. Department of Agriculture. \$483,193; 2015-2019. **I took over as lead PI in 2016 when Dr. Saito left UNR.**

### ***Completed***

Sullivan, B., **P.S.J. Verburg**. Identifying the proximate controls of atmospheric methane uptake in arid ecosystems. U.S. Department of Agriculture. \$105,000; 2015-2017.

**Verburg, P.S.J.**, E. Leger. Impacts of land use change on carbon sequestration in (semi)arid landscapes. U.S. Department of Agriculture. \$105,000; 2014-2016.

Emm, S., C. Bishop, H. Gatzke, S. Urbanowitz, L. Singletary, G. Cramer, **P.S.J. Verburg**, J. Davison, T. Harris, S. Lewis, F. Flavin, S. Foster. Nevada beginning farmer and rancher renewal project. U.S. Department of Agriculture. \$692,000. 2014-2017.

Carter, Z., **P.S.J. Verburg**. The Effects of Charcoal on C and N Dynamics in Eastern Sierra Nevada Forested Soils. Whittell Forest Graduate Fellowship. \$9,400; 2015.

Halsted, J.B., **P.S.J. Verburg**, The Value of Snow. NSF-Research Experiences for Undergraduates Award. \$4,750; 2015.

Matthews-Novelli, E., **P.S.J. Verburg**, The Value of Snow. NSF-Research Experiences for Undergraduates Award. \$4,750; 2014.

Castro, V., **P.S.J. Verburg**. V. Assessing the reliability of commonly used analytical techniques to measure organic and inorganic C in soils. NSF-EPSCoR Undergraduate Research Award. \$4,500; 2013.

Mouat, D., D. Decker, **P.S.J. Verburg**, A. Gertler. Carbon sequestration at U.S. Marine Corps Installations West. U.S. Department of Defense. \$345,000; 2010-2012.

Mouat, D., D. Decker, **P.S.J. Verburg**, A. Gertler. Carbon sequestration at U.S. Marine Corps Installations West. U.S. Department of Defense. \$95,000; 2009-2010.

**Verburg, P.S.J.**, R.B. Susfalk, A. Chen. Nutrient emissions from prescribed fire in the Lake Tahoe Basin. Southern Nevada Public Lands Management Act. \$350,000; 2007-2010.

Miller, W.W., **P.S.J. Verburg**, T. Caldwell, R.G. Qualls, P. Weisberg. Plant-soil water interactions in the Walker River Basin, NV. U.S. Bureau of Reclamation. \$1,000,000; 2007-2010.

- Hoekman, K., **P.S.J. Verburg**, J.A. Arnone III, T. Minor. Environmental impacts of biofuel production in Nevada. U.S. Department of Energy. \$1,000,000; 2008-2010.
- G.M. Marion, **P.S.J. Verburg**, S.C Tyler. Accumulation of nitrates in desert soils. Nevada EPSCoR. \$35,000; 2007-2008.
- Verburg, P.S.J.** Effects of fuel reduction in Sierra Nevada forest on soil chemical, physical and biological properties: A comprehensive literature review. U.S. Forest Service. \$11,000; 2007.
- Verburg P.S.J.**, C. Cooper. Development of an artificial root system to separate biotic and abiotic processes determining soil respiration. National Science Foundation. \$80,000; 2004-2006.
- Verburg, P.S.J.**, J.A. Arnone III, G.M. Marion, E. McDonald. Biotic and abiotic controls on soil inorganic C dynamics in a Mojave Desert ecosystem. National Science Foundation. \$800,000; 2003-2007.
- Arnone, III J.A., **P.S.J. Verburg**, Y. Luo, L. Wallace, D.S. Schimel. Integrated Research Challenges in Environmental Biology: Interannual climate variability and ecosystem processes: A quantitative assessment combining modeling with field and mesocosm experiments. National Science Foundation. \$3,000,000; 2001-2006.
- Dana, G., **P.S.J. Verburg**, R.B. Susfalk. Impacts of land use on nutrient loading into Lake Tahoe. Nevada Department of Environmental Protection. \$90,000; 2003-2006.
- Verburg P.S.J.**. Feasibility study for Mud Lake Slough wetland restoration. City of Reno. Subcontract through ECO:LOGIC Consulting Engineers. \$10,000; 2003.
- Verburg P.S.J.**. Assessment of sewage effluent upwelling at Spring Creek Elementary School. Elko County School District. \$7,000; 2003.
- Verburg, P.S.J.**. An integrated modeling approach to assess nutrient limitations on forest productivity. U.S. Department of Energy. \$45,000; 2002.
- Auerbach, M., **P.S.J. Verburg**, C.H. Fritsen, J.T. Brock, E. McDonald. Acquisition of analytical equipment for nutrient analysis and particle size determination in ecological studies. National Science Foundation. \$235,328; 2002.
- Dana, G., **P.S.J. Verburg**, W.W. Miller. Effects of prescribed fire on P dynamics in a high elevation Sierra Nevada forest ecosystem. Nevada EPSCoR. \$35,000; 2000.
- M. Auerbach, **P.S.J. Verburg**, K. McGwire. The use of Laser Induced Breakdown Spectroscopy to detect heavy metals in plant material. U.S. Department of Energy. \$35,000; 2002.
- Cheng, W., D.W. Johnson, **P.S.J. Verburg**, R.F. Walker. Rhizosphere respiration and root demography in forest ecosystems. National Science Foundation. \$200,000; 2000.

