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 try to make my science accessible & exciting, transparent & reproducible. I use open-source tools to build web products that communicate 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 POSITIONS

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

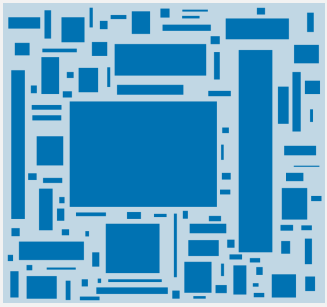
2010 | 2009

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 expeditions over the past 3 years



CONTACT INFO

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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 incl. 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 — Lo'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

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

TERRESTRIAL FIELD EXPERIENCE

2010 | 2008 **Microbial Ecology of Fungus-Growing Ants**
Smithsonian Tropical Research Institute — Panama
- Four expeditions to Panama
- 15-month residency at STRI
- 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 Cienegas Basin.

1998 **Mayan Archaeological Surveys**
University of Texas — Northwestern Belize
Extensive surveys & excavations of Mayan archaeological sites in lowland tropical rain forests.

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

RECENT TEACHING EXPERIENCE

2020 **Course Instructor**
STRI-McGill Tropical Biology Field Course — Panama
- Guide project design & implementation.
- Reproducible analytical workflows using R Markdown.
- Assist with field work.
- Natural history of neotropical marine & terrestrial ecosystems.

Field sites incl. Barro Colorado Island, Ft Sherman Canopy Crane, Pipeline Road Forests, Agua Salud & 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 project design & implementation.
- Assist with field work.
- 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 — Santa Fe, New Mexico USA
4-week intensive course on complex systems.

Click here for the 2015 CSSS proceedings.

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 for 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. Cultivating, & isolating diverse microbes. Molecular & computational analyses.

Click here to learn more.

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 on Mayan art, architecture, & iconography.

Learn more on the course website.

FELLOWSHIPS

2014 | 2012

Smithsonian Institution 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.

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.

Click here for the project website & reproducible workflows from this paper.

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, Bouard 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, Helmkampf 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, Weskin 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.