Charles Pepe-Ranney

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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 tools 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).

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

Appointments

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

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

Teaching Fellow - Microbial Diversity Course, Marine Biological Laboratory (Woods Hole, MA) (2010-2014)

Awards and Fellowships

2015 Poster Prize, AEM Gordon Research Seminar

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 - Environmental Science and Engineering Division

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

2006 Idaho National Lab 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

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.**, 2015, *ISMEJ* Epub ahead of print. link
Code for sequence analysis and manuscript figures can be found here:
github.com/chuckpr/NSIP_data_analysis

Pepe-Ranney C and Hall EK. **The effect of carbon subsidies on planktonic niche partitioning and recruitment during biofilm assembly.**, 2015, *Frontiers in Microbiology*, 6:703. link
Code for sequence analysis and manuscript figures can be found here:
github.com/chuckpr/BvP_manuscript_figures

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* 69(5), 681-689. link

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**
In press *Chemistry & Biology*
Contributed figure: link

Available preprints

Pepe-Ranney C*, Campbell A*, Koechli C, Berthrong S, Buckley DH. **Unearthing the microbial ecology of soil carbon cycling with DNA-SIP** *co-first authors
Submitted to *Nature Microbiology*. Preprint: http://dx.doi.org/10.1101/022483
Code for manuscript figures can be found here:
github.com/chuckpr/CSIP_succession_data_analysis

Ongoing Projects

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

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.**
Current analyses and 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.