### **Formal Courses Taught (2013 to present)**

**NRES 322 – Introduction to Soil Science** (Every Fall; Enrollment was 47 undergraduate students in 2013 increasing to 106 students in 2018; Course evaluation average score of 3.6/4.0). This course is an introductory soil science course for upper-level undergraduate students, and introduces students to physical, chemical, and biological characteristics of soil. In addition, the course covers aspects of soil formation, and management.

**NRES 702 – Soil Biogeochemistry** (Spring even years; Average enrollment is 14 graduate students; Course evaluation average score of 3.6/4.0). This course is an advanced soil science course

for graduate students. The course provides in-depth knowledge of biological, geological and chemical processes involved in the cycling of major elements in soil including C, N, P, and cations and anions. In addition, the course aims to train students in a range of fundamental analytical techniques that are used to measure soil biological, physical and chemical properties and processes.

**NRES 485/701C – Soil Genesis and Morphology** (Spring odd years; Average enrollment is 13 students; Course evaluation average score of 3.8/4.0). This course is an upper division soil science course for undergraduate and graduate students offering an advanced understanding of soil formation and morphology. I developed this class to provide students the opportunity to qualify for federal jobs under the Federal Soil Science Series (0470) requiring potential employees to have had formal training in soil genesis and morphology.

### **Independent Studies Taught**

- |             |   |
|-------------|---|
| <b>2016</b> | <b>Independent Study in Soil Physics</b> (1 credit; 2 undergraduate students)   |
| <b>2016</b> | <b>Independent Study in Soil Genesis and Morphology</b> (1 credit; 1 graduate student)                                  |
| <b>2015</b> | <b>Independent Study in Soil-Plant Relations in the Great Basin</b> (1 credit; 2 graduate students)                     |
| <b>2012</b> | <b>Independent Study in Soil Formation and Soil Morphology</b> , UNR (3 credits, 4 undergraduate and graduate students) |

