

Sara L. Jackrel
Ecology, Behavior, and Evolution
University of California, San Diego
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EMPLOYMENT

University of California, San Diego

Assistant Professor, Department of Ecology, Behavior and Evolution
School of Biological Sciences

La Jolla, CA
March 2020 - Present

University of Michigan

Post-doctoral Fellow, Dow Sustainability Fellow
Advisor: Vincent J. Denef, Co-Advisor: Bradley J. Cardinale

Ann Arbor, MI
2016 - 2019

EDUCATION

The University of Chicago

PhD, Ecology and Evolution, Advisor: J. Timothy Wootton
Dissertation: Drivers and consequences of intraspecific trait variation: ecology of a forest-stream community.

Chicago, IL
2010 - 2016

The College of New Jersey

B.S. Biology, *Summa Cum Laude*, Full Merit Scholarship

Ewing, NJ
2006 – 2010

PUBLICATIONS

*: Corresponding author

†††: postdoctoral mentee

††: graduate mentee

†: undergraduate mentee

J.M. Kelliher et al. In press. The standards for technical reporting in environmental and host-associated microbiome studies (streams) guidelines. *Nature Microbiology*.

S. Morton, G. Vucelic-frick, †††J.R. Dickey, B. Rajput, ††C.J. Spiegel, †D. Loomis, **S.L. Jackrel**, M. Burkart, J.B. Shurin. In press. Microplastic pollution induces algae blooms in experimental ponds but bioplastics are less harmful. *Communications Sustainability*.

††T.Y. Broe, ††A. Fabiani, ††M.C.M. Kuijpers and ***S.L. Jackrel**. In Press. Cascading effects of plant hormone-induced trait shifts in *Alnus rubra* on aquatic and terrestrial ecosystem function. *Journal of Chemical Ecology*.

†††P.S. White, ††T.Y. Broe, ††M.C.M. Kuijpers, †††J.R. Dickey and ***S.L. Jackrel**. In Press. Host identity drives the assembly of phytoplankton microbiomes across a continental scale environmental gradient. *The ISME Journal*.

- Editors' Choice Article

M.Y. Demmel, C.B. Wall, ††C.J. Spiegel, N. Erazo, E. Diaz, M. Perreault, †††E. Perez-Coronel, **S.L. Jackrel**, J.S. Bowman, J.B. Shurin. In Press. Wildfire-driven changes in terrestrial subsidies shift freshwater zooplankton and microbial communities to new compositional states. *Molecular Ecology*.

Echenique-Subiabre, I., **S.L. Jackrel**, J. McCarren, C.C. James, †††E. Perez-Coronel, C. Tran, M. Perreault, U. Farah, †††P.S. White, H. Baker, C.B. Wall, L. Sager, S. Becker, A. Barton and J.B. Shurin. 2025. Microbial community traits determine dispersal and colonizing abilities. *Applied and Environmental Microbiology* 91.3: e02055-24.

††M.C.M. Kuijpers, C.V. Quigley, N.C. Bray, †W. Ding, J.D. White and ***S.L. Jackrel**. 2025. Genotypic divergence within *Microcystis aeruginosa* mediates the dynamics of freshwater harmful algal blooms under climate warming scenarios. *Proceedings of the Royal Society B*. 292:20242520.

