

SUMMARY

My approach to biological questions is interdisciplinary & systems-oriented. I am interested in how organisms coalesce into communities & how complex community interactions shape the structure & function of systems. I combine field work, molecular & computational methods, statistics, & advanced visualization methods to investigate how systems respond to change across scales. My work spans marine & terrestrial systems & integrates field observations, large data sets, analytical workflows, & cross-disciplinary collaboration into coherent narratives. I am passionate about transparent & reproducible science. I use open-source tools to create data-driven workflows that communicate science more effectively.

APPOINTMENTS

2025 2022	● Research Associate Smithsonian Tropical Research Institute	📍 Panama
2022 2017	● STRI/Moore Foundation Postdoctoral Fellow Smithsonian Tropical Research Institute	📍 Panama
2016 2012	● Postdoctoral Research Associate Bigelow Laboratory for Ocean Sciences	📍 Maine USA
2011 2010	● Wisconsin Distinguished Graduate Fellow University of Wisconsin	📍 Madison, Wisconsin USA
2010 2009	● Predoctoral Fellow Smithsonian Tropical Research Institute	📍 Gamboa, Panama
2005 2002	● Research Technician University of Texas	📍 Austin, Texas USA

EDUCATION

2012 2006	● PhD Microbiology University of Wisconsin-Madison	📍 Wisconsin USA
2002 1998	● BSc Aquatic Biology, Minor in Archaeology University of Texas at Austin	📍 Texas USA

FELLOWSHIPS

2014 2012	● Smithsonian Institution Genomics Postdoctoral Fellowship <i>declined</i>	📍 Washington DC, USA
2011 2010	● Wisconsin Distinguished Graduate Fellowship College of Agriculture & Life Science	📍 University of Wisconsin

Jarrold J Scott

Field biologist, systems ecologist, data scientist, interdisciplinary researcher.

CONTACT

✉ jarrod.jukebox308@slmail.me
🐙 github.com/jarroldscott
🔗 [ORCID](#)
🔗 [Google Scholar](#)
🌐 [web](#)

EXPERTISE

Field: Marine (deep sea vents, coral reefs, mangroves) & Terrestrial (temperate, tropical, forest, desert).

Lab: Sterile techniques, microscopy, culturing, & isolation.

Molecular: PCR, gel electrophoresis, DNA/RNA extraction, NGS.

Bioinformatic: Amplicon, genomic, & metagenomic analysis; biostatistics.

Visual: Translate complex datasets into visual narratives for data exploration, hypothesis generation, & communicating results.

Publishing: Interpret data, write papers, reproducible workflows.

Other: SCUBA Rescue Diver, 4x4 Off-Road Operations, Fire Fighter I & II certification, Knots.

TOOLS

Coding Languages: R, Python, Shell/Bash

Omic: *anvi'o*, DADA2, mothur, oligotyping, MED

Workflows: Quarto, RStudio, CSS, HTML, JavaScript, Hugo

Visuals: Gimp, Inkscape, Matplotlib, Plotly, Leaflet, ggplot2, tmap, Gephi, Cytoscape.

2010
|
2009

- Smithsonian Institution Predoctoral Fellowship
Smithsonian Tropical Research Institute  Panama



PEER REVIEWED PUBLICATIONS

- 2023 ● Contrasting drivers of abundant phage and prokaryotic communities revealed in diverse coastal ecosystems.
[ISME Communications 3, 127 \(2023\)](#) 
Weinheimer AR[‡], Aylward FO, Leray M, **Scott JJ**[‡].
- 2022 ● Microbial diversity declines in warmed tropical soil and respiration rise exceed predictions as communities adapt.
[Nature Microbiology 7, 1650–1660 \(2022\)](#)
Nottingham AT, **Scott JJ**, Saltonstall K, Broders K, Montero-Sanchez M, Püspök J, Bååth E, Meir P.
- 2022 ● The gut microbiome variability of a butterflyfish increases on severely degraded Caribbean reefs
[Communications Biology 5, 770 \(2022\)](#) 
Clever F, Sourisse JM, Preziosi RF, Eisen JA, Rodriguez Guerra EC, **Scott JJ**, Wilkins LGE, Altieri AH, McMillan WO, Leray M.
- 2021 ● Rapid ecosystem-scale consequences of acute deoxygenation on a Caribbean reef
[Nature Communications 12, 4522 \(2021\)](#) 
Johnson MD[‡], **Scott JJ**[‡], Leray M[‡], Lucey N[‡], Lucia Rodriguez L, Wied W, Altieri AH.
- 2020 ● Intestinal microbes: an axis of functional diversity among large marine consumers
[Proceedings of the Royal Society B: Biological Sciences 287:\(20192367\)](#) 
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.