### **Guest Lectures, Labs, and Course Modules Taught**

- |                    |   |
|--------------------|---|
| <b>2015</b>        | <b>Two labs; Small Watershed Hydrology</b> (NRES 482/682). Created and taught labs on the topics of soil moisture and water infiltration.   |
| <b>2015</b>        | <b>Field trip; Rangeland Ecology and Management</b> (NRES 341). Created and led field trip on the topic of soil-landscape relations.  |
| <b>2015</b>        | <b>Thesis Writing Module; Survival Skills for Graduate Students</b> (NRES 720). Created and taught guest lecture on thesis writing, prepared homework assignment, and graded final research proposals with detailed feedback. |
| <b>2014</b>        | <b>Two labs; Small Watershed Hydrology</b> (NRES 482/682). Created and taught labs on the topics of soil moisture and water infiltration.   |
| <b>2013 – 2015</b> | <b>Guest lectures; Principles of Natural Resources and Environmental Science</b> (NRES 100); topic was an overview of my research.  |
| <b>2013</b>        | <b>Substitute Instructor for Soil Physics</b> (NRES 422/622). Taught course for two weeks when main instructor was absent due to family circumstances.  |
| <b>2000 – 2012</b> | <b>Guest Lecturer;</b> Methods in Soil Biogeochemistry and Global Climate Change (graduate courses at UNR) and Biology (undergraduate courses at Truckee Meadows Community College).  |
| <b>1997 – 1998</b> | <b>Guest Lecturer;</b> Greenhouse Effect: Causes and Consequences; graduate course. Wageningen Agricultural University.   |



## Other Teaching Experience

- 1998 **Teaching Assistant**; graduate level field course in Soil and Landscape of The Netherlands, Wageningen Agricultural University.
- 1995 – 1998 **Teaching Assistant**; graduate level course in Soil and Land Degradation, Wageningen Agricultural University.

## Students Advised

### *Master's Committee Chair*

- Grant Busse, Environmental Science. August 2018 – present.
- Amanda Tate, Hydrologic Sciences. January 2017 – present (graduation expected 9/19).
- Nicole Goehring, Hydrologic Sciences. January 2016 – November 2017.
- Lead author paper; Goehring et al. (accepted).
  - Lead author presentations; Goehring et al. (2016, 2017).
  - Currently Flood Plain Mapping Coordinator, Nevada Department of Environmental Protection, Carson City, NV.
- Brittany Trimble, Natural Resources and Environmental Science. August 2014 – May 2017.
- Lead author paper; Trimble et al. (2018).
  - Lead author presentation; Trimble et al. (2017).
  - Co-author paper; Ketchian et al. (2018).
  - Currently Wildlife Biologist, Nevada Department of Wildlife, Elko, NV.
- Zachary Carter, Hydrologic Sciences. August 2014 - November 2016.
- Lead author paper; Carter et al. (2018).
  - Lead author presentation; Carter et al. (2017).
  - Awarded Whittell Forest Graduate Research Fellowship (\$9,400; 2015).
  - Awarded Graduate Program of Hydrologic Sciences Scholarship (\$1,500; 2015).
  - Currently Riparian Restoration Field Crew Lead, Palouse Conservation District, Pullman, WA.
- Sheila Kapitzke, Environmental Science. August 2008 – present (Leave of Absence).
- Co-author paper; Verburg et al. (2013).
  - Co-author presentations; Verburg et al. (2008a,b).
  - Currently Industrial Hygienist, Occupational Safety and Health Administration, Harrisburg, PA.
- Dr. Zach Johnson, Hydrologic Sciences. Completed in 2008.
- Currently Research Associate, University of Washington, Seattle, WA.
- April Shackelford, Natural Resources and Environmental Science. Completed in 2008.
- Co-author paper; Chen et al. (2010).
  - Currently Fuels Management Specialist, North Lake Tahoe Fire Protection District, Incline Village, NV.

### *Ph.D. Committee Member*

- Vijai Sundaram, Civil and Environmental Engineering. August 2019 – present.
- Di Ma, Environmental Science. November 2016 – present.
- Christina Igono, Environmental Science. October 2016 - present.
- Marielle Black, Anthropology. April 2016 - present.
- Cody Reed, Ecology, Evolution and Conservation Biology. November 2015 - present.
- Dhurba Neupane, Environmental Science. Completed in 2019.
- Christine Hedge, Civil and Environmental Engineering. Completed in 2018.
- Qian Zhao, Civil and Environmental Engineering. Completed in 2017.

