

# JARROD J. SCOTT

## an old-school naturalist using new-school tech

I study the organization of microbial diversity. I do my best to take a holistic approach to build & see the bigger picture. My work is systems agnostic, meaning my studies span ecosystems, from the forest floor to the ocean floor. I am interested in making science accessible & exciting as well as transparent & reproducible. I use open-source tools to build web products that communicate many aspects of my science.



## CURRENT APPOINTMENT

2017 -

### STRI/Moore Foundation Postdoctoral Fellow

Smithsonian Tropical Research Institute

📍 Panama

- Transisthmian microbial ecology of coral reefs & mangrove ecosystems in the Western Atlantic & the Tropical Eastern Pacific of Panama.



## EDUCATION

2011  
|  
2006

### PhD Microbiology

University of Wisconsin–Madison

📍 Madison, Wisconsin USA

- Microbial ecology of fungus growing insects

2002  
|  
1998

### BSc Aquatic Biology/Archaeology

University of Texas–Austin

📍 Austin, Texas USA



## PRIOR RESEARCH & PROFESSIONAL EXPERIENCE

2016  
|  
2012

### Postdoctoral Research Associate

Bigelow Laboratory for Ocean Sciences 📍 East Boothbay, Maine USA

- Deep-sea hydrothermal vent microbial ecology.

2011  
|  
2010

### Graduate Fellow

College of Agriculture & Life Science

📍 Madison, Wisconsin USA

University of Wisconsin–Madison

2010  
|  
2009

### Predoctoral Fellow

Smithsonian Tropical Research Institute

📍 Gamboa, Panama

Smithsonian Institution



## MARINE FIELD EXPERIENCE

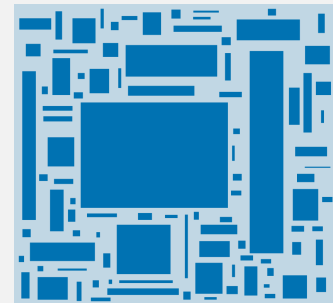
2020  
|  
2017

### Research Expeditions to Isla Coiba

Smithsonian Tropical Research Institute

📍 Isla Coiba, Panama

5 different trips over the past 3 years



## CONTACT INFO

✉ [jarrod.jude.scott@gmail.com](mailto:jarrod.jude.scott@gmail.com)

🔗 [github.com/jarroddscott](https://github.com/jarroddscott)

📞 +1 512 782-9595

📞 +507 6733-6268

[ORCID](#)

[Click here](#) for a pdf of this CV.

## SKILLS

Extensive experience conducting both marine & terrestrial field work.

PADI Rescue Diver certification.

Fire Fighter I & II certification.

Highly skilled analyzing DNA datasets (amplicon, genomic, & metagenomic).

Computational expertise include [anvi'o](#), [R](#), [R Markdown](#), [Hugo](#), [Python](#).

Use [this link](#) to learn more about Isla Coiba.

- 2014 ● **R/V Revelle & ROV Jason II (cruise RR1413)**  
[Submarine Ring of Fire - Ironman Cruise](#) 📍 Mariana BackArc Basin  
 November 23 – December 21
- 2014 ● **R/V Atlantic Explorer (cruise AE1410)**  
[Chief Scientist Training Cruise](#) 📍 Barbados to Bermuda  
 May 31 – June 10
- 2013 ● **R/V Thompson, ROV Jason II, & AUV Sentry (cruise TN293)**  
[FeMo Deep Iron Eaters](#) 📍 Lō'ihi Seamount, Hawaii  
 March 4 – April 1
- 2012 ● **R/V Knorr & ROV Jason II (cruise KN209-02)**  
[Woods Hole Oceanographic Institution](#) 📍 Mid-Atlantic Ridge  
 October 16 – November 14
- 2001 ● **R/V Longhorn**  
 University of Texas-Austin 📍 Gulf of Mexico



## TERRESTRIAL FIELD EXPERIENCE

- 2010 | 2008 ● **Microbial Ecology of Fungus-Growing Ants**  
 Smithsonian Tropical Research Institute 📍 Gamboa, Panama
  - Four separate research trips to various locations in Panama
  - Included a 15-months at the STRI station in Gamboa
  - Conducted field & lab experiments with fungus-growing ants
- 2004 | 2001 ● **Biogeography of Fungus-Growing Ants**  
 University of Texas 📍 Mexico & Panama  
 Multiple field expeditions to understand the biogeography of fungus-growing ants & their fungal symbionts.
- 2001 | 2000 ● **Molecular Ecology of Cichlids in Northern Mexico**  
 University of Texas 📍 Coahuila, Mexico  
 Molecular analysis of cichlid fish endemic to aquifer fed pools of the Cuatro Ciénegas Basin.
- 1998 ● **Mayan Archaeological Surveys**  
 University of Texas 📍 Northwestern Belize  
 Extensive surveys & excavations of Mayan archaeological sites in lowland tropical rain forests.