[‡] **Corresponding Author**

[Project website](#) & reproducible workflows from this paper. Note: I do my best to publish open access articles. Sometimes I fail. If you have issue accessing any of my papers, please email me and I will pass along a pdf.

[Project website](#) & reproducible workflows from this paper

[Project website](#) & reproducible workflows from this paper.

[†] **Equal Contribution**

[Project website](#) & reproducible workflows from this paper.

[‡] **Corresponding Author**

Editor's Pick

- 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.
- 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.

[‡] **Corresponding Author**

[‡] **Corresponding Author**

† **Equal Contribution**

- 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.
- 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.

It might seem silly to include a paper where I am the 33rd author-and normally I would agree. However I collected the ants used to sequence the first leaf-cutter ant genome. I am quite proud of that. It also happens to be one of my favorite field stories.

- 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, Kweskin MK, Cooper M, Mueller UG.
- 2009 ● Mycangimycin, a polyene peroxide from a mutualist *Streptomyces*.
[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
Scott JJ, Oh DC, Yuceer MC, Klepzig KD, Clardy J, Currie CR.
[Science. 2008 322\(5898\):63.](#)

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

MARINE FIELD WORK

- 2024
|
2017 ● Western Tropical Atlantic
Extensive field work in mangrove, sea grass, and coral reef systems. Primary sites located along the Caribbean coast of Panama, with an emphasis in and around the Bocas del Toro archipelago.
 Panama
- 2024
|
2017 ● Tropical Eastern Pacific
Five expeditions to [Isla Coiba](#) and surrounding islands to study host-associated microbiomes in mangrove and coral reef ecosystems.
 Panama
- 2014 ● UNOLS Chief Scientist Training Cruise
[R/V Atlantic Explorer \(cruise AE1410\)](#)  Barbados → Bermuda
10 days at sea

- 2014 ● NOAA VENTS: Submarine Ring of Fire 2014 (Ironman)
[R/V Revelle \(cruise RR1413\)](#) 📍 Mariana BackArc Basin
 28 days at sea
- 2013 ● Ecology of Microbial Mats at Loihi Seamount
[R/V Thompson \(cruise TN293\)](#) 📍 Lo'ihi Seamount (Hawaii)
 28 days at sea
- 2012 ● Pyrite Nanoparticles from Mid-Atlantic Ridge Hydrothermal Vents
[R/V Knorr \(cruise KN209-02\)](#) 📍 Mid-Atlantic Ridge (Portugal -> USA)
 29 days at sea

Research cruises from 2012 to 2014 were focused on the microbial ecology of iron-oxidizing communities at deep-sea hydrothermal systems using the [ROV Jason II](#) & [AUV Sentry](#).



TERRESTRIAL FIELD WORK

- 2010 | 2008 ● Microbial Ecology of Fungus-Growing Ants
[Smithsonian Tropical Research Institute](#) 📍 Panama
 • Four expeditions to Panama • Field & lab experiments with fungus-growing ants
 • 15-month residency at STRI
- 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.
- 2000 ● Mayan Archaeological Surveys
 University of Texas 📍 Northwestern Belize
 Regional scale surveys of Mayan archaeological sites in lowland tropical rain forests.

A lot of my field experience in terrestrial systems is on fungus-growing ants in the Neotropics.



OTHER TRAINING & CERTIFICATIONS

- 2018 | 2017 ● PADI Open Water, Advanced Open Water, & Rescue Diver Certifications
 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 platform, the [MinION](#).
- 2015 ● Complex Systems Summer School (CSSS)
[Santa Fe Institute](#) 📍 New Mexico USA
 4-week intensive course on complex systems.

[Click here](#) to learn more.

[2015 CSSS proceedings.](#)

- 2014 ● **UNOLS Chief Scientist Training Cruise**
The University-National Oceanographic Laboratory System  Caribbean.
2-week course on how to effectively plan and run multi-disciplinary research & education cruises.
- 2013 ● **Fire Fighter I & II. NFPA 1001-2006**
Southern Maine Community College  Maine USA
Year-long training course for Fire Fighter I & II Certification.
- 2007 ● **Microbial Diversity Course**
Marine Biological Labs  Massachusetts USA
6-week intensive course. Cultivating, & isolating diverse microbes. Molecular & computational analyses.
- 2000 ● **Archaeological Field Techniques**
The Programme for Belize Archaeological Project  Belize
Intensive field course on Mayan art, architecture, & iconography.