Brittany Johnson, Hydrologic Sciences. Completed in 2014.  
Rachel Jones, Ecology, Evolution and Conservation Biology. Completed in 2014.  
Kevin Badik, Ecology, Evolution and Conservation Biology. Completed in 2013.  
Jazmine Aravena, Hydrologic Sciences. Completed in 2011.  
Erin Goergen, Ecology, Evolution and Conservation Biology. Completed in 2009.  
Benjamin Rau, Hydrologic Sciences. Completed in 2009.  
Jelena Stamenkovic, Environmental Sciences. Completed in 2008.  
Alan Talhelm, Ecology, Evolution and Conservation Biology. Completed in 2008.  
Daniel Obrist, Hydrologic Sciences. Completed in 2002.

### ***Master's Committee Member***

Walker Weir, Hydrologic Sciences. July 2019 – present.  
Steven Bristow, Environmental Science. October 2018 – present.  
Kevin Duggan, Hydrologic Sciences. March 2018 - present.  
Jamey Wilcher, Natural Resources and Environmental Science. January 2018 – present.  
Joe Jefferson, Anthropology. March 2016 - present.  
Sandeep Yanala, Civil and Environmental Engineering. Completed in 2019.  
Ryan Kasten, Natural Resources and Environmental Science. Completed in 2019.  
Cordi Craig, Natural Resources and Environmental Science. Completed in 2019.  
McKenna Murray, Hydrologic Sciences. Completed in 2019.  
Lucas Phipps, Rangeland Management. Completed in 2019.  
Riley Dunavent, Environmental Science. Completed in 2019.  
Michael Founds, Hydrologic Sciences. Completed in 2018.  
Andrew Poustie, Civil and Environmental Engineering. Completed in 2018.  
Annie Overlin, Natural Resources and Environmental Science. Completed in 2017.  
Lauren Fissel, Geological Sciences. Completed in 2016.  
Nicholas Paasche, Hydrologic Sciences. Completed in 2016.  
Jamie Myers, Hydrologic Sciences. Completed in 2015.  
Dinesh Adikhari, Civil and Environmental Engineering. Completed in 2015.  
Dominic Gentilcore, Natural Resources and Environmental Science. Completed in 2015.  
Daniel Stucky, Civil and Environmental Engineering. Completed in 2014.  
Lauren Roaldson, Hydrologic Sciences. Completed in 2013.  
Tom Malamakal, Atmospheric Sciences. Completed in 2012.  
Carinna Robertson, Hydrologic Sciences. Completed in 2012.  
Cassandra Woodward, Hydrologic Sciences. Completed in 2012.  
Ron Parratt, Hydrologic Sciences. Completed in 2010.  
Annmarie Farnady, Natural Resources and Environmental Science. Completed in 2008.  
Greg Wilson, Hydrologic Sciences. Completed in 2008.  
Elizabeth Harrison, Natural Resources and Environmental Science. Completed in 2007.  
Chad Stein, Hydrologic Sciences. Completed in 2006.  
Candace Batts, Hydrologic Sciences. Completed in 2005.  
Charles Denton, Hydrologic Sciences. Completed in 2005.  
Jessica Larsen, Natural Resources and Environmental Science. Completed in 2005.  
James Murphy, Hydrologic Sciences. Completed in 2005.  
Heather Weatherly, Natural Resources and Environmental Science. Completed in 2003.  
Michelle McNulty, Hydrologic Sciences. Incomplete.  
Gitane Royce, Hydrologic Sciences. Incomplete.

### ***Formal Undergraduate Advising***

Sarah Johnson (2018 – 2019)  
Grant Busse (2017 – 2018; currently graduate student in my lab)  
Martina Middione (2017 – 2018)  
Weston Fettgater (2016 – 2018)  
Eileen Umana (2016 – 2018)  
Stacy Greenberg (2017)  
Peter Kilonzo (2016 – 2017)  
Amanda Tate (2015 – 2017; currently a graduate student in my lab)  
Megan Ludwig (2014 – 2015)  
Brian Verheyen (2014)  
Dawn Girard (2007 – 2008)  
Sheila Kapitzke (2005 – 2006)  
Brian Reed (2006 – 2008)