## RECENT TEACHING EXPERIENCE

All research cruises from 2012 - 2014 were to study the microbial ecology of deep-sea hydrothermal systems, specifically iron-oxidizing communities.

The majority of my field experience in terrestrial systems involves studies of fungus-growing ants in the Neotropics.

2020 ● **Course Instructor**  
STRI-McGill Tropical Biology Field Course 📍 Panama

- Guide students in project design & implementation.
- Help students make reproducible analytical workflows using R Markdown.
- Share general knowledge of neotropical marine & terrestrial ecosystems.
- Conduct field work with students.

Multiple field sites around Panama including Barro Colorado Island, Ft Sherman Canopy Crane, Pipeline Road Forests, & Isla Coiba.

[Click here](#) for the course blog & [here](#) for the course website.

2019 ● **Marine Biology Instructor**  
STRI-McGill Tropical Biology Field Course 📍 Isla Coiba, Panama

- Guide students in project design & implementation.
- Conduct field work with students.
- Taught snorkeling class for inexperienced students.

## + ADDITIONAL TRAINING & CERTIFICATIONS

2018 ● **PADI Rescue Diver Certification Course**  
Panama Dive School 📍 Bocas del Toro, Panama

2017 ● **PADI Advanced Open Water Diver Certification Course**  
Panama Dive School 📍 Bocas del Toro, Panama

2017 ● **PADI Open Water Diver Certification Course**  
Panama Dive School 📍 Bocas del Toro, Panama

2016 ● **PoreCamp**  
University of Exeter Sequencing Center 📍 Penryn, England  
1-week hands-on training bootcamp on deploying Oxford Nanopore's portable sequencing technology, the MinION.

2015 ● **Complex System Summer School**  
Santa Fe Institute 📍 Sante Fe, New Mexico USA  
4-week intensive course on complex systems.

[Click here](#) to access the the proceedings for the 2015 CSSS.

2014 ● **UNOLS Chief Scientist Training Cruise**  
The University-National Oceanographic Laboratory System 📍 Barbados to Bermuda.  
2-week course on how to effectively plan for, acquire, utilize, & report on time at sea for multi-disciplinary research & education.

[Click here](#) to access the final report from the 2014 UNOLS training cruise.

2013 ● **Fire Fighter I & II. NFPA 1001-2006**  
Southern Maine Community College 📍 Portland, Maine USA  
Year-long training course for Fire Fighter I & II Certification.

2007 ● **Microbial Diversity Course**  
Marine Biological Labs 📍 Woods Hole, Massachusetts USA  
6-week intensive course on discovering, cultivating, & isolating diverse microbes that catalyze a breadth of chemical transformations. Additional training includes molecular and computational analyses.

2001 ● **Marine Botany & the Biology of Fish**  
University of Texas Marine Science Institute. 📍 Port Aransas, Texas USA

1998



### Archaeological Field Techniques

The Programme for Belize Archaeological Project

📍 Orange Walk District, Belize

Intensive field course in the Rio Bravo Conservation area on Mayan art, architecture, and iconography. Hosted by University of Texas–Austin.



## FELLOWSHIPS

2014

2012



### Smithsonian Institution Biodiversity Genomics Postdoctoral Fellowship

*declined*

📍 Panama

2011

2010



### Wisconsin Distinguished Graduate Fellowship

College of Agriculture & Life Science

📍 University of Wisconsin–Madison

2010

2009



### Smithsonian Institution Predoctoral Fellowship

Smithsonian Tropical Research Institute

📍 Panama



## PEER REVIEWED PUBLICATIONS

2020



### Intestinal microbes: an axis of functional diversity among large marine consumers

Proceedings of the Royal Society B: Biological Sciences *In Press*

Scott JJ, Adam TC, Duran A, Burkepile DE, Rasher DB.