Final report from the 2014 UNOLS training cruise.

Learn more on the [course website](#).

Learn more on the [course website](#).



RECENT TEACHING EXPERIENCE

- 2024
|
2019 ● **STRI-McGill NEO Tropical Biology Field Course**
Instructor & Data Specialist  Panama
- Guide project design & implementation.
 - Reproducible workflows using Quarto.
 - Assist students with field work.
 - Natural history of neotropical marine & terrestrial ecosystems.
 - Snorkeling class for inexperienced students.
- [Course tutorial website.](#)
- Field sites incl. [Barro Colorado Island](#), [Bocas del Toro](#), [Ft Sherman Canopy Crane](#), [Pipeline Road Forests](#), [Agua Salud](#) & [Isla Coiba](#), [Mount Totumas Cloud Forest](#).
- 2018 ● **Marine Microbiome Workshop**
Creator, Organizer, & Host  Bocas del Tora, Panama
From model organisms to ecosystems: scaling-up our understanding of host-microbe symbiosis in the sea.
- Conceived, created & designed workshop.
 - Workshop logistics & organization.
 - Led discussions & working groups.

I teach the way I learn. My goal is to create a venue where students can be curious, get their hands dirty, make mistakes, & explore. I'm here to help students see what's possible, not tell them what to do.

[Workshop website](#) & [publication](#) written by participants.



MEDIA FEATURES

- 2024 ● [Entangled](#)
STRI-McGill field course weaves together natural history, social science, tropical ecology, and cultural exchange
- 2021 ● [Picture the Unseen](#)
A community of scientists put microbial ecosystems back together again using anvi'o

I helped write this article. I preformed all of the analyses and created all figures.

- 2021 ● [Caribbean asphyxiation](#)
Desperate brittlestars, suffocating corals and resilient microbes: First multidisciplinary data from an acute marine hypoxic event and its historical context
- 2018 ● [Eastern Tropical Pacific](#)
Marine expedition launched from new Coibita station
- 2016 ● [It's complicated](#)
Why study symbiotic relationships in Panama?
- 2013 ● Cover Photo for [Applied & Environmental Microbiology](#) 79(12)
- 2010 ● Cover Photo for [PLoS Genetics](#) Vol. 6(9)



WEB PRODUCTS & WORKFLOWS

As part of my work I create data-driven workflows, presentations, & project sites using R, Python, & [Quarto](#)—an open-source scientific & technical publishing system.

- 2024 ● [Istmobiome Project](#)
Reproducible bioinformatic workflows for the Istmobiome microbiome project. Project Website & Reproducible Workflows
- 2022 ● [SWELTR](#)
Reproducible bioinformatic workflows for the study **S**oil **W**arming **E**xperiment in **L**owland **T**ropical **R**ainforest. Reproducible Workflow
- 2022 ● [R Markdowng Fielduide](#)
Web project guide book for 2022 STRI-McGill NEO Tropical Biology Field Course. Course
- 2022 ● [BocasBiome](#)
Reproducible bioinformatic workflows for the study *The gut microbiome stability of a butterflyfish is disrupted on severely degraded Caribbean reef habitats..* Reproducible Workflow
- 2021 ● [Hypocolypse](#)
Reproducible bioinformatic workflows for the study *Rapid ecosystem-scale consequences of acute deoxygenation on a Caribbean reef.* Reproducible Workflow
- 2020 ● [ProjectDIGEST](#)
Reproducible bioinformatic workflows for the study *Intestinal microbes: an axis of functional diversity among large marine consumers.* Reproducible Workflow
- 2020 ● [Cacao Fermentation](#)
Talk about the microbiology of cacao fermentation. Public Presentation

2020



Rethinking the Diversity of Life

Talk about understanding diversity through a molecular lens.

Public Presentation

2019



How the Isthmus of Panama Changed the World

Talk about how life changed on land & in the sea after the closure of the Isthmus of Panama.

Public Presentation

The source code for this cv is available on [GitHub](#). I made it with the R package [pagedown](#) and help from the Internet, especially [nstrayer's cv repo](#).

Last updated on 2026-08-25.