### ***Undergraduate Students conducting Independent Research Projects***

Alexes Garrett (2016 – 2017).  
-Lead author presentations; Garrett et al. (2016, 2017).  
-Co-author presentations; Goehring et al. (2016, 2017).  
-Currently Engineering Technician at Lumos and Associates.  
Elana Ketchian (2015 – 2017).  
-Lead author paper; (Ketchian et al., 2018).  
-Co-author presentation; Trimble et al. (2017).  
-Currently enrolled in the Engineering M.S. program at UNR.  
Jonathan Birkel Halsted (Earlham College, 2015).  
-NSF Research Experiences for Undergraduates student, \$4,750.  
-Co-author presentation; Carter et al. (2017).  
-Currently Laboratory Analyst at Twin City Water Clinic, Minneapolis, MN.  
Elektra Matthews-Novelli (Humboldt State University, 2014).  
-NSF Research Experiences for Undergraduates student, \$4,750.  
-Lead author presentations; Mathews-Novelli and Verburg (2014, 2015).  
-Currently Forest Hydrologist, Pacifica Watershed Associates, CA.  
Vickie Castro (2013).  
-NSF EPSCoR Undergraduate Research Award, \$4,500.

### **Postdocs, Technicians, and Interns Supervised**

Dr. Elizabeth Huenupi, Research Technician, 2015 – 2016.  
-Currently Research Technician, University of Indiana, IN.  
Dr. Alexandra Urza, Research Technician, 2014.  
-Currently Postdoctoral Scholar, S. Bisbing, NRES, UNR.  
Andrew Young, Research Technician, 2002 – 2006.  
-Co-author paper; Verburg et al. (2013).  
-Co-author presentations; Verburg et al. (2006a,b,c, 2007, 2011).  
Dr. Bryan Stevenson, Postdoctoral Fellow, 2004 – 2007.  
-Lead author paper; Stevenson and Verburg (2006).  
-Co-author papers; Marion et al. (2008), Verburg et al. (2013, 2014).

- Lead author presentations; Stevenson and Verburg (2004, 2011).
- Co-author presentations; Marion et al. (2006), Verburg et al. (2006a,b,c, 2011), Verburg and Stevenson (2012).
- Currently Researcher/Capability Leader Soils and Landscapes Team at Landcare, New Zealand.

Dr. J. Heslop (High school Student Intern; 2007)

- Currently Post-doctoral Fellow as a Soil Ecologist at Queen's University in Kingston, Canada.

Isabelle Glanzmann, Foreign exchange M.S. student, 2006.

- Co-author paper; Verburg et al. (2013).
- Co-author presentations; Verburg et al. (2006a,b,c, 2007, 2011).
- Currently Project Manager Nateco, Switzerland.

Marion Bisiaux, Foreign exchange M.S. student, 2007.

- Co-author paper; Verburg et al. (2014).
- Co-author presentations; Verburg et al. (2008a,b).
- Currently Project Leader AMACO, France.

### External Professional Service

- |                       |   |
|-----------------------|---|
| <b>2019</b>           | <b>Advisor</b> , The Nature Conservancy. I assisted with the development of a rapid assessment method for wetlands. I helped develop the soil section of the assessment protocol.                               |
| <b>2019</b>           | <b>Field Instructor</b> , BLM Assessment, Inventory, and Monitoring Strategy (AIM) Program. Hands-on instruction on field collection of soil data for AIM technicians.  |
| <b>2019</b>           | <b>Invited Panel Member</b> , Department of Energy; Declined due to time conflict.  |
| <b>2015 – present</b> | <b>Technical Advisor</b> , Nevada Department of Agriculture.  |
| <b>2015 – present</b> | <b>Member</b> , Soil, Water, and Environmental Physics to Sustain Agriculture and Natural Resources, Multistate Research Coordinating Committee and Information Exchange Group, U.S. Department of Agriculture. |
| <b>2015</b>           | <b>Invited Panel Member</b> , National Science Foundation. Declined due to teaching obligations.  |
| <b>2014</b>           | <b>Invited Panel Member</b> , National Science Foundation. Declined due to teaching obligations.  |
| <b>2014 – present</b> | <b>Member</b> , Soil Organic Matter: Formation, Function and Management, Multistate Research Coordinating Committee and Information Exchange Group, U.S. Department of Agriculture.                             |
| <b>2013</b>           | <b>Invited Panel Member</b> , National Science Foundation. Declined due to teaching obligations.  |
| <b>2013</b>           | <b>Invited Program Officer for one-year rotation in Washington, D.C.</b> , National Science Foundation. Declined due to family circumstances.   |
| <b>2013</b>           | <b>Session Co-Chair</b> , The role of inorganic C in ecosystem C budgets. Fall Meeting, American Geophysical Union, San Francisco, CA   |
| <b>2012 – present</b> | <b>Member</b> , Core Constituent Scientist Team for Nevada, Soil Science Society of America.  |
| <b>2012</b>           | <b>Panel Member</b> , National Science Foundation, Division of Environmental Biology.   |