2020



### A Genus definition for Bacteria and Archaea based on a standard genome relatedness index

[mBio 11\(2020\):e02475-19](#)

Barco RA, Garrity GM, Scott JJ, Amend JP, Nealson KH, Emerson D.

2018



### Biological rejuvenation of iron oxides in bioturbated marine sediments.

[The ISME Journal. 12\(2018\):1389-1394.](#)

Beam JP, Scott JJ, McAllister SM, Chan CS, McManus J, Meysman FJ, Emerson D.

2017



### Bringing microbial diversity into focus: high-resolution analysis of iron mats from the Lō'ihi Seamount.

[Environmental Microbiology. 19\(2017\):301-316.](#)

Scott JJ, Glazer BT, Emerson D.

2017



### Physiological and ecological implications of an iron-or hydrogen-oxidizing member of the Zetaproteobacteria,

*Ghiorsea bivora*, gen. nov., sp. nov.

[The ISME Journal. 11\(2017\):2624-2636.](#)

Mori JF, Scott JJ, Hager KW, Moyer CL, Küsel K, Emerson D.

[Click here](#) for the project website & reproducible workflows from this paper.

- 2017 ● **Biogeography of mutualistic fungi cultivated by leafcutter ants.**  
[Molecular Ecology. 26\(2017\):6921-6937.](#)  
 Mueller UG, Ishak HD, Bruschi SM, Smith CC, Herman JJ, Solomon SE, Mikheyev AS, Rabeling C, **Scott JJ**, Cooper M, Rodrigues A.
- 2017 ● ***In situ* estimates of iron-oxidation and accretion rates for iron-oxidizing bacterial mats at Lō'ihi Seamount.**  
[Deep Sea Research Part I: Oceanographic Research Papers. 126\(2017\):31-39.](#)  
 Emerson D, **Scott JJ**, Leavitt A, Fleming E, Moyer C.
- 2016 ● **Exploring the "SHARKCANO": biogeochemical observations of the Kavachi Submarine Volcano (Solomon Islands).**  
[Oceanography. 29\(2016\):160-169.](#)  
 Phillips BT, Dunbabin M, Henning B, Howell C, DeCiccio A, Flinders A, Kelley KA, **Scott JJ**, Albert S, Carey S, Tsadok R.
- 2015 ● **Microbial iron mats at the Mid-Atlantic Ridge and evidence that Zetaproteobacteria may be restricted to iron-oxidizing marine systems.**  
[PLoS One. 10\(2015\):e0119284.](#)  
**Scott JJ**, Breier JA, Luther III GW, Emerson D.
- 2015 ● **Baleen whales host a unique gut microbiome with similarities to both carnivores and herbivores.**  
[Nature Communications. 6\(2015\):8285.](#)  
 Sanders JG, Beichman AC, Roman J, **Scott JJ**, Emerson D, McCarthy JJ, Girguis PR.
- 2015 ● **Microbial iron oxidation in the arctic tundra and its implications for biogeochemical cycling.**  
[Applied & Environmental Microbiology. 81\(2015\):8066-8075.](#)  
 Emerson D, **Scott JJ**, Benes J, Bowden WB.
- 2015 ● **Unique honey bee (*Apis mellifera*) hive component-based communities as detected by a hybrid of phospholipid fatty-acid and fatty-acid methyl ester analyses.**  
[PloS One. 10\(2015\):e0121697.](#)  
 Grubbs KJ, **Scott JJ**, Budsberg KJ, Read H, Balser TC, Currie CR.
- 2014 ● **Convergent bacterial microbiotas in the fungal agricultural systems of insects.**  
[mBio. 5\(2014\):e02077-14.](#)  
 Aylward FO, Suen G, Biedermann PH, Adams AS, **Scott JJ**, Malfatti SA, del Rio TG, Tringe SG, Poulsen M, Raffa KF, Klepzig KD.