- †††J.R. Dickey, ††N.M. Mercer, ††M.C.M. Kuijpers, R. Props, and ***S.L. Jackrel**. 2025. Biodiversity within phytoplankton-associated microbiomes regulates host physiology, host community ecology, and nutrient cycling. *mSystems* e01462-24.
- Zuffa, S., R. Schmid, A. Bauermeister, P.W.P. Gomes, A.M. Caraballo-Rodriguez, Y. El Abiead, A.T. Aron, E.C. Gentry, J. Zemlin, M.J. Meehan, N.E. Avalon, R.H. Cichewicz, E. Buzun, M.C. Terrazas, C. Hsu, R. Oles, A.V. Ayala, J. Zhao, H. Chu, ††**M.C.M. Kuijpers**, **S.L. Jackrel**, F. Tugizimana, L.P. Nephali, I.A. Dubery, N.E. Madala, E.A. Moreira, L.V. Costa-Lotufo, N.P. Lopes, P. Rezende-Teixeira, P. C. Jimenez, B. Rimal, A.D. Patterson, M.F. Traxler, R. de Cassia Pessotti, D. Alvarado-Villalobos, G. Tamayo-Castillo, P. Chaverri, E. Escudero-Leyva, L. Quiros-Guerrero, A. Jean Bory, J. Joubert, A. Rutz, J. Wolfender, P. Allard, A. Sichert, S. Pontrelli, B.S. Pullman, N. Bandeira, W.H. Gerwick, K. Gindro, J. Massana-Codina, B.C. Wagner, K. Forchhammer, D. Petras, N. Aiosa, N. Garg, M. Liebeke, P. Bourceau, K.B. Kang, H. Gadhavi, L.P.S. de Carvalho, M.S. dos Santos, A.I. Pérez-Lorente, C. Molina-Santiago, D. Romero, R. Franke, M. Brönstrup, A.V.P. de León, P.B. Pope, S.L. La Rosa, G.L. Barbera, H.M. Roager, M.F. Laursen, F. Hammerle, B. Siewert, U. Peintner, C. Licona-Cassani, L. Rodriguez-Orduña, E. Rampler, F. Hildebrand, G. Koellensperger, H. Schoeny, K. Hohenwallner, L. Panzenboeck, R. Gregor, E.C. O'Neill, E.T. Roxborough, J. Odoi, N.J. Bale, S. Ding, J.S.S. Damsté, X.L. Guan, J.J. Cui, K. Ju, D.B. Silva, F.M.R. Silva, G.F. da Silva, H.H.F. Koolen, C. Grundmann, J.A. Clement, H. Mohimani, K. Broders, K.L. McPhail, S.E. Ober-Singleton, C.M. Rath, D. McDonald, R. Knight, M. Wang, P.C. Dorrestein. 2023. A taxonomically-informed mass spectrometry search tool for microbial metabolomics data. *Nature Microbiology* 9.2:336-345.
- Wall, C.B., ††C.J. Spiegel, E. Diaz, C. Tran, ††A. Fabiani, ††T.Y. Broe, †††E. Perez-Coronel, **S.L. Jackrel**, N. Mladenov, C.C. Symons and J.B. Shurin. 2023. Fire transforms effects of terrestrial subsidies on aquatic ecosystem structure and function. *Global Change Biology* 30.1:e17058.
- ***Jackrel, S.L.**, J.D. White, †††E. Perez-Coronel and †R. Koch. 2023. Selection for oligotrophy among bacteria inhabiting host microbiomes. *mBio* e01415-23.
- ***Jackrel, S.L.** and ††T.Y. Broe. 2023. Intraspecific variation in leaf litter alters fitness metrics and the gut microbiome of consumers. *Oecologia* 202:769–782.
- †Baker, D., †J. Lauer, †A. Ortega, **S.L. Jackrel** and V.J. Denef. 2023. Effects of phycosphere bacteria on their algal host are host species-specific and not phylogenetically conserved. *Microorganisms* 11.62:1-15.
- Reinert, H.K., Leto A.E., Tumaliuan J.A., **Jackrel S.L.**, Lutterschmidt W.I., Bushar L.M., and R.A. Odum. 2021. A long-term dietary assessment of invasive *Boa constrictor* on Aruba. *Herpetological Conservation and Biology* 16.1:2110224.
- †K. Schmidt, **S.L. Jackrel**, D.E. Smith, G.J. Dick, and V.J. Denef. 2020. Genotype and host microbiome alter competitive interactions between *Microcystis aeruginosa* and *Chlorella sorokiniana*. *Harmful Algae* 99: 101939.
- ***Jackrel, S.L.**, J. Yang, †K. Schmidt, and V.J. Denef. 2020. Host-specificity of microbiome assembly and its fitness effects in phytoplankton. *The ISME Journal* 15.3:774-788.
- ***Jackrel, S.L.**, †K. Schmidt, B.J. Cardinale, and V.J. Denef. 2020. Microbiomes reduce their host's sensitivity to interspecific interactions. *mBio*. 11.1:e02657-19.
- **mBio Spotlight Article**
- ***Jackrel, S.L.**, J.A. Gilbert, and J.T. Wootton. 2019. The origin, succession, and predicted metabolism of bacterial communities associated with leaf decomposition. *mBio*. 10.5:e01703-19.
- ***Jackrel, S.L.**, J.D. White, J.T. Evans, †K. Buffin, †K. Hayden, O. Sarnelle, and V.J. Denef. 2019. Genome evolution and host microbiome shifts correspond with intraspecific niche divergence within harmful algal bloom-forming *Microcystis aeruginosa*. *Molecular Ecology*. 28.17:3994-4011.
- ***Jackrel, S.L.**, A. Narwani, B. Benthage, R.B. Levine, D.C. Hietala, P.E. Savage, T.H. Oakley, V.J. Denef and B.J. Cardinale. 2018. Ecological engineering helps maximize function in algal oil production. *Applied and Environmental Microbiology*. 84.15:e00953-18.
- **AEM Spotlight Article**
- ***Jackrel, S.L.** and T.C. Morton. 2018. Inducible phenotypic plasticity in plants regulates aquatic ecosystem functioning. *Oecologia*. 186.4:895-906.
- **Ehleringer Prize for outstanding paper published by student author in *Oecologia*.**