- 2011** **Panel Member**, National Science Foundation, Division of Environmental Biology.
- 2010** **Member Organizing Committee**, Multi-agency workshop on Climate Change in the Great Basin and Mojave Desert, April 2010, Las Vegas.
- 2008 – 2013** **Board Member**, International Arid Lands Consortium.
- 2008 – 2012** **DRI Representative**, Great Basin Research and Management Partnership.
- 2008 – 2012** **DRI Representative**, Great Basin Cooperative Ecosystems Studies Unit.
- 2005 – 2013** **Board Member**; Nevada Faculty Alliance.
- 2005 – 2006** **Chair**, Research and Demonstration Advisory Committee, International Arid Lands Consortium.
- 2004 – 2005** **Vice-Chair**, Research and Demonstration Advisory Committee, International Arid Lands Consortium.
- 2001 – 2006** **Member**, Research and Demonstration Advisory Committee, International Arid Lands Consortium.
- 1996 – present** **Proposal Reviewer** for the AAAS Cannon Scholarships, Austrian National Science Foundation, International Arid Lands Consortium, Kearney Foundation of Soil Science, National Environmental Research Council (UK), National Science Foundation, START Program Austria, and United States Department of Agriculture (*in alphabetical order*).
- 1994 – present** **Journal Peer-Reviewer** for Agriculture, Ecosystems and Environment, Applied Soil Ecology, Atmospheric Chemistry and Physics, Biogeochemistry, Biogeosciences, Canadian Journal of Botany, Ecological Research, Ecology, Ecology Letters, Ecosystems, Frontiers in Ecology and Environment, Functional Ecology, Geoderma, Global Biogeochemical Cycles, Global Change Biology, Journal of Environmental Quality, Journal of Integrative Plant Biology, Nature Geosciences, New Phytologist, Oecologia, Plant and Soil, Restoration Ecology, Science, Science of the Total Environment, Soil Science, Soil Science Society of America Journal, and Soil Biology and Biochemistry (*in alphabetical order*).

### Internal Professional Service

- 2019 – present** **Member**, Bylaws Committee, College of Agriculture, Biotechnology and Natural Resources, UNR.
- 2019 – present** **Chair**, Awards Committee, College of Agriculture, Biotechnology and Natural Resources, UNR.
- 2019** **Reviewer**, Graduate Student Research Proposal Awards, UNR.
- 2017 – 2019** **Curriculum Development for Soil Biogeochemistry Track**. Creation of new undergraduate concentration within the NRES Environmental Science Undergraduate Major, Natural Resources and Environmental Science, UNR.
- 2016 – present** **Member**, Space Committee, Natural Resources and Environmental Science, UNR
- 2016** **Member**, Search Committee, Director of Graduate Program of Hydrologic Sciences, UNR.
- 2014 – 2017** **Member**, Curriculum Committee, Graduate Program of Hydrologic Sciences, UNR.