- 2014 ● **Using *in situ* voltammetry as a tool to identify and characterize habitats of iron-oxidizing bacteria: from fresh water wetlands to hydrothermal vent sites.**  
[Environmental Science: Processes & Impacts 16\(2014\):2117-2126.](#)  
 MacDonald DJ, Findlay AJ, McAllister S, Barnett JM, Hredzak-Showalter P, Krepski ST, Cone SG, **Scott JJ**, Bennett SK, Chan CS, Emerson D, GW Luther III.
- 2013 ● ***Leucoagaricus gongylophorus* produces diverse enzymes for the degradation of recalcitrant plant polymers in leaf-cutter ant fungus gardens.**  
[Applied & Environmental Microbiology 79\(2013\):3770-3778.](#)  
 Aylward FO, Burnum-Johnson KE, Tringe SG, Teiling C, Tremmel DM, Moeller JA, **Scott JJ**, Barry KW, Piehowski PD, Nicora CD, Malfatti SA.
- 2013 ● **A phylogenetic analysis of the phylum Fibrobacteres.**  
[Systematic & Applied Microbiology. 36\(2013\):376-382.](#)  
 Jewell KA, **Scott JJ**, Adams SM, Suen G.
- 2012 ● **Metagenomic and metaproteomic insights into bacterial communities in leaf-cutter ant fungus gardens.**  
[The ISME Journal. 6\(2012\):1688-701.](#)  
 Aylward FO, Burnum KE, **Scott JJ**, Suen G, Tringe SG, Adams SM, Barry KW, Nicora CD, Piehowski PD, Purvine SO, Starrett GJ.
- 2011 ● **The genome sequence of the leaf-cutter ant *Atta cephalotes* reveals insights into its obligate symbiotic lifestyle.**  
[PLoS Genetics. 7\(2011\):e1002007.](#)  
 Suen G, Teiling C, Li L, Holt C, Abouheif E, Bornberg-Bauer E, Bouw-Jard P, Caldera EJ, Cash E, Cavanaugh A, Denas O, Elhaik E, Fav MJ, Gadau J, Gibson JD, Graur D, Grubbs KJ, Hagen DE, Harkins TT, Helmkamp M, Hu H, Johnson BR, Kim J, Marsh SE, Moeller JA, Muoz-Torres MC, Murphy MC, Naughton MC, Nigam S, Overson R, Rajakumar R, Reese JT, **Scott JJ** Smith CR, Tao S, Tsutsui ND, Viljakainen L, Wissler L, Yandell MD, Zimmer F, Taylor J, Slater SC, Clifton SW, Warren WC, Elsik CG, Smith CD, Weinstock GM, Gerardo NM, Currie CR.
- 2010 ● **Microbial community structure of leaf-cutter ant fungus gardens and refuse dumps.**  
[PloS One 5\(2010\):e9922.](#)  
**Scott JJ**, Budsberg KJ, Suen G, Wixon DL, Balser TC, Currie CR.
- 2010 ● **An insect herbivore microbiome with high plant biomass-degrading capacity.**  
[PLoS Genetics. 6\(2010\): e1001129.](#)  
 Suen G, **Scott JJ**, Aylward FO, Adams SM, Tringe SG, Pinto-Tomás AA, Foster CE, Pauly M, Weimer PJ, Barry KW, Goodwin LA.
- 2010 ● **Monoculture of leafcutter ant gardens.**  
[PLoS One. 5\(2010\):e12668.](#)  
 Mueller UG, **Scott JJ**, Ishak HD, Cooper M, Rodrigues A.

- 2009 ● **Polymorphic microsatellite markers for the symbiotic fungi cultivated by leaf cutter ants (Attini, Formicidae).**  
[Molecular Ecology Resources](#). 9(2009):1391-1394.  
Scott JJ, Weskinen MK, Cooper M, Mueller UG.
- 2009 ● **Mycangimycin, a polyene peroxide from a mutualist *Streptomyces* sp.**  
[Organic Letters](#). 11(2009):633-636.  
Oh DC, Scott JJ, Currie CR, Clardy J.
- 2009 ● **Bionectriol A, a polyketide glycoside from the fungus *Bionectria* sp. associated with the fungus-growing ant, *Apterostigma dentigerum*.**  
[Tetrahedron Letters](#). 50(2009):6834-6837.  
Freinkman E, Oh DC, Scott JJ, Currie CR, Clardy J.
- 2008 ● **Bacterial protection of beetle-fungus mutualism**  
[Science](#). 2008 322(5898):63.  
Scott JJ, Oh DC, Yuceer MC, Klepzig KD, Clardy J, Currie CR.

See accompanying Perspective:  
Bugs Bugs. Berenbaum MR, Eisner T. 2008. [Science](#). 322:52-53.

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