Charles Pepe-Ranney

Cornell University
Department of Crop and Soil Sciences
Buckley Lab
Ithaca, NY 14850

Phone: (575) 313-0993
Email: chuck.peperanney@gmail.com

Professional Preparation

B.S. Engineering (high honors) - Environmental Science Specialty, Colorado School of Mines 2006.

M.S. Environmental Engineering - Biotechnology and Environmental Microbiology Emphasis, Colorado School of Mines 2009.

PhD Environmental Science and Engineering Division, Colorado School of Mines 2012.

Relevant Experience

Proficient with **Python**, **R**, Latex, Bash scripting and **Linux system administration**. Experience with Perl, javascript, PostgreSQL, MySQL

Thorough understanding and fluent with many data science/bioinformatics libraries including IPython notebooks, GGPlot2 (R), Matplotlib (Python), Pandas (Python), phyloseq (R), plyR/dplyR/tidyR (R) , QIIME, Mothur, Khmer, and BioPython. Experience with Bokeh (Python), D3.js (my bl.ocks: bl.ocks.org/chuckpr), ggvis (R) and lattice (R).

Currently taking online courses for the **Data Science Signature Track** with Coursera – Passed and received verified certificate with distinction for The Data Scientist's Toolbox, R Programming, Exploratory Data Analysis, Statistical Inference, and Regression Models courses.

Experience developing amplicon sequencing protocols from the ground up for next-generation-sequencing technologies (454 and Illumina) with SSU rRNA genes and Fungal ITS amplicons.

Appointments

Research Assistant, Environmental Science and Engineering Division, Colorado School of Mines (2006-2012)

Postdoctoral Researcher, Laboratory of Daniel H Buckley, Department of Crop and Soil Sciences, Cornell University (2013-present)

Teaching Fellow, Marine Biology Laboratory (Microbial Diversity Course) (2010-2014)

Awards and Fellowships

2010, 2011, 2012 and 2013 Teaching fellow for the Microbial Diversity Course at the Marine Biological Laboratory, Woods Hole. Course Directors: Daniel Buckley and Steve Zinder.

2006 Outstanding Graduating Senior Award, Colorado School of Mines - Envirnomental Science and Engineering Division

2005 and 2006 Department of Energy Science Undergraduate Laboratory Internship (SULI) at Idaho National Lab

2006 INL Undergraduate Scholarship

Publications in Refereed Journals

Pepe-Ranney C, Berelson WM, Corsetti FA, Treants M, Spear JR. **Cyanobacterial construction of hot spring siliceous stromatolites in Yellowstone National Park, Wyoming**, 2012, *Environmental Microbiology* 14(5), 1182-1197. link

Berelson WM, Corsetti FA, Pepe-Ranney C, Hammond DE, Beaumont W, Spear JR. **Hot spring siliceous stromatolites in Yellowstone National Park: assessing growth rates and laminae formation**, 2011, *Geobiology* 9(5), 411-424. link

Osburn MR, Sessions AL, Pepe-Ranney C, Spear JR. **Hydrogen-isotopic variability in fatty acids from Yellowstone National Park hot spring microbial communities**, 2011, *Geochimica et Cosmochimica Acta* 75(17), 4830-4845. link

Bräuer S, Vuono D, Carmichael M, Pepe-Ranney C, Strom A, Rabinowitz E, Buckley DH, Zinder S. **Microbial sequencing analyses suggest the presence of a fecal veneer on indoor climbing wall holds.**, 2014, *Current Microbiology* link

Pepe-Ranney C, Koechli C, Potrafka R, Garcia-Pichel F, Andam C, Eggleston E, Buckley DH. **Non-cyanobacterial diazotrophs mediate dinitrogen fixation in biological soil crusts during early crust formation.**
Accepted by at *ISMEJ*, May 2015.
Preprint: http://dx.doi.org/10.1101/013813
Code for sequence analysis and manuscript figures can be found here:
github.com/chuckpr/NSIP_data_analysis

Submitted Journal Articles

Pepe-Ranney C and Hall EK. **The effect of carbon subsidies on planktonic niche partitioning and recruitment during biofilm assembly.**
In review at *Frontiers of Aquatic Microbiology*.
Preprint: http://dx.doi.org/10.1101/013938
Manuscript figures and corresponding code can be found here:
github.com/chuckpr/BvP_manuscript_figures/

Journal Articles in Preparation

Pepe-Ranney C* and Campbell A*, Koechli C, Berthrong S, Buckley DH. **Charting the flow of carbon through a soil microbial community with high resolution DNA stable isotope probing.**
*co-first authors
Code for manuscript figures can be found here:
nbviewer.ipython.org/github/chuckpr/CSIP_succession_data_analysis

Wallace B, Roberts A, Pollet R, Venkatesh M, Guthrie L, O'Neal S, Ingle J, Robinson S, Dollinger M, Figueroa E, McShane S, Jin J, Frye S, Zamboni W, Pepe-Ranney C, Mani S, Kelly L, and Redinbo M. **Structure and Inhibition of Firmicutes Bacterial b-Glucuronidases to Alleviate Drug-Induced GI Toxicity**
Contributed figure: link

Pepe-Ranney C, Campbell A, Buckley DH. **Community genomics of soil cellulose degraders discovered by nucleic acid stable isotope probing**
Code for manuscript figures can be found here:
nbviewer.ipython.org/github/chuckpr/CG-SIP/tree/master/

Koechli C, Pepe-Ranney C, Campbell A, Buckley DH. **Mapping carbon flow through both 16S rRNA and 16S rRNA genes from an agricultural soil using stable isotope probing provides insights into bacterial metabolism.**

Hahn C, Hall EK, Pepe-Ranney C, Oyler-McCance S. **Evaluating the gut and cloacal bacterial community of cowbirds: a potential mechanism for enhanced immunity.**
Code for sequence analysis and manuscript figures can be found here:
nbviewer.ipython.org/github/chuckpr/cowbird

Invited Talks

[14] C and microbial diversity study of Yellowstone siliceous stromatolites: searching for the depositional community. 2009. Microbiology Supergroup, University of Colorado - Boulder.

Cyanobacterial construction of finely laminated siliceous stromatolites in a Yellowstone National Park hot spring. 2012. Astrobiology Science Conference - Microbes in Lithifying Systems.

Last updated: May 28, 2015