- 2014 – 2016 **Member**, Awards Committee, Graduate Program of Hydrologic Sciences, UNR.
- 2014 – 2017 **Member**, Assessment Committee, Graduate Program of Hydrologic Sciences, UNR.
- 2014 **Member**, Search Committee, Soil Scientist, Natural Resources and Environmental Science, UNR.
- 2014 **Member**, Search Committee, Ecohydrologist, Natural Resources and Environmental Science, UNR.
- 2013 – 2019 **Member**, Natural Resources and Environmental Science Awards Committee (**Chair in 2015**), UNR.
- 2013 – 2017 **Faculty Presenter**, UNR Nevada Agricultural Experiment Station Field Day for Community outreach.
- 2012 **Judge**, International Student Water Forum, Reno, UNR.
- 2012 **Member**, Search Committee, Executive Director for Division of Earth and Ecosystem Sciences, DRI.
- 2011 – 2012 **Member**, Promotion Guidelines Committee, DRI.
- 2009 **Member**, Faculty Retention Committee, DRI.
- 2006 – 2008 **Member**, Institutional Bylaws Committee, DRI.
- 2006 **Chair**, Institutional Advancement Reallocation Committee (part of an institutional effort to reallocate financial resources), DRI.
- 2006 **Member**, Search Committee, Vice President for Financial Affairs, DRI.
- 2005 – 2006 **Chair**, Faculty Senate, DRI.
- 2004 – 2008 **Member**, Program and Budget Committee, DRI.
- 2004 – 2005 **Vice Chair**, Faculty Senate, DRI.
- 2004 – 2005 **Chair**, Program and Budget Committee, DRI.
- 2004 **Chair**, Promotion Incentives Committee, DRI.
- 2003 – 2006 **Member**, Faculty Senate, DRI.
- 2001 **Chair**, Search Committee, Plant Ecologist, Division of Earth and Ecosystem Sciences, DRI.
- 2000 **Chair**, Search Committee, Terrestrial Ecosystem Modeler, Division of Earth and Ecosystem Sciences, DRI.

### **Media Appearances and Related Activities**

- 2013 **KRNV NBC News, Reno, NV**. Interviewed about the possible long-term consequences of the Yosemite wildfires (Rim Fire) on forest ecosystems.
- 2010 **Workshop Participant, “Science: Becoming the Messenger.”** NSF-EPSCoR sponsored workshop on media training to enhance my skills dealing with the public media.
- 2008 **Nederlandse Omroep Stichting (Dutch National Public Radio), The Netherlands**. Interviewed in response to our article on climate change published in *Nature* (Arnone et al., 2008).
- 2008 **KTVN CBS News, Reno, NV**. Interviewed about the possible consequences of elevated atmospheric CO<sub>2</sub> concentrations on local ecosystems.

## Local Community Service and Outreach

- 2015**            **Judge**, Future Farmers of America, Nevada State Convention soil judging competition.
- 2014 – present**    **Scientific Advisor**, Truckee Meadows Park Foundation. Advising on the development of scientific studies for high school students using park facilities.
- 2011 – 2014**        **Board Member, For The Love of Jazz**, Reno. Local grant writing for the arts. Awarded Grant from Nevada Arts Council to fund concert at UNR to celebrate Black History Month.
- 2007 – 2009**        **Mentor**, High School student participating in INTEL International Science and Engineering Fair.
- 2006**                **Guest Speaker**, Galena High School science teachers.
- 2006**                **Community Outreach Tour Leader**, DRI Open House, demonstrated DRI ecological research facilities for Open House (approximately 1,000 visitors).
- 2006**                **Mentor**, Development of scientific research projects for High Desert Montessori School middle school students.
- 2004**                **Reviewer**, Davidson Academy for Gifted and Talented High School, Reno.
- 2002**                **Guest Speaker**, Nevada Association of High School Teachers.
- 2002**                **Guest Speaker**, Echo Loder Elementary School Career Day.
- 2002**                **Guest Speaker**, Truckee Meadows Community College, Science Club.
- 2001**                **Mentor**, High school students interested in pursuing a career in Biology.
- 2000 – 2003**        **Science Fair Judge**, Mount Rose Elementary School.
- 1998 – 2013**        **Public Relations Tour Leader**; I gave 5 - 10 tours per year of DRI ecological research facilities for local, state and national government officials, DRI Foundation members, scientific conference attendees, and other interested groups and individuals.