- ***Jackrel, S.L.**, S.M. Owens, J.A. Gilbert and C.A. Pfister. 2017. Identifying the plant associated microbiome across aquatic and terrestrial environments: The effects of primer type on taxa discovery. *Molecular Ecology Resources* 17.5:931-942.
- ***Jackrel, S.L.**, T.C. Morton and J.T. Wootton. 2016. Intraspecific leaf chemistry drives locally accelerated ecosystem function in aquatic and terrestrial communities. *Ecology* 97.8:2125-2135.
- ***Jackrel, S.L.** and J.T. Wootton. 2015. Diversity of riparian plants among and within species shapes river communities. *PLoS One* 10.11:e0142362.
- ***Jackrel, S.L.** and J.T. Wootton. 2015. Cascading effects of induced terrestrial plant defences on aquatic and terrestrial ecosystem function. *Proceedings of the Royal Society B* 282.1805:20142522.
- ***Jackrel, S.L.** and J.T. Wootton. 2014. Local adaptation of stream communities to intraspecific variation in a terrestrial ecosystem subsidy. *Ecology* 95.1:37-43.
- Jackrel, S.L.** and H.K. Reinert. 2011. Behavioral responses of a dietary specialist, Queen Snakes (*Regina septemvittata*), to potential chemoattractants released by its prey. *Journal of Herpetology* 45.3:272-276.
- Heise-Pavlov, S.R., **S.L. Jackrel** and S. Meeks. 2011. Conservation of a rare arboreal mammal: habitat preferences of the Lumholtz's tree-kangaroo, *Dendrolagus lumholtzi*. *Australian Mammalogy* 33.1:5-12.
- Jackrel, S.L.** and R.S. Matlack. 2010. Influence of surface area, water level, and adjacent vegetation on bat use of artificial water sources. *American Midland Naturalist* 164.1:74-79.
- Klug, P.E., **S.L. Jackrel** and K.A. With. 2010. Linking snake habitat use to nest predation risk in grassland birds: the dangers of shrub cover. *Oecologia* 162.3:803-813.

NATIONAL HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship Program	2010
Barry M. Goldwater Scholarship	2009
Morris K. Udall Scholarship for the Environment	2008 and 2009
National College Leadership Council of the Jane Goodall Institute	2007 – 2010

RESEARCH FUNDING

2025 – 2026: DOE-JGI New Investigator Community Science Program: Integrating metatranscriptomics and metabolomics to reveal key microbial metabolic traits underlying aquatic ecosystem function. 3 Tb of shotgun sequencing. Role: Co-PI with my PhD student Cody Spiegel as PI.

2021 – 2026: NIH NIGMS R35 Maximizing Investigators' Research Award: Identifying the rules governing host-microbiome composition and function. \$1,975,000. Role: PI

2020 – 2021: DOE-JGI New Investigator Community Science Program: Bacterial drivers of the home-field advantage and the role of locally accelerated litter decomposition in the carbon cycle. 500 Gb of shotgun metagenomics. Role: PI

2016 – 2018: University of Michigan Dow Sustainability Postdoctoral Fellowship. \$15,000.

2014 – 2015: Achievement Rewards for College Scientists (ARCS) Foundation. \$20,000.

2014: American Society of Naturalists Student Research Grant. Aquatic microbe community change in response to intraspecific variation in a terrestrial ecosystem subsidy. \$2,000.

2014: National Geographic Society Young Explorer's Grant. Local adaptation in aquatic communities to intraspecific variation in a terrestrial ecosystem subsidy. \$5,000.

2013: National Science Foundation Doctoral Dissertation Improvement Grant. Drivers and consequences of intraspecific trait variation: Ecology of a forest-stream community. \$20,180.

TEACHING EXPERIENCE

UCSD BIEB 159: Microbiome Function Lab	Spring 2025
UCSD BIEB 194: Microbial Ecology	Fall 2022
UCSD BIEB 102: Introduction to Ecology	Winter 2022 - Present

Sara L. Jackrel

University of Michigan M-SCI Academies

Two-week research course designed to diversify the cohort of students pursuing STEM majors.

Summer 2019

Summer 2018

Current as of 11/20/2025